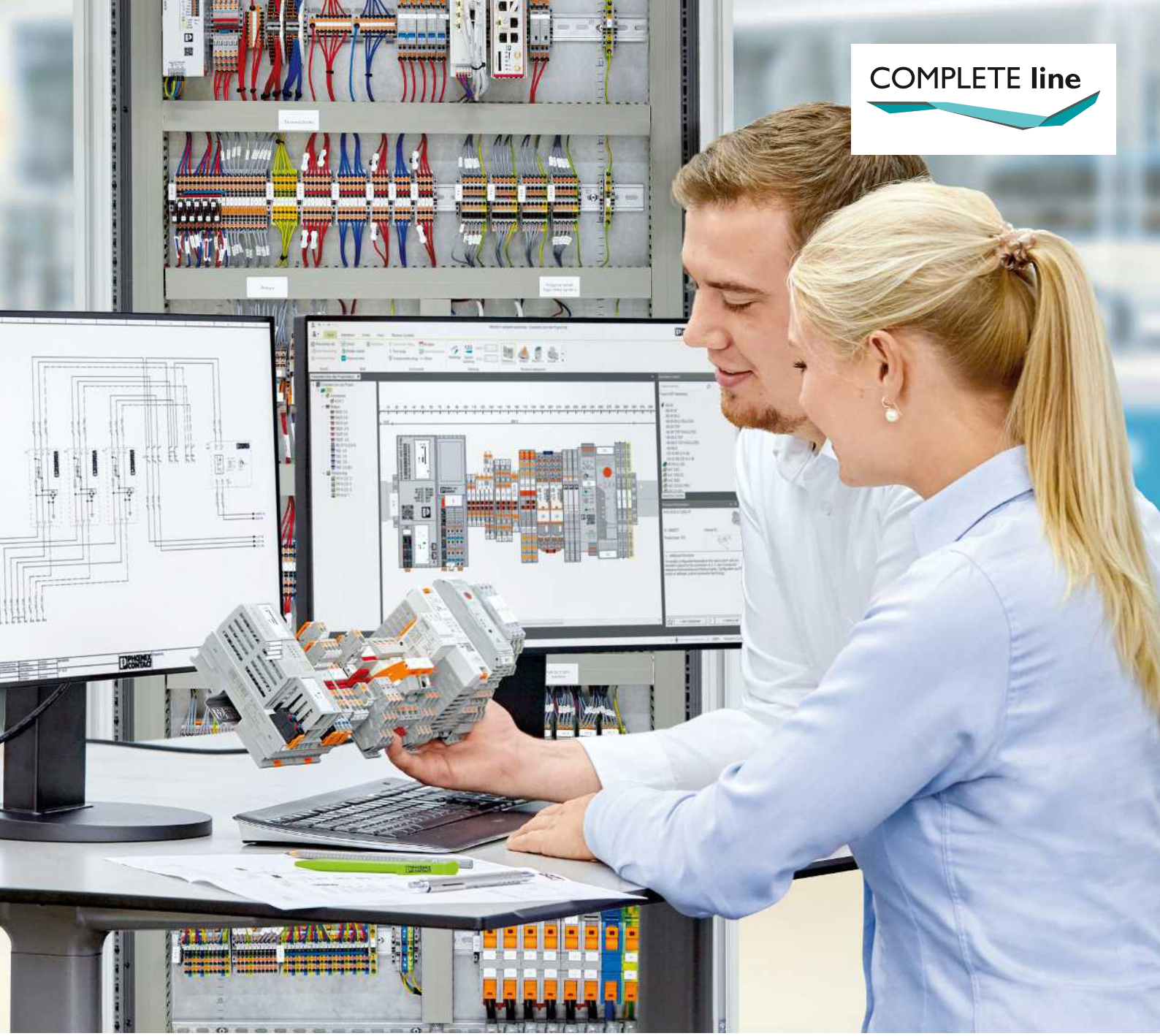


COMPLETE line

The comprehensive solution for the control cabinet

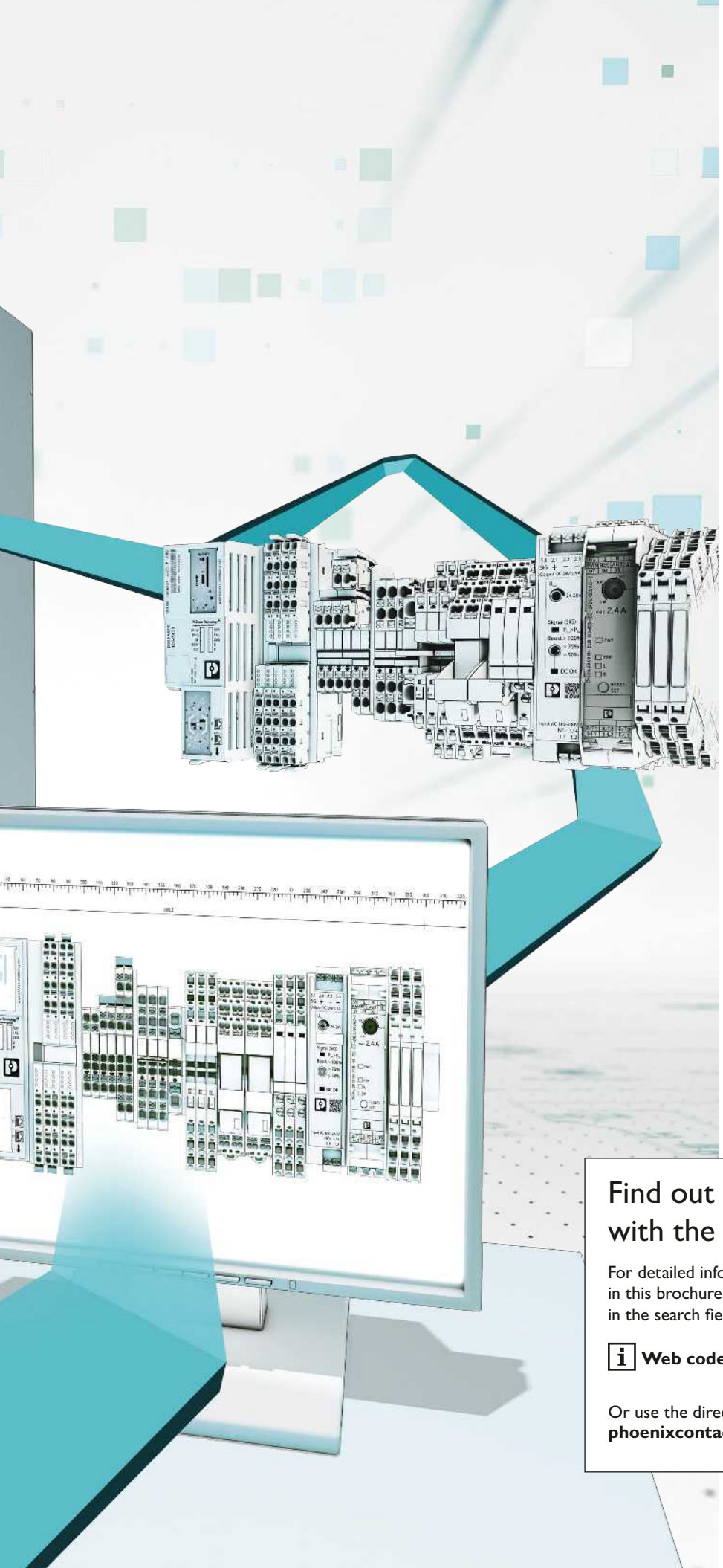
PHOENIX CONTACT

COMPLETE line
The comprehensive solution for the control cabinet

To remain competitive, control cabinet manufacturers are having to develop new approaches. As part of a collaborative partnership, we provide comprehensive solutions which allow extensive deployment of digital data, optimization of processes, and time savings. The perfectly coordinated interaction between hardware and software components in the COMPLETE line system allows you to optimize your processes – from the project concept and implementation to the operation of your applications.

Your advantages

- ☑ Consistent planning and documentation with complete digital data for all products
- ☑ Easy handling and reduced variety of parts with systematically designed products
- ☑ Scalable manufacturing solutions for customized processes



Contents

Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

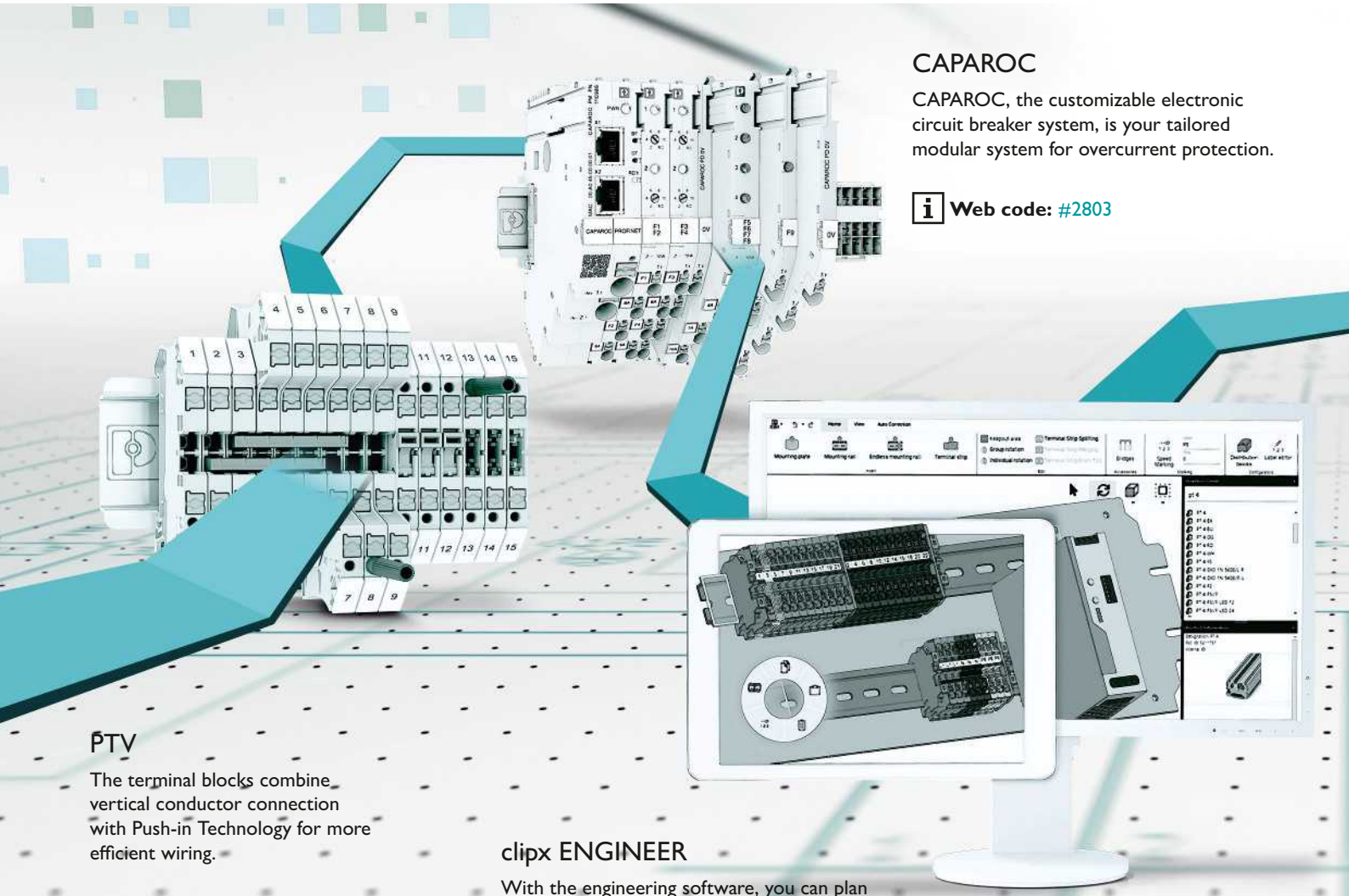
Web code: #1234 (example)

Or use the direct link:
phoenixcontact.net/webcode/#1234

Solutions for the control cabinet of tomorrow COMPLETE line thinks ahead

Dynamic topics, such as digitalization and networking, big data, and the system availability required in different networks, are always presenting new challenges for control cabinet manufacturers.

For this reason, the COMPLETE line range is also constantly evolving and provides you with innovative solutions that will help you shape the future of control cabinet manufacturing.



CAPAROC

CAPAROC, the customizable electronic circuit breaker system, is your tailored modular system for overcurrent protection.

Web code: #2803

PTV

The terminal blocks combine vertical conductor connection with Push-in Technology for more efficient wiring.

Web code: #2716

clipx ENGINEER

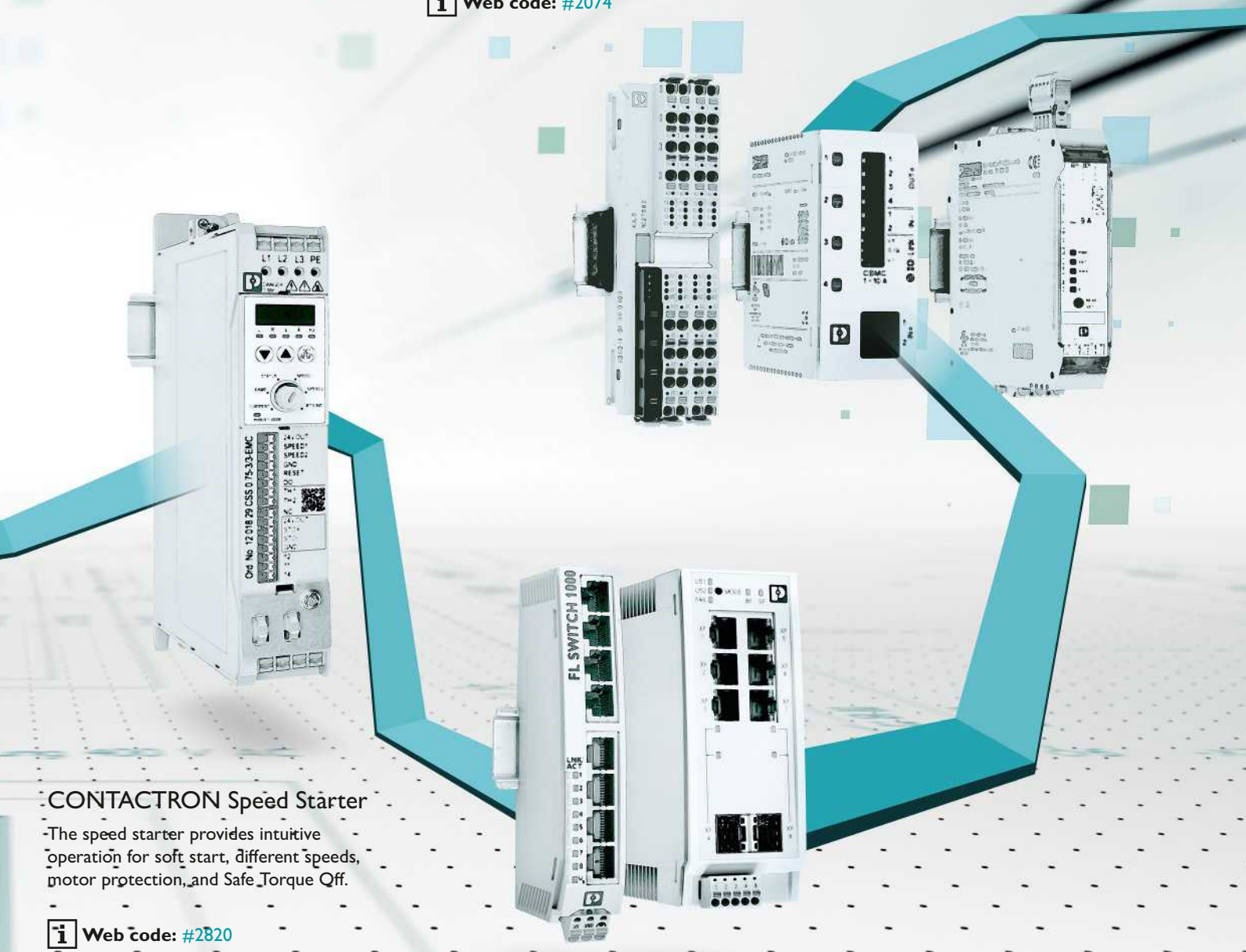
With the engineering software, you can plan terminal strips, assembled mounting plates, and junction boxes more efficiently than ever.

Web code: #2836

IO-Link

Thanks to the communication standard, numerous products in the control cabinet speak the same language.

Web code: #2074



CONTACTRON Speed Starter

The speed starter provides intuitive operation for soft start, different speeds, motor protection, and Safe Torque Off.

Web code: #2820

Networking in the control cabinet

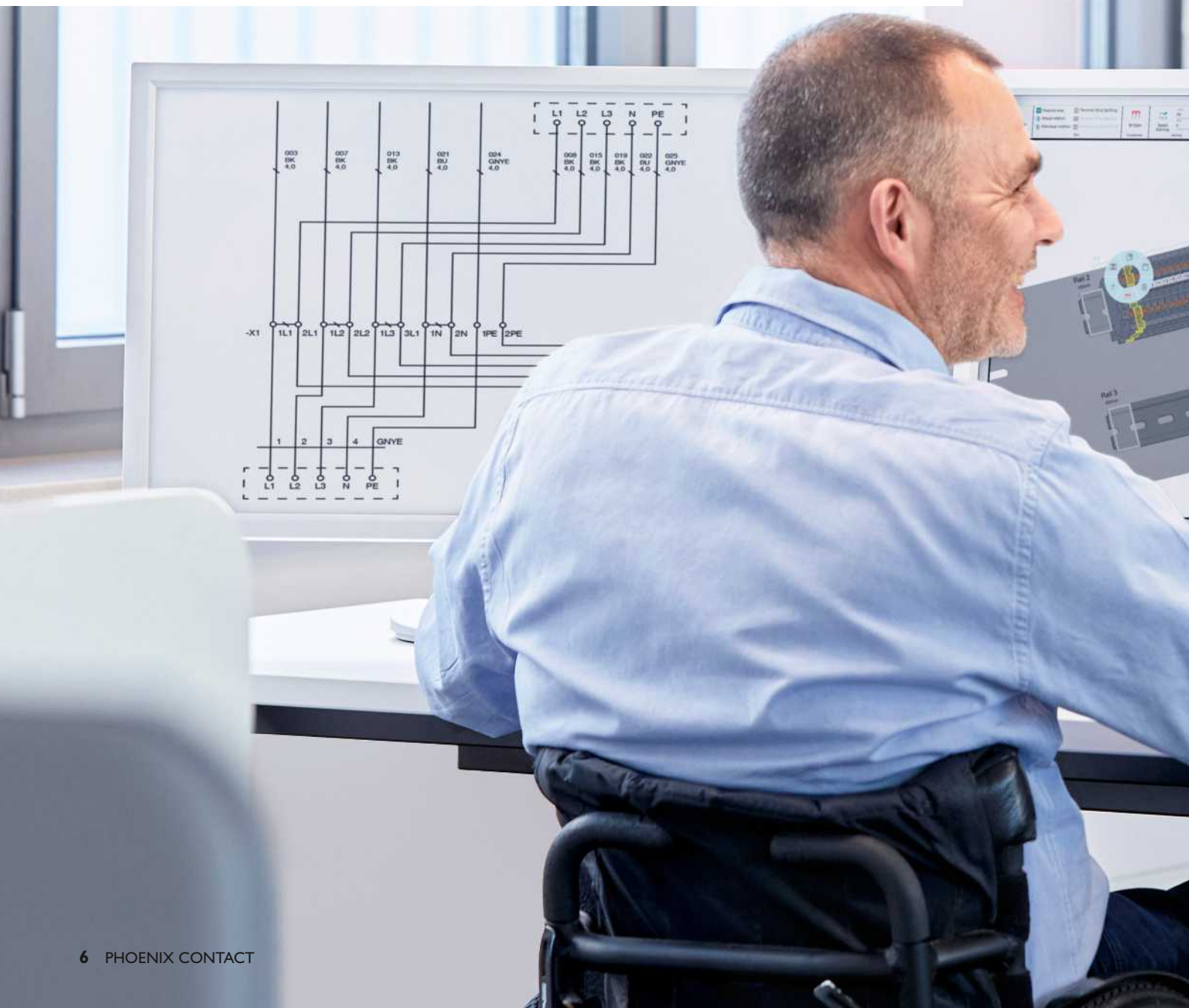
Intelligent network products ensure efficient data management in the control cabinet.

Web code: #0936

Efficient planning processes

The consistent networking of all processes in control cabinet manufacturing is the key to a holistic increase in efficiency. Comprehensive digital data is required for this. Each project begins in the engineering: in CAE planning, the digital twin is created first and foremost as a template for the real implementation.

COMPLETE line supports efficient planning processes with complete product data, efficient planning tools, and optimally coordinated interfaces to different CAE systems.



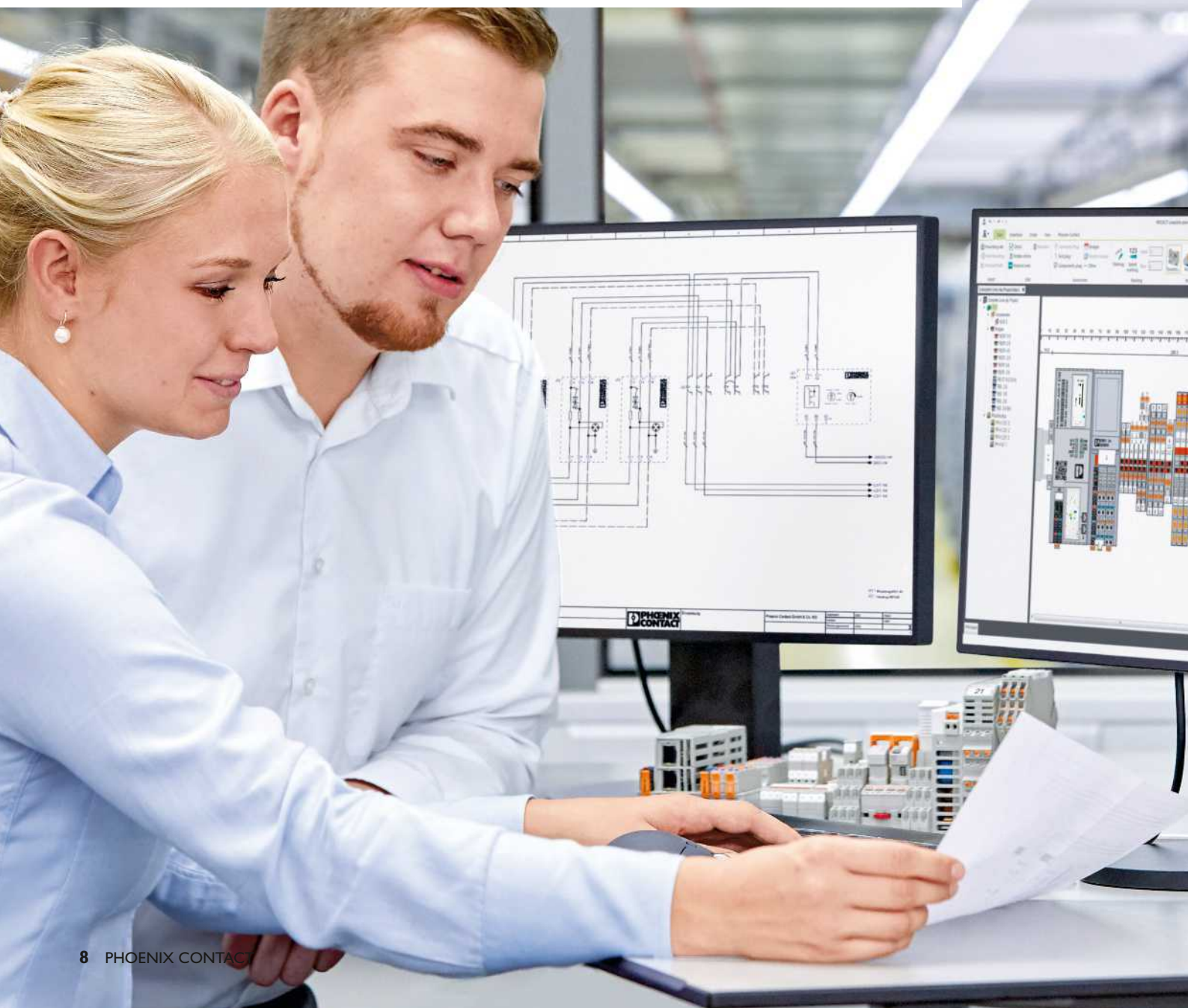
Engineering software for control cabinet manufacturing

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

Experience the versatility of the clipx ENGINEER engineering software for yourself now: phoenixcontact.com/clipxENGINEER

Efficient planning processes

Intuitive configuration, intelligent functions, and a customizable user interface: the PROJECT complete planning and marking software is the innovative solution for easy planning of your terminal strips and straightforward creation of the corresponding markings. From the transfer of data from electrical planning to delivery of your finished product, the software features individual and convenient process support.



Perfect CAE integration

PROJECT complete comes equipped with optimized interfaces to all common CAE programs. With just a click of the mouse, the software imports the data from electrical planning and automatically designs the corresponding terminal strip.

Intuitive software control

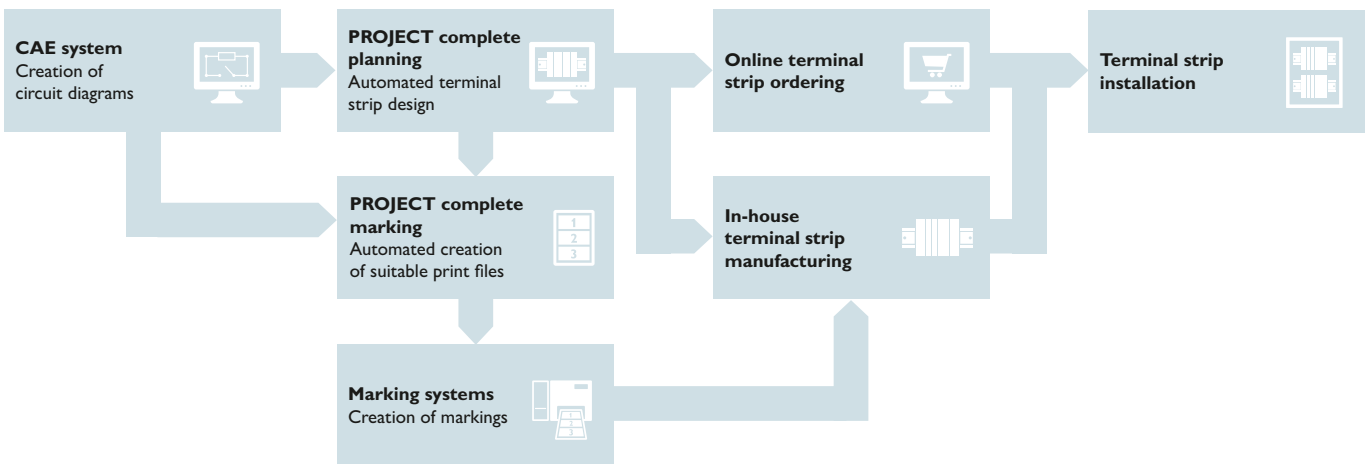
PROJECT complete provides you with a new user interface with a configurable search function and dynamic task bars. Intelligent functions automate many planning steps and provide significant time savings.

Ordering in real time

Place the order for your projects directly via PROJECT complete. Parts lists are transferred to Phoenix Contact online. You will then immediately receive a price calculation as well as information on the availability of the products.

Consistent use of data throughout the entire process

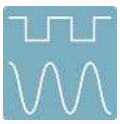
The PROJECT complete software exchanges the planning data with the CAE system via a bidirectional interface. Once the terminal strip has been configured, PROJECT complete automatically generates a parts list, 3D visualization, production documentation, and files for creating suitable markings. These documents are the basis for all further production steps. In addition, PROJECT complete offers the option to directly order planned projects online. Transmit the digital data that was created to the Phoenix Contact homepage with just one click and you will immediately receive information on the price and availability of your terminal strip.



Technologically leading products
Quick, systematic installation

Set up control cabinets quickly and easily with the comprehensive and coordinated COMPLETE line product portfolio. The COMPLETE line products have a uniform design and uniform haptics, which makes them very easy to install. This will save you time during installation, startup, and maintenance. All COMPLETE line products feature Push-in connection technology, enabling you to wire entire applications quickly and without using tools.

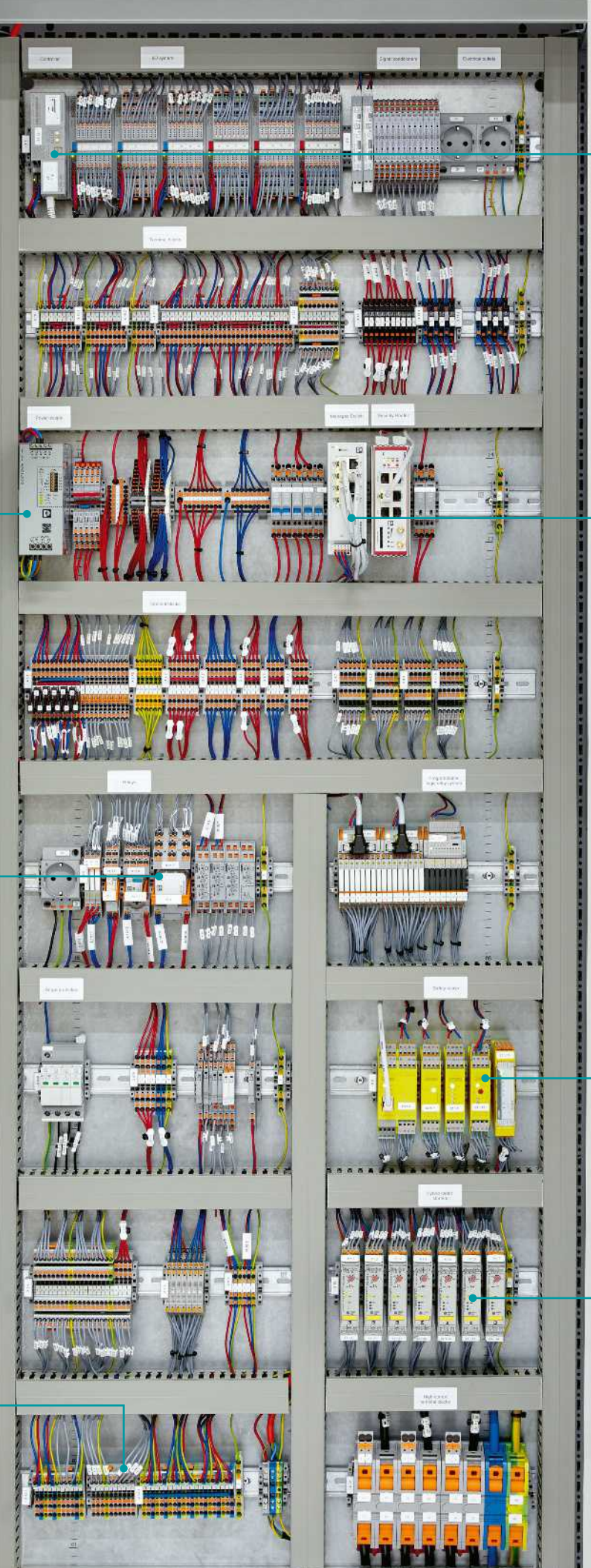
Power reliability 

Signal conditioning 

Your advantages

- ☑ Easy handling and high-quality appearance due to consistent functionality and design
- ☑ Quick, tool-free installation with Push-in connection technology
- ☑ Reduced production and logistics outlay with standardized accessories for bridges, markings, and testing
- ☑ The complete control cabinet from a single source with technologically leading COMPLETE line products

Connectivity 



Control

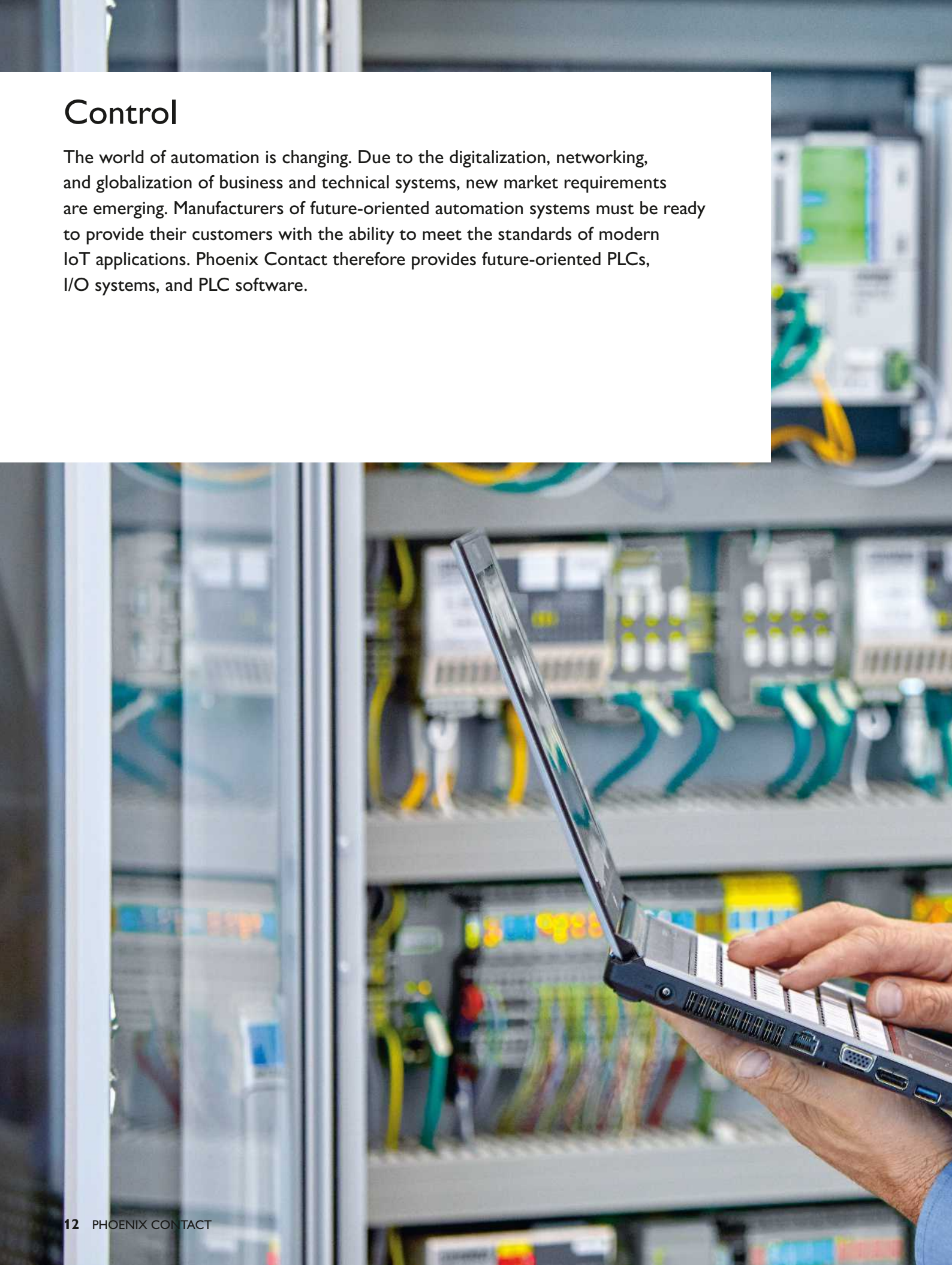
Industrial networking and security

Functional safety

Load switching

Control

The world of automation is changing. Due to the digitalization, networking, and globalization of business and technical systems, new market requirements are emerging. Manufacturers of future-oriented automation systems must be ready to provide their customers with the ability to meet the standards of modern IoT applications. Phoenix Contact therefore provides future-oriented PLCs, I/O systems, and PLC software.



PLCnext Technology

PLCnext Technology from Phoenix Contact is a unique, open ecosystem for modern automation capable of meeting all the challenges of the IoT world. The combination of open control platform, modular engineering software, and systemic cloud integration enables easy adaptation to changing demands and the efficient utilization of existing and future software services.

Designed by PHOENIX CONTACT

Control

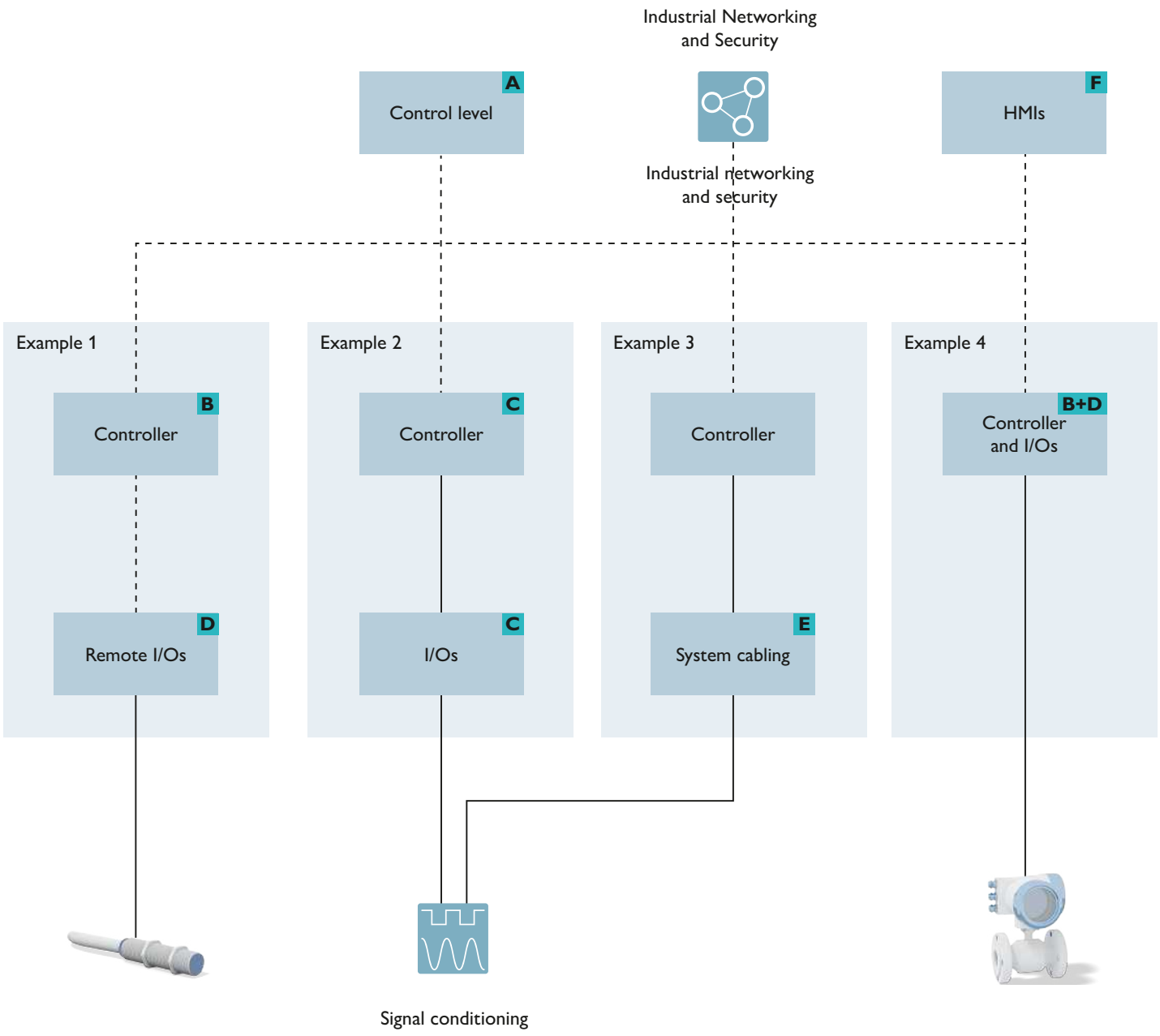
With the products of the COMPLETE line system, you can implement a wide range of control concepts, tailored to the demands of various applications and the surrounding conditions.

Distributed control concepts can be implemented with the comprehensive Axioline range (Example 1).

Operation and visualization tasks can be handled in a compact way by an industrial PC or outsourced to an HMI. For less complex applications, PLC logic combines plug-in I/Os and a controller in a minimum amount of space (Example 2).

Minimize your wiring effort between the controller and the field by using compact system cabling (Example 3).

For central control concepts, the controller and I/Os can be arranged side-by-side directly in the control cabinet (Example 4).



Part of this functional area

– – – Network connection

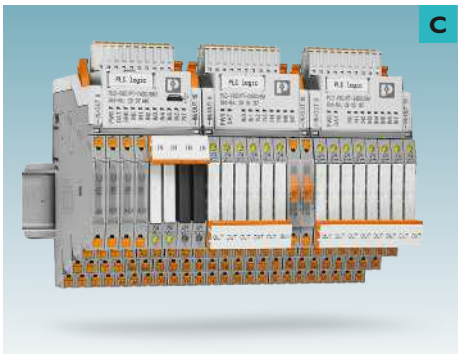
—— Connection

Control level

High-performance controllers (Remote Field Controllers) enable you to implement automation applications that place special demands on safety or availability. For applications with PLCnext Technology requiring a high safety level, choose our safety controller up to SIL 3 to be on the safe side. Redundant control systems help you reduce downtimes, work cost-effectively, and avoid potential dangers.

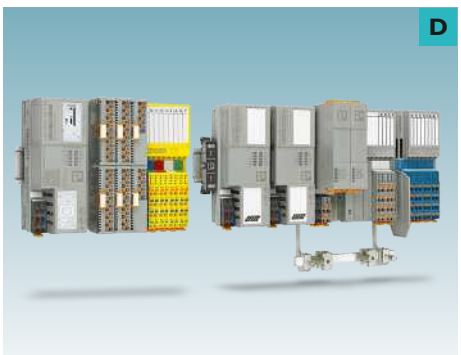
Controller for modular extension

PLCnext Control devices are the first PLCs available for the open PLCnext Technology automation platform. They enable the implementation of automation projects without the limitations of proprietary systems. You can connect Proficloud directly, and integrate cloud services and future technologies individually.



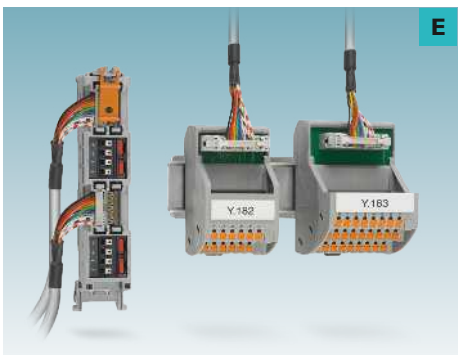
Programmable logic relay system

On the logic module market, the PLC logic relay system is the first to combine logic, interface, and field connection levels in a single solution. This means that you can switch and control I/O signals with just one compact system. You can combine the new PLC logic module with the corresponding plug-in relays as required. The modular structure enables a wide range of possible applications.



Modular automation system

Controllers, bus couplers, and I/O modules – Phoenix Contact offers you an automation system in a modular design for every requirement. Benefit from the advantages of PLCnext Technology, conventional controllers, or a remote I/O solution for various networks. With the diverse range of I/Os, you can implement simple to complex solutions.



System cabling

As machines and systems become increasingly complex, greater wiring effort is also required for the individual components in an automation system. Phoenix Contact system cabling provides compact solutions that enable easy planning, mounting, and startup. This reduces the wiring effort to a minimum, regardless of which controller you use in your application.

HMIs

HMIs are essential for the efficient operation and monitoring of your systems and machines. From the mobile tablet PC for field operation to complex visualization concepts for extensive automation systems – COMPLETE line provides you with the right solution for your application.

Power reliability

A reliable, stable power supply is the basis for the permanent availability of systems and machines. COMPLETE line offers a wide range of products to cover all the functions of a safe and consistent energy infrastructure: from suitable surge protection, efficient power supply and monitoring, and appropriate device protection to compact solutions for power distribution.

Power reliability

Prevent unplanned downtimes: the COMPLETE line system provides all the necessary components for a comprehensive supply concept.

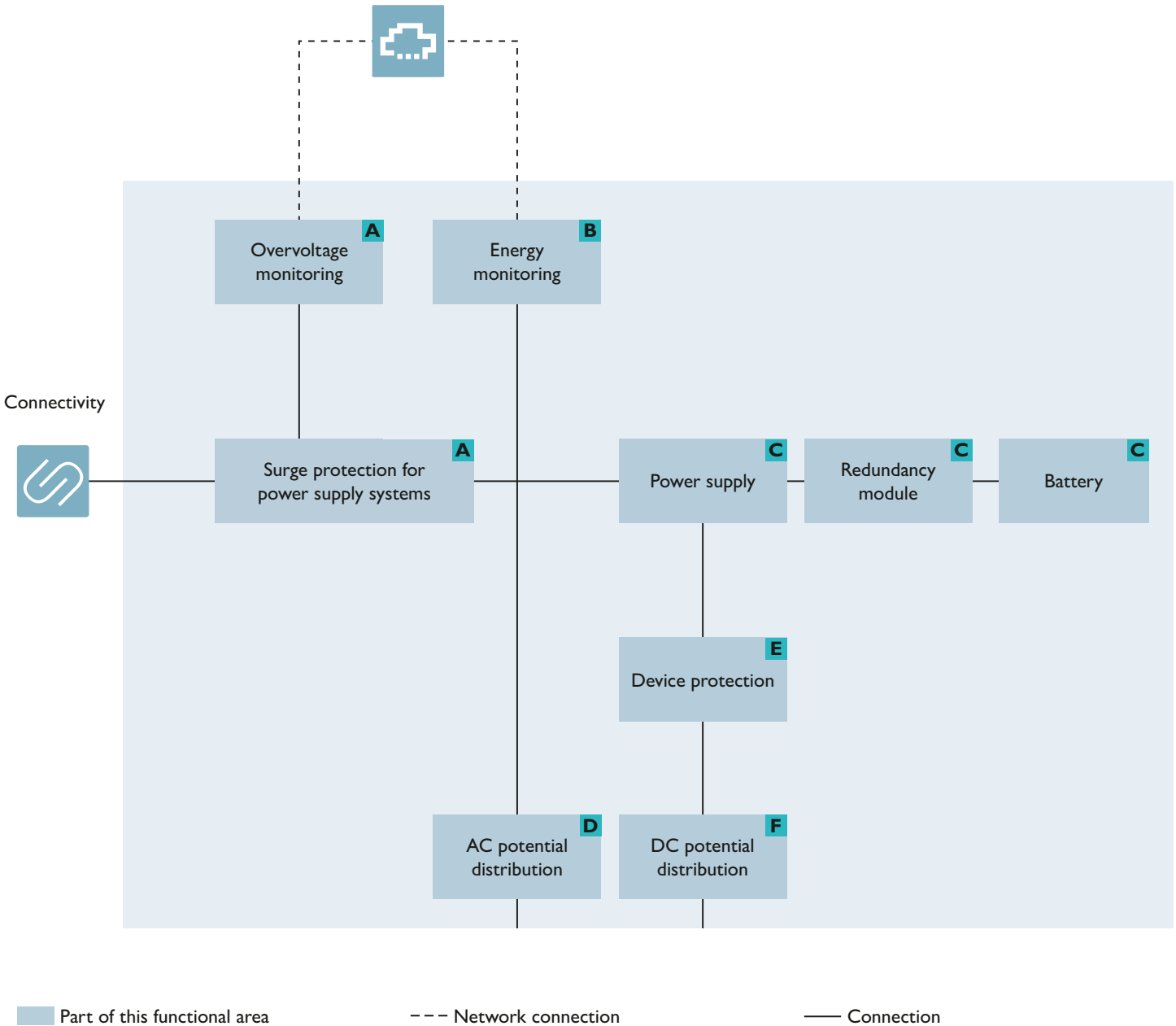
A powerful surge protection system safely discharges transient overvoltages on the AC side without causing system downtimes. The transmission of overvoltage events to the cloud enables preventive maintenance.

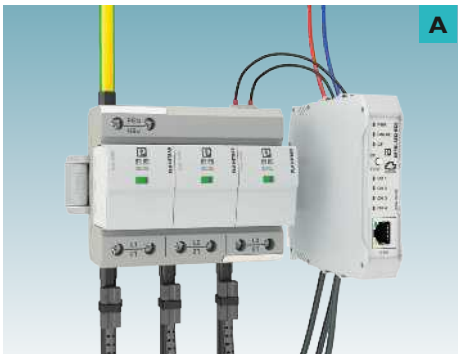
In the control cabinet, innovative solutions for AC and DC potential distribution reduce the amount of space required as well as the installation time.

Redundant solutions or batteries supplement the DC power supply when needed, thus safeguarding the 24 V supply even in critical situations.

Device circuit breakers prevent negative effects on the overall system caused by interference in the field.

In addition to power reliability, future-proof monitoring solutions help save energy in the overall system.





Surge protection for power supply systems

Overvoltages can cause significant damage to production plants. The surge protective devices of the SEC family ensure a higher level of availability for your system. ImpulseCheck is the world's first intelligent assistance system for surge protection in the field of mains protection. The module allows you to measure the state of health of every single protective device via cloud connection.

Energy monitoring

EMpro energy measuring devices acquire your energy data and communicate it to higher-level control and management systems. Configure and integrate the devices in just a few steps using the web-based, user-guided installation wizard. Digital services and global access via the cloud provide you with a high degree of availability and transparency.

24 V power supply

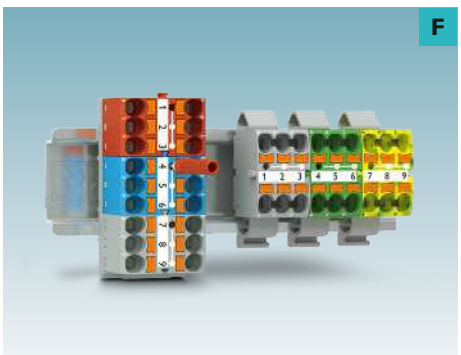
Enjoy superior system availability with our powerful QUINT power supply solutions. You can opt for QUINT POWER power supplies from 1 to 40 A, or combine them for maximum availability. We offer individual solutions with DC/DC converters for all voltage levels, active and passive redundancy modules, and uninterruptible power supplies with Ethernet interface. Whether alone or in combination – QUINT complete delivers non-stop power.

AC potential distribution

Time is money – this is particularly true when it comes to setting up machines and systems. With the CrossPowerSystem power distribution board, you can now install power distribution and switching devices quickly and easily. The integrated protection against polarity reversal, tool-free mounting, and automatic contacting via convenient snap-on connections enable easy startup.

Device protection

Selective device protection with various tripping mechanisms provides maximum safety for every load. This means that only the areas that are actually affected by an overload or short-circuit current are shut down. Different demands exist, depending on the area of application and task. You will find the right device circuit breaker for every application in the COMPLETE line portfolio.



DC potential distribution

To ensure that machines and systems function properly, various system components must be supplied with power and signals. The PTFIX distribution block concept has the right solution for every application. The distribution blocks come ready to connect and are available in different numbers of positions, mounting types, and colors. They can be used immediately and can be extended as needed. PTFIX blocks thus ensure flexible and cost-effective current distribution.

Industrial networking and security

The increasing digitalization of industry requires the networking of more and more devices inside the control cabinet. At the same time, a secure network infrastructure is becoming increasingly important. Comprehensive product solutions for industrial communication ensure reliable access and protect all relevant data.

Cybersecurity in accordance with IEC 62443

The international IEC 62443 series of standards sets out rules for designing suitable security concepts for component manufacturers, system integrators, and operators. It includes determining the level of security required and the appropriate product selection. However, the standards do not provide general solutions – solutions have to be designed in accordance with the individual circumstances. Phoenix Contact has already been certified several times for its implementation of IEC 62443.
We would be happy to provide you and your employees with training, and provide advice on what your tailored IEC 62443 solution should include.


Remote
mmunication
Networking
PoE
Communication
Infrastructure
Device
mmunication

Industrial networking and security

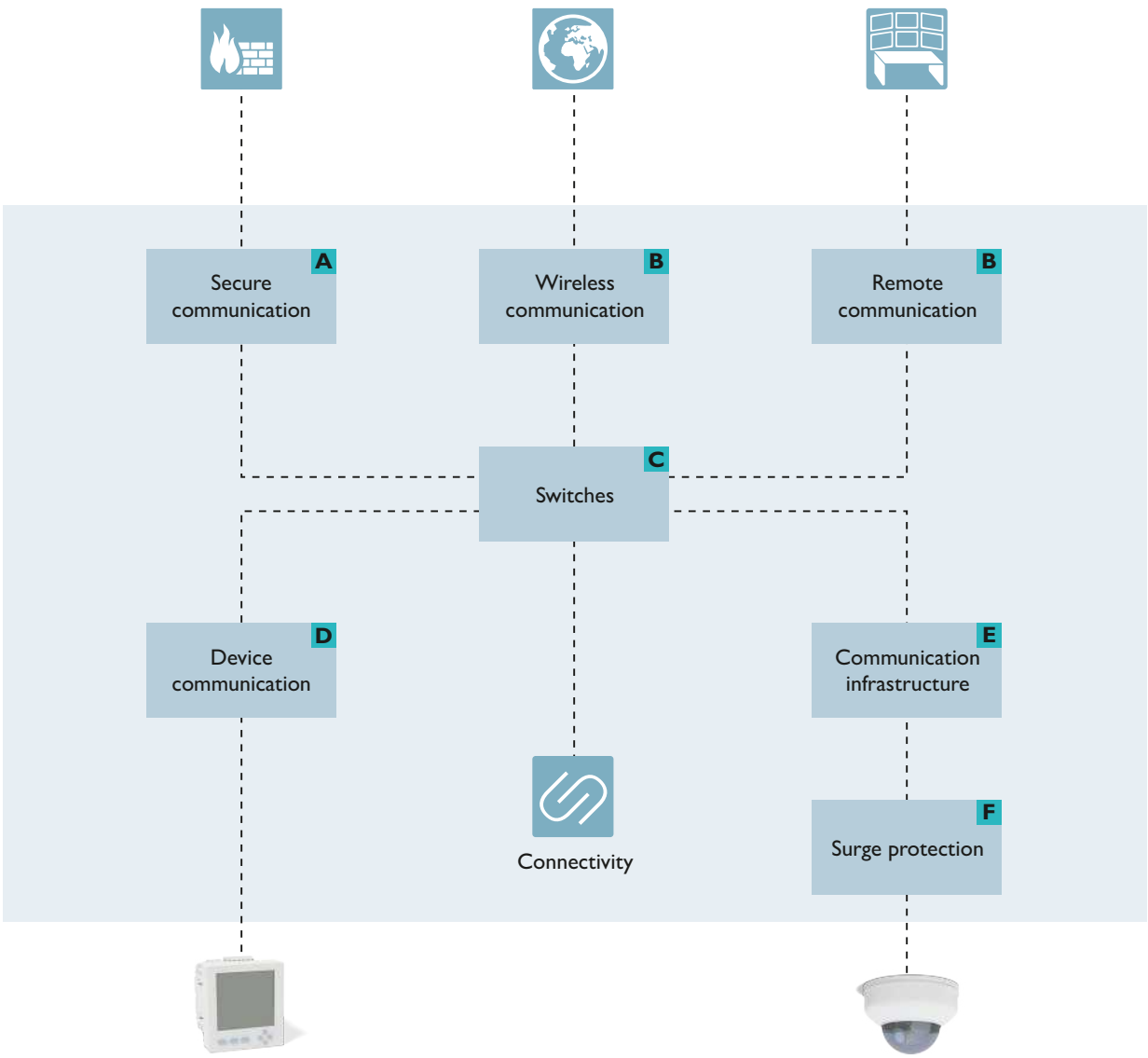
Configure reliable and secure communication using the products from the COMPLETE line range.

The mGuard product range protects automation solutions against external attacks.

The Ethernet infrastructure components guarantee reliable communication in industrial environments. Gateways enable devices that do not have a built-in Ethernet interface to be integrated into the network.

Solutions for reliable communication over long distances via existing cable networks or the Internet complete the range.

In addition, optimized surge protection for communication technology ensures maximum availability of your network.



Part of this functional area

– – – Network connection

—— Connection

Secure communication

Protect your network against unauthorized access by persons or malware with mGuard security routers. These robust industrial security appliances include firewall, routing, and VPN functions to protect against malicious cyber attacks and inadvertent malfunctions.

Remote communication

The TC MOBILE I/O signaling system monitors sensors via the cellular network and switches relays remotely. The TC ROUTER cellular router enables high-speed data connections over 4G LTE networks. With Ethernet extenders, you can connect Ethernet networks over distances up to 20 km via simple 2-wire cables. Easy startup with Plug and Play enables cost-effective networking and diagnostics of all devices and paths via IP.

Switches

Ethernet Switches ensure reliable, efficient data exchange. Unmanaged Switches feature compact designs with Gigabit transmission speeds and flexible installation options. Managed Switches additionally offer optimum real-time properties, redundancy mechanisms for high network availability, prioritization of your data traffic, and various options for network diagnostics.

Device communication

Serial device servers and gateways enable the easy integration of legacy serial devices and fieldbuses into modern Ethernet networks. You can integrate subsegments or older systems without Ethernet into your network to facilitate consistent, transparent communication. The gateways support the most commonly used data transmission protocols in industrial applications, including Modbus, EtherNet/IP, PROFINET, HART, and OPC UA.

Communication infrastructure

Eliminate the need for a separate power supply when installing devices in difficult to access or remote system parts. With industrial Power over Ethernet (PoE) devices from Phoenix Contact, power supply and data transfer are combined in the same Ethernet cable.

Surge protection for information technology

Reliably protect sensitive signal interfaces with powerful surge protection and achieve low attenuation, also with high bandwidths. The DATATRAB DT product family provides protection for many applications, such as high-speed networks up to 10 Gigabit Ethernet, networks with RS-485 interfaces, and analog and digital telecommunications interfaces, including DSL.

Signal conditioning

Whatever your application requires – whether switching, isolating, monitoring, amplifying, or multiplying – our broad product range for signal conditioning satisfies all requirements. COMPLETE line offers everything from a universal relay system for standard applications and highly compact relay modules as an interface to the controller through to signal conditioners with or without a network connection. Moreover, the range includes solutions in the field of functional safety and explosion protection for interference-free signal transmission.

Programmable logic relays for every application

The PLC logic relay system is the first to combine logic, interface, and field connection levels in a single solution. Switch and control I/O signals with just one compact system and combine the logic module with the corresponding relay and analog modules. The PLC-INTERFACE relay system is the high-performance interface between the controller and system I/O devices. The PLC-INTERFACE system features a comprehensive range of ultra-narrow, plug-in relays and solid-state relays, as well as sensor/actuator versions, switch modules, and filter series for special applications. The PLC-INTERFACE plus system cabling enables fast plug-in connection of the controller and I/O devices.

Signal conditioning

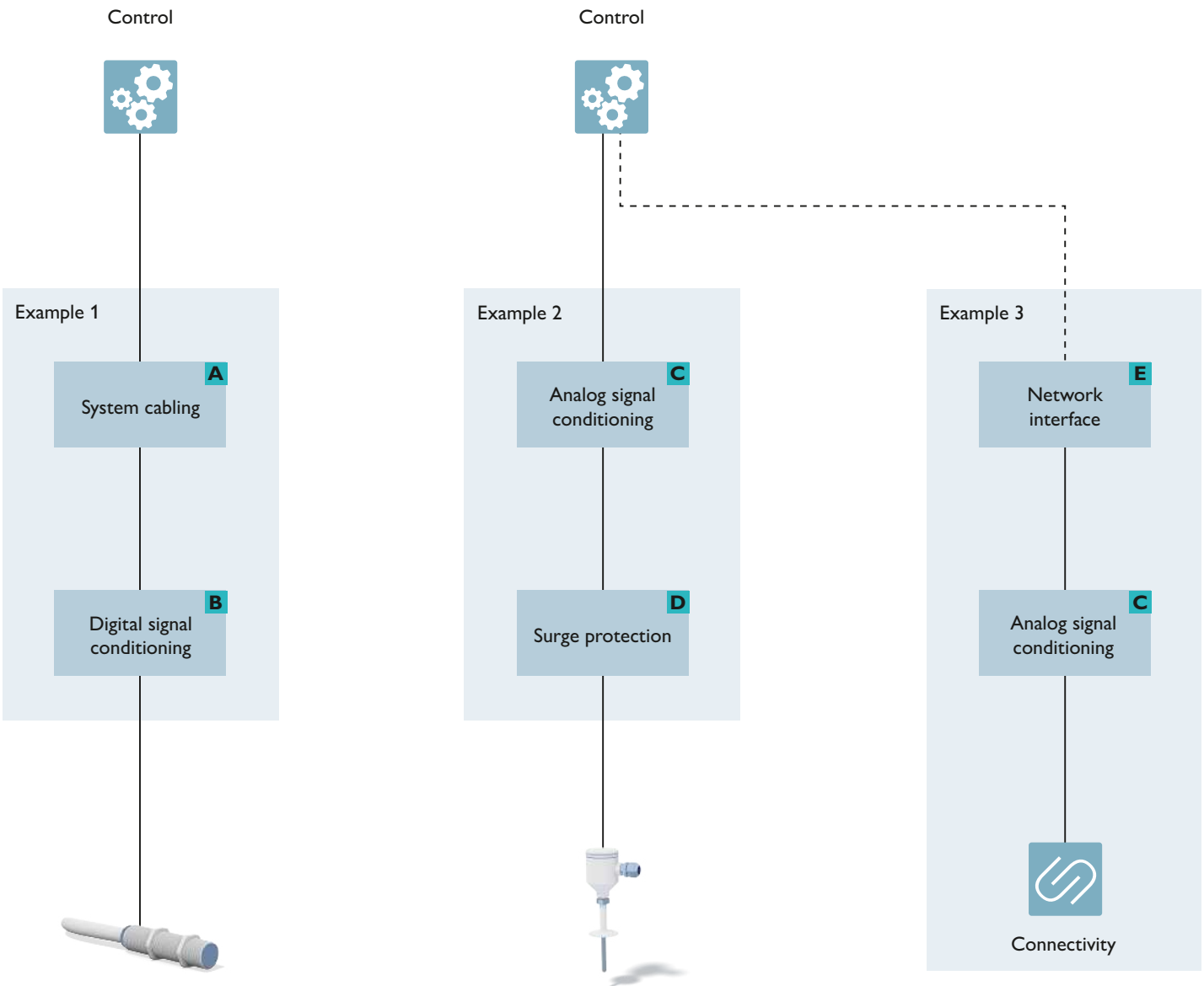
COMPLETE line provides safe and reliable solutions for connecting the controller to the field.

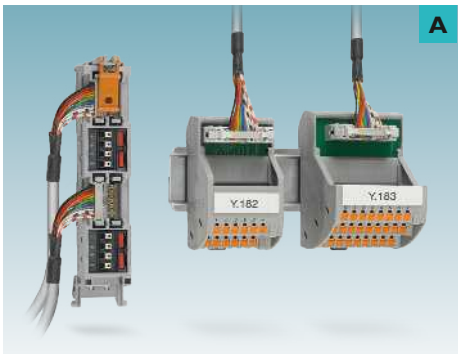
System cabling minimizes the cabling effort between the controller and the field with pre-assembled and tested cables.

Digital I/O signal conditioning is performed by narrow relay modules that are just 6 mm wide (Example 1).

A comprehensive range of converters and signal conditioners is available for the error-free transmission of analog signals (Example 2).

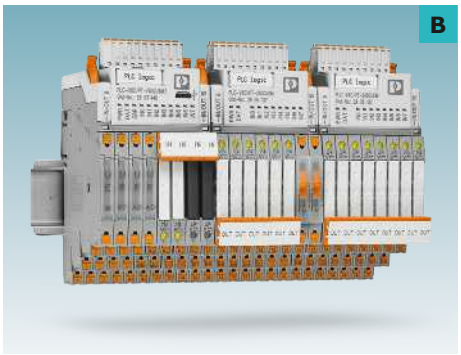
Surge protection modules specifically developed for MCR applications guarantee availability, even in harsh conditions. Signal conditioners with bus and network connection transmit field signals safely in industrial networks (Example 3).





System cabling

Today, machines and systems are becoming more and more complex. The wiring effort for the individual components in an automation system is increasing as a result. Phoenix Contact system cabling provides a compact solution that enables easy planning, mounting, and startup. This means that you save considerable wiring time and costs.



Highly compact relay modules

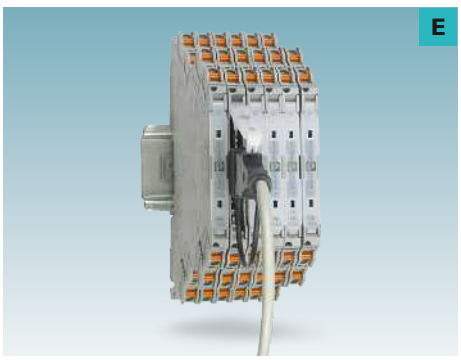
The PLC-INTERFACE relay system is the high-performance interface between the controller and system I/O devices. The PLC-INTERFACE system features a comprehensive range of ultra-narrow, plug-in relays and solid-state relays, plus a complete range of accessories. In addition, PLC-INTERFACE sensor/actuator versions, switch modules, and filter series always provide the right interface for special applications.

Signal conditioners with functional safety and explosion protection

MACX Analog signal conditioners offer comprehensive solutions for safe, interference-free, analog and digital signal processing. In addition to explosion protection for all zones and material groups, MACX Analog provides functional safety in accordance with SIL IEC/EN 61508 and PL EN ISO 13849.

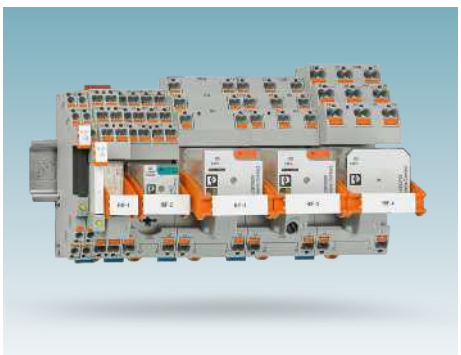
Surge protection for MCR technology

With an overall width starting from 3.5 mm, TERMITRAB complete is the world's narrowest surge protection solution for MCR technology. The product range provides a solution for almost all applications in this field. The product family features a complete system of simple, single-stage surge protection through to multi-stage, pluggable versions with knife disconnection, signaling, and remote signaling options.



Signal conditioners with bus and network connection

Signal conditioners ensure interference-free signal transmission. MINI Analog Pro is the first 6 mm signal conditioner family with plug-in connection technology. Easily visible and accessible terminal points and current measurement during operation make work easier. Use the configurable 3-way signal conditioners to electrically isolate, convert, amplify, and filter standard signals.



Universal industrial relay system

You can implement all of your standard relay applications using the RIFLINE complete industrial relay system. Whether you want to isolate, multiply, or amplify signals, it makes no difference. The relay system with universal plug-in design ensures high machine and system availability. The field of application ranges from coupling and timer relays to the replacement of miniature power contactors.

Functional safety

The networking of all the units in a Digital Factory also includes functional safety. Safety solutions from the COMPLETE line range provide optimum protection for personnel and systems. With cloud-based data acquisition, you can analyze your operating processes, optimize the machine design with respect to ergonomics, and monitor wearing components in real time. All safety products have SIL certification and are characterized by their easy configuration and installation.

SafetyBridge Technology

Implement distributed safety solutions with SafetyBridge Technology. No safety controller whatsoever is required and it does not depend on the network used. The technology is integrated into the Inline and Axioline F I/O systems and is compatible with all bus couplers of these systems. The safe I/Os are installed with the standard I/Os distributed within the equipment. The system consists of safe input and output modules and a logic module. The latter acquires and outputs safe signals. It generates and monitors the safety-related SafetyBridge transmission protocol and processes the logic operations of the parameterized safety logic. The logic module therefore performs the task of a safe controller.


Safety door
open!

Functional safety

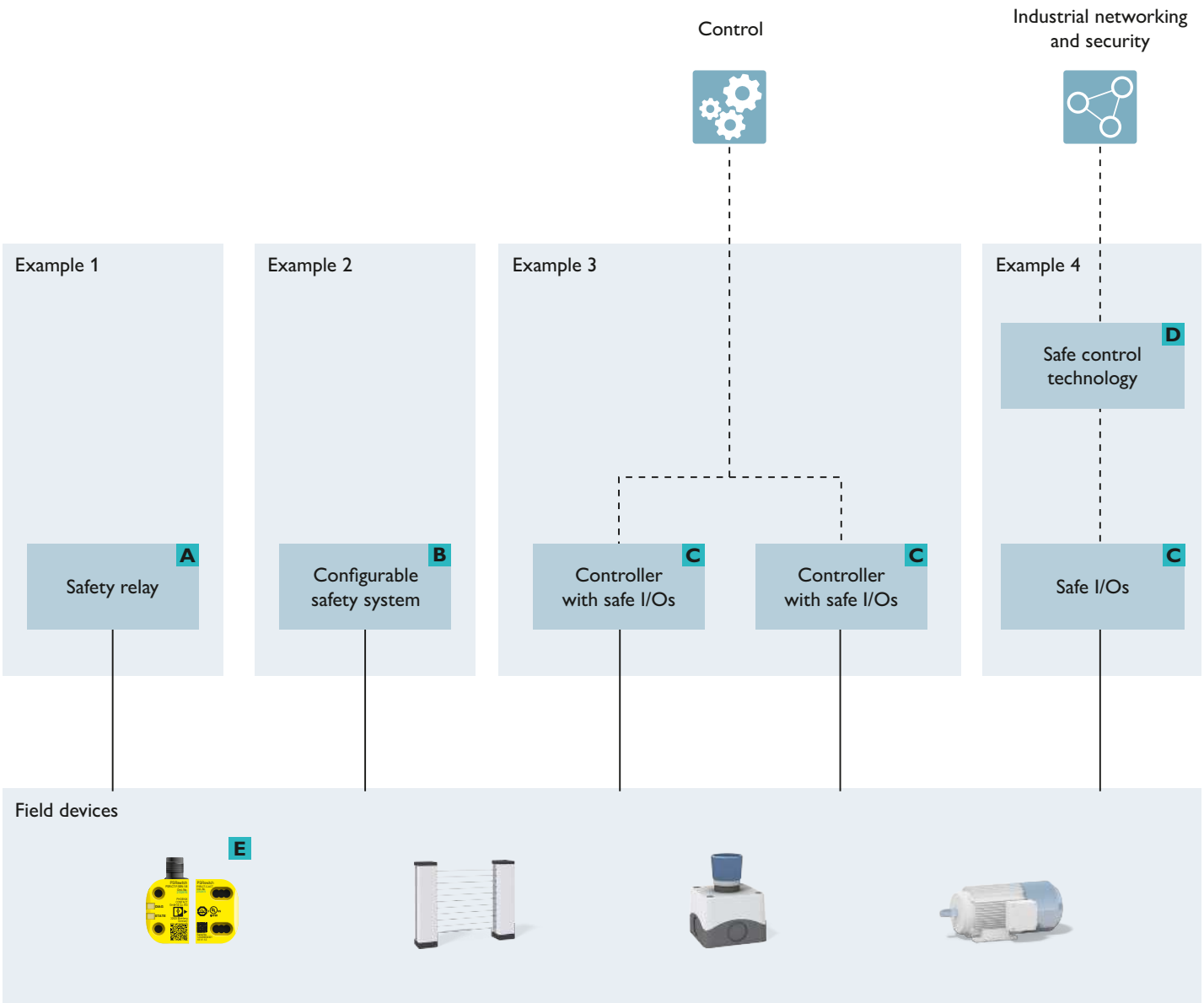
The COMPLETE line system includes a scalable portfolio of innovative safety components.

Simple safety relays connect the sensors directly to the actuators (Example 1).

Configurable safety relays replace classic hardware wiring with an intuitive software solution (Example 2).

SafetyBridge Technology enables the transmission of safety-related data over standard communication networks (Example 3).

Safety controllers for complex tasks and the highest safety demands with a high number of I/Os round out the COMPLETE line range (Example 4).



Highly compact coupling relays

Thanks to the relay technology developed in-house, the PSRmini coupling relays are the world's narrowest coupling relays for safe startup and shutdown. The force-guided contacts enable quick and easy diagnostics. Thanks to visual LED diagnostics, SIL3-qualified inspections can be performed directly on the module. Furthermore, active error feedback to the controller ensures short downtimes during planned maintenance phases.

Configurable safety system

PSRmodular is a configurable safety system for monitoring your machines and process applications up to PL e or SIL 3. It makes it possible to cost-effectively implement small applications with three safety functions as well as applications with up to 160 I/Os. You can monitor emergency stop signals, safety door locks, light grids, and safety shut-off mats. You can also implement safety functions such as speed, zero-speed, direction of rotation, and safe analog value monitoring.

Safe I/Os

Integrate functional safety into your network without a safety controller – with the Inline and Axioline F I/O systems. You can still use your preferred standard network and standard controller. The logic module with SafetyBridge Technology monitors safety-related communication between the safe I/O modules distributed throughout the network. The I/O extension modules acquire the safety signals and output them wherever they are required.

Modular PROFIsafe extension

You can easily convert your standard PLCnext Control device into a PROFIsafe-capable safety controller with our safe extension module. The left-alignable PROFIsafe extension is a full-fledged safety-related small-scale SPLC that extends the scope of functions of your AXC F 2152 or AXC F 3152 controllers for safe applications up to SIL 3 / PL e. Taking up little space, this control solution is particularly suitable for cost-intensive and/or distributed safety applications.

Safe control technology

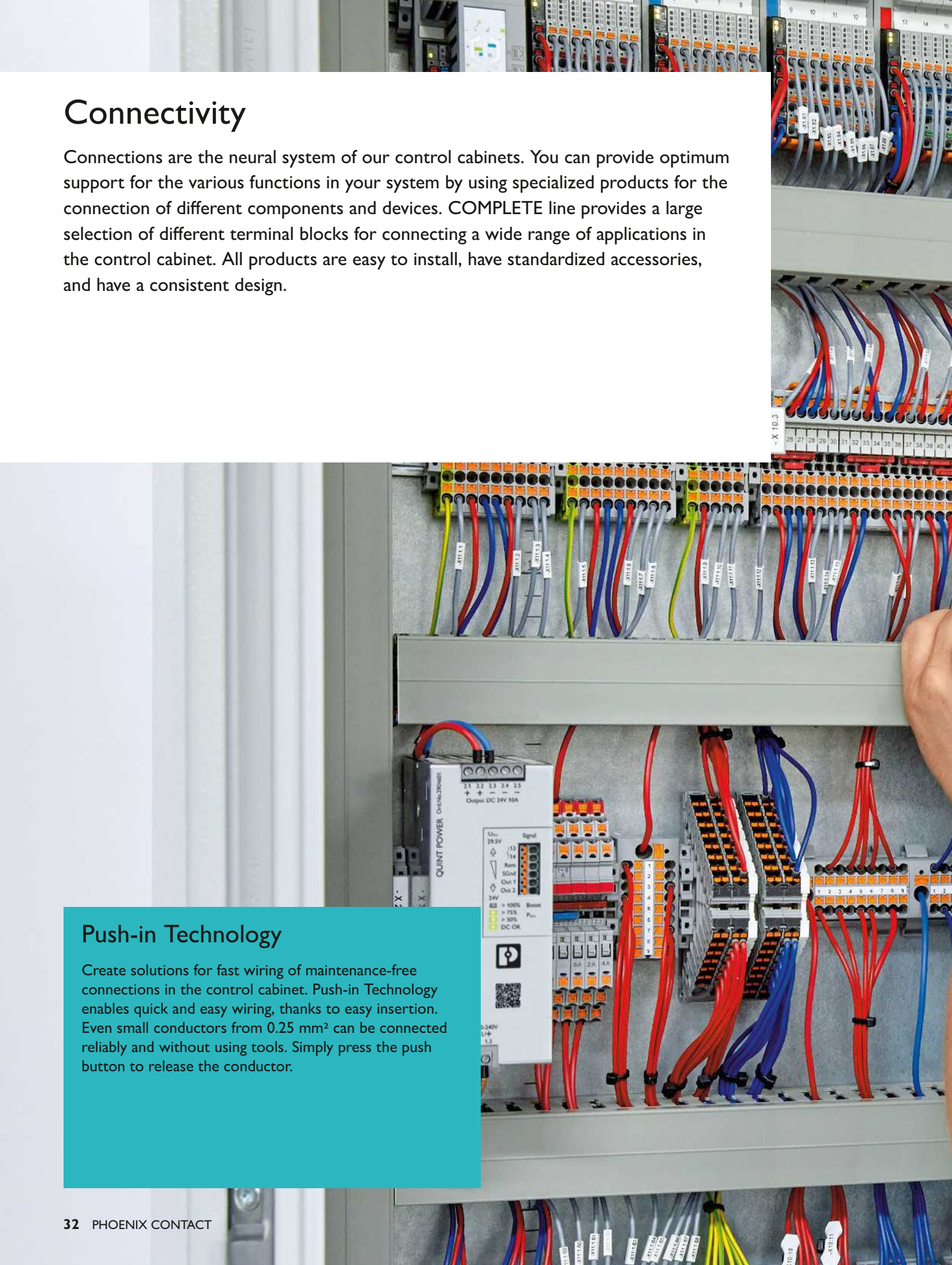
Our RFC 470S safety controller provides solutions for complex safety applications and standard applications. Thanks to the integrated PROFINET interface, the controller communicates directly with the PROFIsafe I/O modules of Inline or Axioline F. The transmission of control and safety protocols via an Ethernet cable reduces your wiring effort. The PROFIsafe gateway allows two PROFINET systems to be safely combined.

Safety switch

Monitor machines and systems and safely shut them down in the event of an emergency. The PSRswitch is an RFID-coded safety switch for safety door and position monitoring. It provides protection against tampering and maximum safety in accordance with EN ISO 13849 and EN ISO 14119. Our emergency stop and emergency switching off switches are suitable for applications in accordance with EN ISO 13850 and EN 60204-1. They can be installed on the control panel of your machine or directly at the place of use.

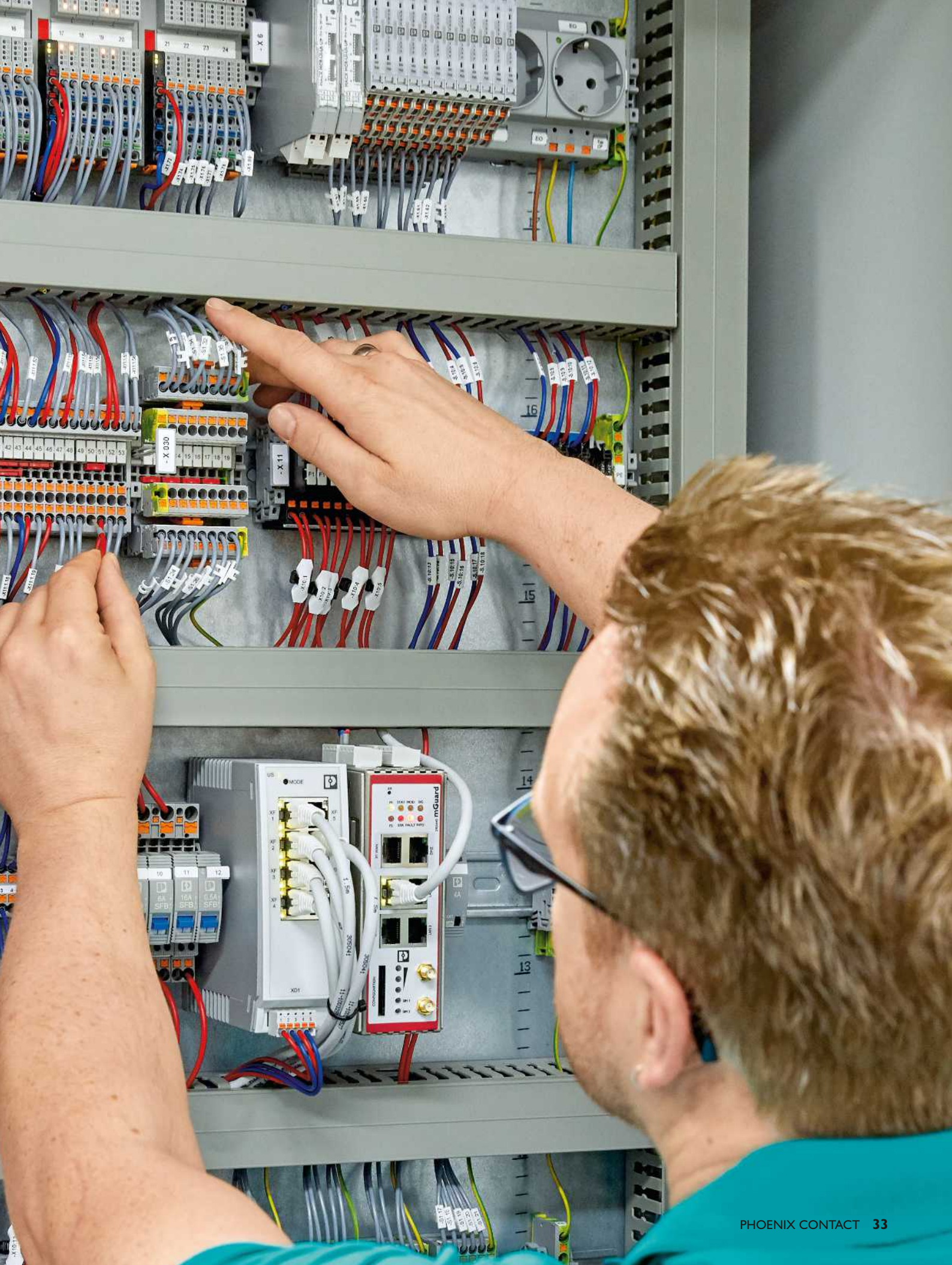
Connectivity

Connections are the neural system of our control cabinets. You can provide optimum support for the various functions in your system by using specialized products for the connection of different components and devices. COMPLETE line provides a large selection of different terminal blocks for connecting a wide range of applications in the control cabinet. All products are easy to install, have standardized accessories, and have a consistent design.



Push-in Technology

Create solutions for fast wiring of maintenance-free connections in the control cabinet. Push-in Technology enables quick and easy wiring, thanks to easy insertion. Even small conductors from 0.25 mm² can be connected reliably and without using tools. Simply press the push button to release the conductor.



Connectivity

Products from the COMPLETE line portfolio guarantee reliable electrical connections for all devices in the control cabinet.

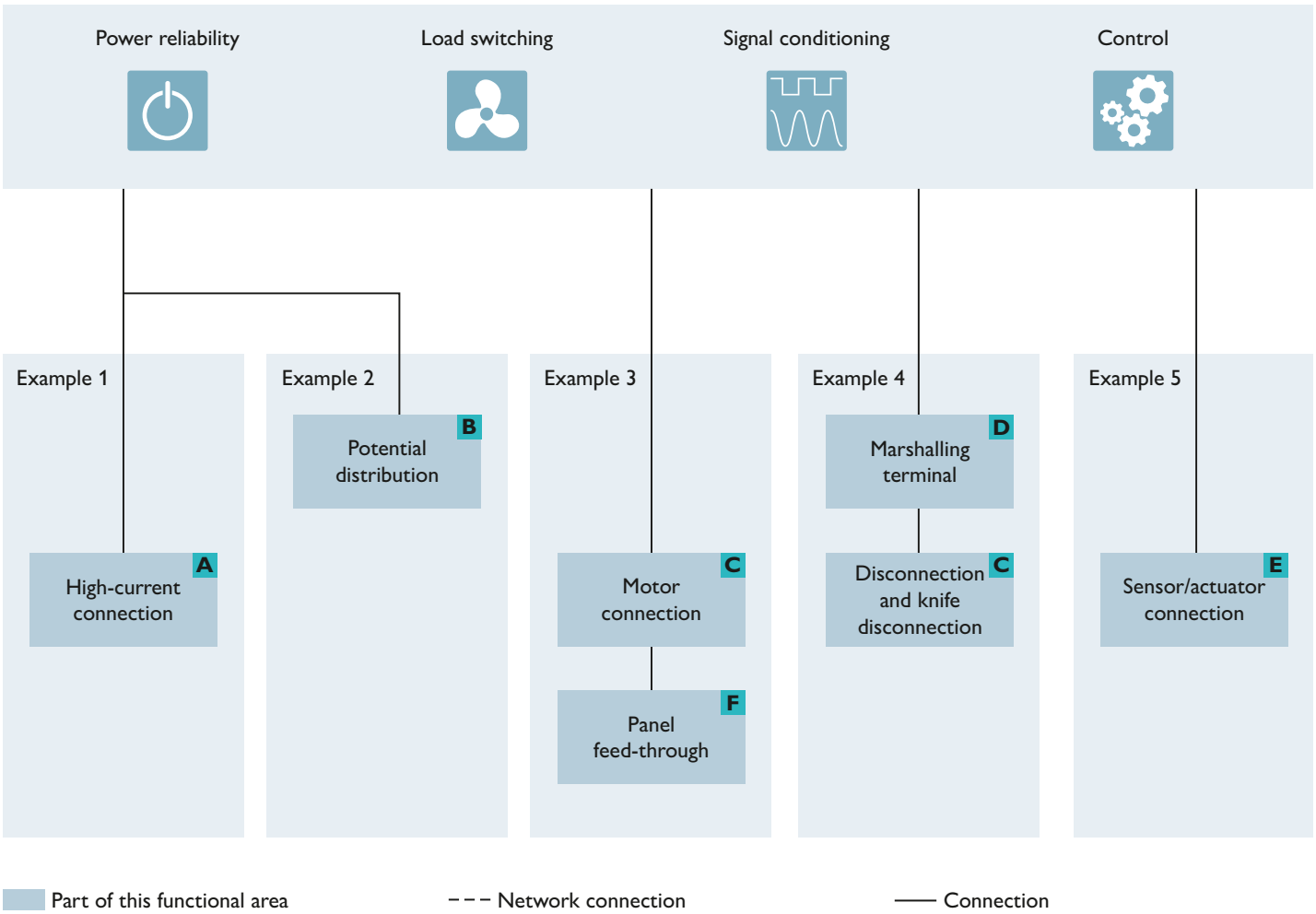
Powerful high-current terminal blocks are ideal for supplying power (Example 1).

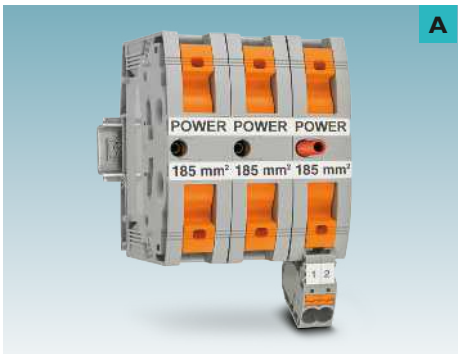
From versatile distribution blocks through to compact feed-through terminal blocks, COMPLETE line has the right potential distribution solution for every application (Example 2).

Make compact connections to your loads in the field using space-saving motor terminals. Moreover, customizable panel feed-throughs create a flexible external interface (Example 3).

Marshalling terminals are primarily used in the field of signal transmission. Here, suitable disconnect terminal blocks and knife-disconnect terminal blocks ensure the necessary safety (Example 4).

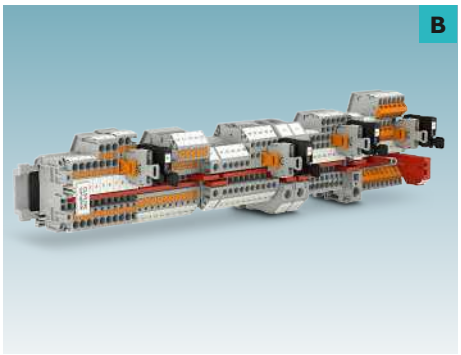
Special sensor/actuator terminal blocks are ideal for particularly space-saving sensor and actuator wiring (Example 5).





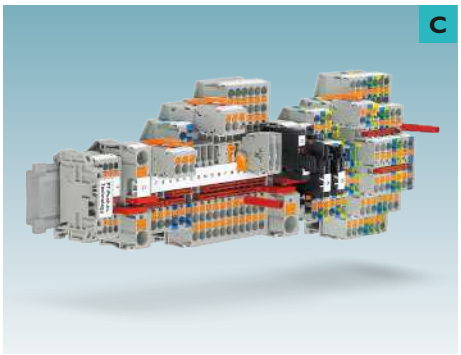
High-current terminal blocks

PTPOWER high-current terminal blocks with Power-Turn connection technology provide you with a fast and user-friendly connection option for wiring large conductors. You can contact conductors up to 185 mm² and 1500 V IEC/1000 V UL simply by pivoting the operating lever. The pre-assembled terminal blocks help you to reduce mounting and logistics costs.



Terminal blocks for all connection technologies

With the unique terminal block system from Phoenix Contact, you are free to choose the connection technology. This versatility enables you to respond flexibly to different demands and requirements anywhere in the world. All connection technologies can be freely combined with one another using the same accessories.



Function terminals

The COMPLETE line portfolio includes a large range of different function terminals for various applications: from disconnect and knife-disconnect terminal blocks through test-disconnect terminal blocks to motor terminals. All products are characterized by the consistent use of Push-in connection technology and their compact design.

Marshalling terminals and potential distributors

The compact PTRV marshalling terminals are used to marshal signals in automation applications in a clearly arranged manner. The wiring of a large number of conductors is simplified by using color-coded levels. Together with the front wiring, this helps prevent connection errors.

Sensor/actuator terminal blocks

In modern machine and system controllers, the number of sensors and actuators is increasing as automation becomes increasingly common. The compact PTIO terminal blocks therefore offer you the advantage of being able to wire your sensors and actuators easily and clearly. Even bipolar sensors can be connected quickly and easily to a terminal width of just 3.5 mm.

Heavy-duty connectors

HEAVYCON heavy-duty connectors ensure the reliable transmission of signals, data, and power, even in harsh conditions. Different housing versions as well as fixed-position and modular contact inserts provide the appropriate connection for every requirement. Push-in Technology guarantees easy and time-saving cable connection.

Load switching

Electric motors are used in a variety of industrial applications for controlling movements. Motors are often started and reversed using classic, mechanical contactor circuits. However, these require a great deal of space as well as a lot of wiring effort, and have a limited service life. Complex sensor technology is often required to collect important motor and process data. COMPLETE line provides innovative and intelligent products for your application.

CONTACTRON hybrid technology

CONTACTRON hybrid technology is a microprocessor-controlled combination of wear-free semiconductor technology and robust relay technology. The semiconductors execute the wear-prone on and off switching operations, while the relays only conduct low-loss current. This enables soft switching and considerably reduces the load on the relay contacts.

Load switching

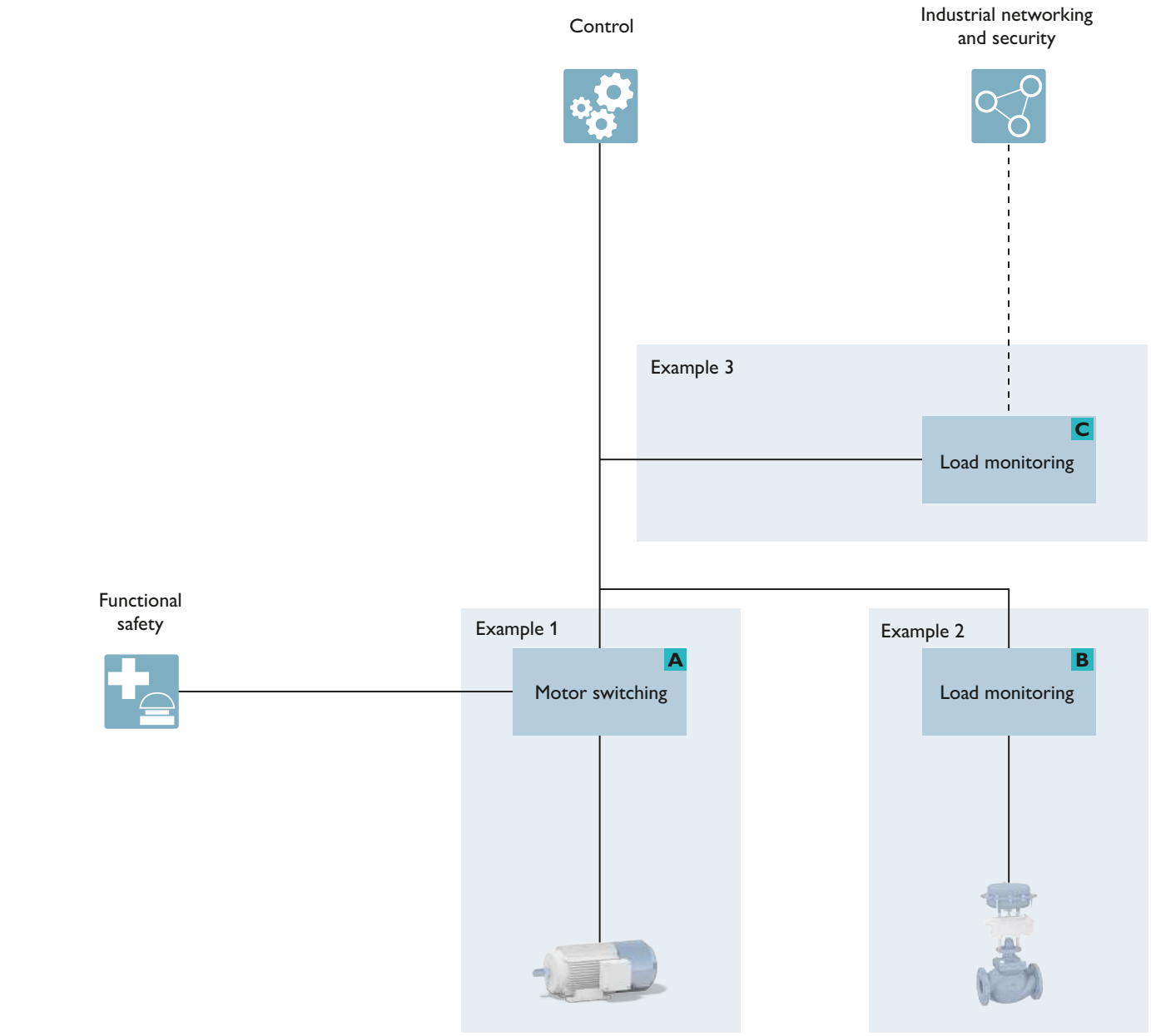
The COMPLETE line system provides high-quality solutions for switching and monitoring loads.

Compact and practically wear-free motor starters can switch loads over a much longer service life than electromechanical versions. Moreover, they can be integrated into safety concepts and communication networks.

They switch motors and other loads reliably and safely (Example 1).

This advanced technology also enables the acquisition of performance data. Here, the ability to detect over- and underload states enables preventive maintenance and avoids mechanical damage to the loads (Example 2).

The machine manager also reliably monitors powerful loads and transmits key parameters to higher-level networks (Example 3).



Stand-alone motor starters

Switch motors safely and reliably with compact hybrid motor starters. The devices can be used wherever three-phase asynchronous motors, from 50 W to 3 kW, need to be reversed and protected. The product range for hybrid motor starters consists of direct and reversing starters available with various functions such as emergency stop and motor protection.

Modular motor starters

CONTACTRON pro is the new version from the CONTACTRON family offering simple safety integration and modular extension options. Everything on the basis of hybrid technology – for an increased level of simplicity in functional safety, high system availability, and easy handling.

Network-capable motor starters

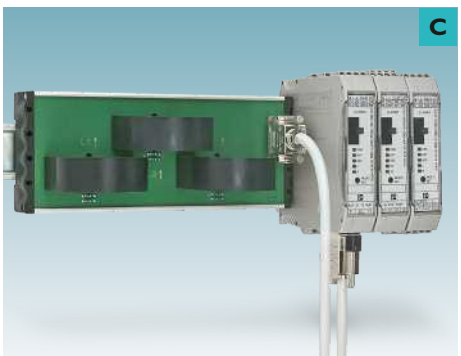
Integrate your motor starters into fieldbus systems via the interface system connection. Transfer your process data easily. Network your devices quickly using both the interface system (IFS) and the available IO-Link versions. Not only do you benefit from space and wiring savings, you can also enjoy the advantages of diagnostic functions.

Speed starters for asynchronous motors

The CONTACTRON Speed Starter, with intuitive operation, is the new device class between motor starters and frequency converters. This compact solution provides you with all of the functions necessary for different speeds: from normal speed, creeping speed, and soft start to ramp functions. In addition, the CONTACTRON Speed Starter features an impressive Safe Torque Off function for safe stop.

Motor manager

With the motor manager, you can detect all the critical load states throughout the system and benefit from the advantages of modern active power monitoring. If required, the motor manager switches the drive off to protect the motor and the system. The motor manager is parameterized using the intuitive IFS-CONF software from Phoenix Contact.

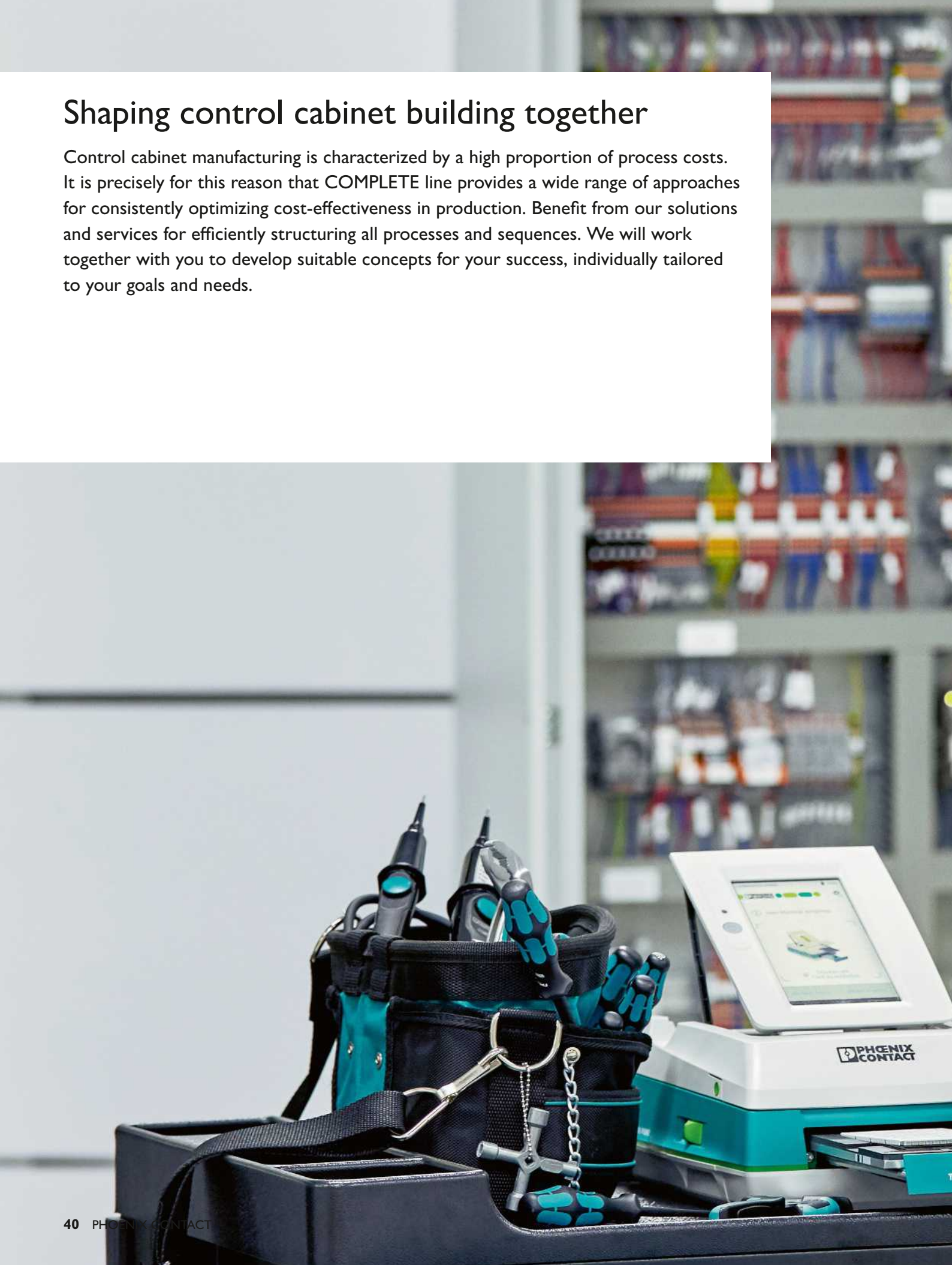


Machine manager

Monitor your motors and machines: electronic motor and machine management combines precise energy measurement with the display and monitoring of important parameters of motors, machines, and other 3-phase loads. As an option, it can be networked with all common fieldbus systems using a gateway.

Shaping control cabinet building together

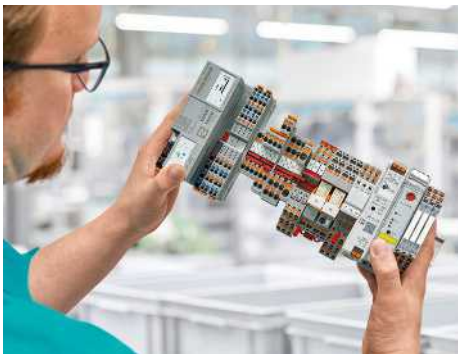
Control cabinet manufacturing is characterized by a high proportion of process costs. It is precisely for this reason that COMPLETE line provides a wide range of approaches for consistently optimizing cost-effectiveness in production. Benefit from our solutions and services for efficiently structuring all processes and sequences. We will work together with you to develop suitable concepts for your success, individually tailored to your goals and needs.




PHOENIX CONTACT
THERMOMARK PRIME

Shaping control cabinet building together

From engineering through to manufacturing, COMPLETE line and our experts will help you make your control cabinet manufacturing as efficient as possible. This is how your customized concept for optimizing your processes is created. Our terminal strip production service enables you to supply terminal strips just in time for your control cabinet manufacturing and to manage order peaks flexibly. This simplifies engineering, purchasing, installation, and operation significantly.



Efficient wiring

Reduce your wiring effort significantly. Push-in Technology enables quick and tool-free wiring, thanks to easy insertion. COMPLETE line provides product solutions with Push-in connection for every application. In addition, many products have uniform function shafts for fast and individual potential distribution. These enable the consistent use of FBS plug-in bridges, which replace conventional wiring.

Digital manufacturing documents

The PROJECT complete planning and marking software supplies all the information you require for terminal strip production: either as a digital manufacturing document for manually mounting the terminal strip or as an export in AutomationML format – for controlling the fully automated manufacturing systems of your terminal strip production.

Professional tools

Conductor preparation and wiring are two of the most time-consuming processes in control cabinet manufacturing. To optimize these processes, COMPLETE line provides high-quality tools that are perfectly tailored to the individual requirements of the user. From ergonomic hand tools to high-performance automatic devices for processing large quantities of material, the TOOL fox range of tools covers all requirements.

Flexible marking

Consistent industrial identification ensures structure and orientation in the control cabinet. COMPLETE line provides a scalable system comprising printers, marking materials, and software. The uniform marking grooves on the COMPLETE line products enable more than 3,200 different products to be marked using standardized marking materials. Benefit from the reduced variety of parts and uniform handling.

Global terminal strip service

Our terminal strip production service provides help in managing order peaks flexibly and enables terminal strips to be supplied just in time for series production. The fully assembled and marked terminal strips, already equipped with accessories, just need to be installed and connected.

Scalable manufacturing solutions

Design tailored installation processes with the clipx worker assistance system. The program provides assistance systems for semi-automated, software-supported conductor preparation and a pick-by-light mounting system for assembling DIN rails with components fitted. Automate the marking of assembled DIN rails with the MARK master marking system.

Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing forward-thinking products and solutions for the comprehensive electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network, we maintain close relationships with our customers, something we believe is essential for our common success.

You can find your local partner at

phoenixcontact.com

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