



Product Overview

Innovations for your success

Phoenix Contact | Product Overview

What we do

Connecting, distributing, and controlling power and data flows - we have been developing the right products for this purpose since 1923. Whether in industrial production facilities, in the field of renewable energies, in infrastructure, or for complex device connections: our solutions are used wherever processes must run automatically. Above and beyond their pure function, they help our partners to develop sustainable applications with more efficient processes and reduced costs.

We are Phoenix Contact: With innovative products and solutions, we are paving the way to a climate-neutral and sustainable world.

Phoenix Contact India

Established in 1993 through a partnership with Phoenix Contact GmbH & Co. KG in Germany, Phoenix Contact India holds an impressive presence across the nation with more than 21 locations. Our team has made a significant impact in the Indian market, thanks to our cutting-edge sustainable solutions and advanced technology.

With the primary objective of streamlining intricate business challenges with technology-driven solutions, we offer our clients the best sustainable solutions to success and growth.

The Phoenix Contact Group

As a globally active family-owned company, we manufacture in a production network spanning several countries in which the level of vertical integration varies.

We ensure proximity to customers and partners through a global network of sales companies. At all our locations, our employees are working with a passion for technology and innovation on driving forward toward a sustainable world for everyone.

Corporate Functions

Core Business Areas



Device
Connectors



Industrial Components
and Electronics



Industry Management
and Automation

New Business Fields



E-mobility, Innovation Ventures,
PROTIQ...

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With inspiring innovations and local support

From the beginning it was our endeavor to produce locally, and thus during the past 30 years we have created state-of-the-art manufacturing base, strongly supporting the **Made in India** philosophy. We have our production facility at Prithla-Dhatir Road near Delhi. It is a hub for production and logistics which, coupled with Special Purpose Machines, brings new innovations in the market with enhanced efficiency.



“Global Centre of Competence (GCoC)” India is also supporting R&D activity for local and global product development.



“Shared Service Centre (SSC)”, a step to advancement in innovation and sustainability within the Phoenix Contact Group, offers a wide range of technical and IT services, supporting global development initiatives across the Phoenix Contact.

Our expertise includes Product Development, Product Testing, Product Certification and Product Digital data (Digital twin) along with IT services in area of IoT, Product Lifecycle Management, Digital Infrastructure Solution and Cyber Security. A formal recognition of competency of our laboratory is the by National Accreditation Board of Testing and Calibration Laboratories (NABL) according to ISO/IEC 17025:2017, and international agencies such as Underwriter Laboratory (UL), and Canadian Standard Association (CSA).

Phoenix Contact India has been fulfilling its commitment of **“Global Solutions – Local Presence”** for customers with its increasing number of regional offices in important cities including Mumbai, Pune, Bengaluru, Ahmedabad, Kolkata and Chennai. An experienced team of product specialist and regional engineers are working closely together to offer timely support to our customers in major cities of the country along with a dedicated network of more than 450 channel partners approximately.

As part of the global Phoenix Contact production network, Phoenix Contact India is committed to provide the Phoenix Contact quality standard for all its products made in India. With advanced equipment, sophisticated workmanship, comprehensive testing method and strict quality control in all processes, we provide our customers with most reliable products. As part of our corporate philosophy and culture a constant process of staff qualification, education and training ensures that all production units are well trained and motivated which perfectly supports the growth strategy of Phoenix Contact for the Indian market.

Phoenix Contact is the specialist from electrical connection systems to electronic automation technology. At Phoenix Contact, you get first class components and service from a single source for everything to do with your application.

Tailored to different markets and their needs, at the heart of the company lies an extensive product portfolio: Device and PCB Connection Technology, Enclosures, Industrial Components for Electrical Engineering and Electronics, as well as industry-specific Automation Solutions for various industries like Water, Wastewater, Energy Generation, Transmission & Distribution, Machine Building, Telecom, Process among many others.

Industrial Cabinet Connectivity

All connections at one stop solution

CLIPLINE Complete

All connection technologies, one system

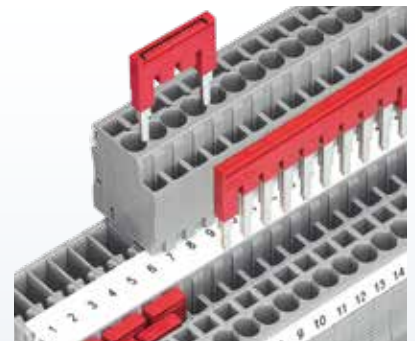
With CLIPLINE product line, the unique modular terminal block system from Phoenix Contact you can freely select the connection technology. Irrespective of which connection technology you choose, they can all be freely combined with the same accessories like bridging, marking and test accessories which can be standardized and can reduce your logistics and storage costs.



CLIPLINE Complete Features

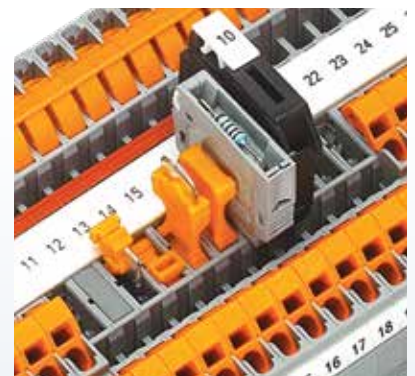
Flexible plug-in bridge system

The same plug-in bridge for all connection technologies. To allow fast and individual potential distribution, the terminal blocks in the CLIPLINE complete system have two function shafts. These are arranged in one line over all the terminal blocks, allowing for a combination of connection technologies.



Multifunctional disconnect zone

All disconnect terminal blocks in the CLIPLINE complete system have a standardized disconnect zone. Various function plugs are available for use in the disconnect terminal blocks. Isolating plugs are used for simple disconnection. Fuse plugs are designed for the use of cartridge fuse-links. The patented component connector allows you to mount components quickly, without the risk of polarity reversal, and without the need for soldering.



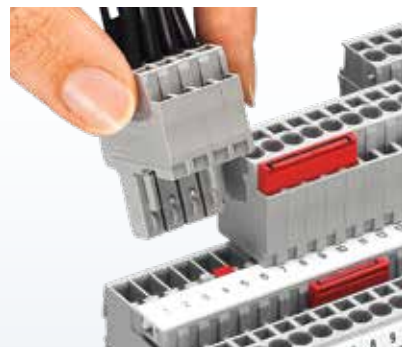
Large-surface marking

All the terminal points of the terminal blocks in the CLIPLINE complete system have large-surface marking options. This is a precondition for clear wiring and startup and simplifies assignment during testing and maintenance work. Optional snap-on large marker carriers are available for group and terminal strip markings.



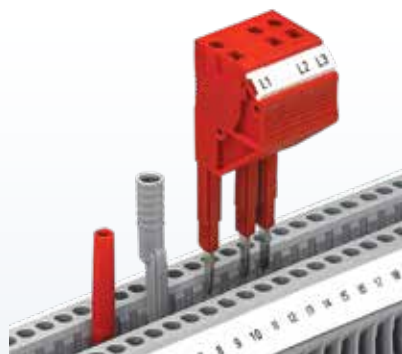
Plug-in connection solutions

The COMBI plug-in system enables the time-saving and modular configuration of your application. Like the terminal blocks, COMBI connectors are available with Push-in, screw, spring-cage, and fast connection technologies. The nominal data of up to 41 A and 1000 V has made a connection system for signal and power wiring possible. The system meets the most stringent of vibration requirements. Both the terminal blocks and the connectors are touch proof.



Standardized test system

The CLIPLINE complete system includes a comprehensive range of test accessories. All test plug contacts are made in the easily accessed function shaft. For individual measuring lines, a test plug with 2.3 mm diameter is available. More complex testing tasks can be implemented using alignable test plugs. The corresponding spacers can be used to assemble individual test adapters which are perfectly suited for use in test laboratories.



Push-in Connection Terminal Blocks

- Time-saving pre-treated and solid conductor connection, thanks to tool-free direct connection technology
- Convenient insertion, thanks to 50 percent lower insertion forces
- Safe wiring and operation, thanks to the color-coded push button
- Connection of all conductor types, thanks to convenient front connection
- The conductor can be easily released – without special tools
- Vibration resistance in accordance with railway standard DIN EN 50155
- Certified for process engineering in the field of increased safety (Ex e)
- Connection capacity from 0.2-185 sq.mm



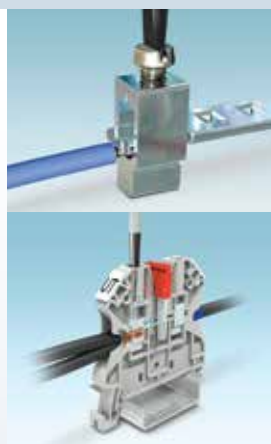
Spring Connection Terminal Blocks

- The proven connection technology for applications those are sensitive to vibration
- Offers large insertion space it means that conductors with a nominal cross section can be wired both with and without ferrules.
- Double bridging shaft provides flexible bridging-alternate and continuous bridging is possible
- ATEX approval is standard for all feed through terminal blocks
- Connection capacity from 0.04-35 sq.mm



Screw Connection Terminal Blocks

- Save time and space with a multi-conductor connection
- All metal parts are of Non-ferrous material to avoid electrolytic corrosion
- Zero maintenance thanks to the Reakdyn principle
- Known and recognized throughout the world thanks to the proven screw connection
- Connection capacity from 0.2-240 sq.mm



Bolt Connection Terminal Blocks

- Most robust connection for conductors with ring cable lugs
- Considerable conductor pull-out forces due to a high contact force and large contact surfaces
- Safety for users thanks to integrated touch proofness
- Simple potential distribution with time-saving plug-in bridge system
- Quick ring cable lug wiring thanks to hinged cover which can be swung up
- Comprehensive range of accessories: standardized for bridging, testing and marking
- Connection capacity from 0.2-300 sq.mm for power as well as rolling stock applications



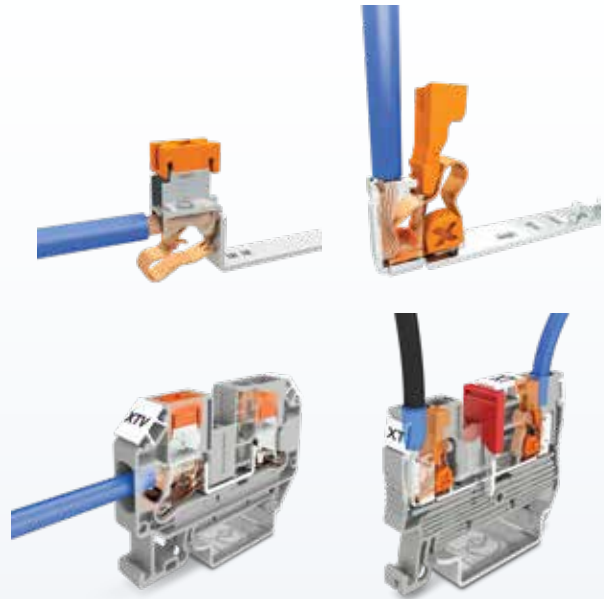
Quick-on Connection (IDC) Terminal Blocks

- Connect the conductor without stripping and no wire preparation required
- The fast connection technology represents up to a 60% reduction in wiring time
- The conductor is connected easily, reliably, and quickly with just one turn of a standard screwdriver
- Connection capacity from 0.25 to 2.5 sq.mm



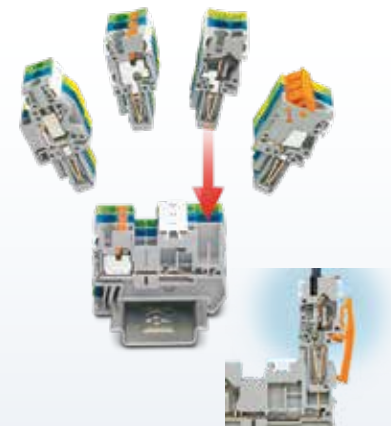
Push-X Technology

- The XT and XTV terminal blocks feature Push-X technology. The new technology enables the tool-free connection of rigid and flexible conductors with and without ferrules.
- The XT terminal blocks are equipped with a frontal conductor connection. For the XTV 6, XTV 10, and XTV 16 versions, lateral connection was selected due to the bending radii.
- A new concept in tool-free conductor connection: Push-X can accommodate all types of conductors with direct wiring without the need for force or tools
- The Push-X technology principle enables the connection of rigid and flexible conductors with or without ferrules.
- Easy handling – the side conductor connection helps to avoid bending radii during wiring
- Reduced installation times, thanks to the clamping space opened at the factory and the elimination of conductor pretreatment
- Quick and easy conductor release as well as pretensioning of the contact spring, enabled by the force-guided actuating element
- Connection Capacity From 0.5 - 16 sq.mm



Combi Plug-in Connection Terminal Blocks

- The COMBI pluggable terminal block is a modular DIN rail mounted terminal block which provides for a standard terminal block connection on one side and a plug connection on the opposite as well as a complete hanging solution for inter-panel wiring application
- Plugs are available upto 15 position and also available in individual plugs for self assembly
- Available in all connection technologies i.e. Screw, Spring cage, push in and fast connection technology upto 6 sq.mm



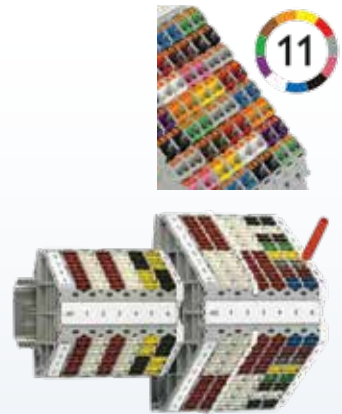
Potential Distribution Terminal Blocks

- Ready-to-use blocks for fast assembly without manual bridging, offering time savings of up to 80 percent
- Various mounting options: DIN rail mounting, direct mounting or adhesive mounting
- PTFIX available in 11 colours
- Testing facilities for all common test probes



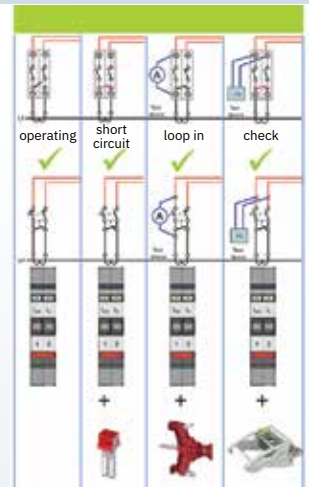
Marshalling Terminal Blocks

- Maximum signal density and up to 20% less space required, thanks to the compact design
- Tool-free wiring in a confined space thanks to compact size
- Potential distributions with up to 32 connections can be implemented
- Compact and space saving with an installation length of just 100 mm
- Freely configurable color assignment for conductors and terminal points enabling intuitive and safe installation
- Convenient testing by means of freely accessible 2.3 mm test connections centered between the connection points
- Large-surface, pitch-free marking for matrix identification



Pluggable Protection and testing device

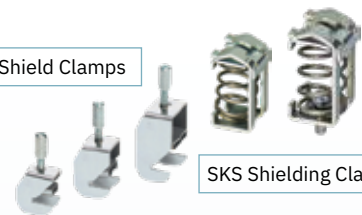
- Easy and time-saving, thanks to functional grouping of switching operations
- Maximum safety, thanks to leading and automatic transformer short circuit.
- Space-saving, thanks to compact test disconnect sockets and offset test socket arrangement
- Flexible, thanks to freedom of choice between wall or DIN rail mounting when using the standardized CLIPLINE complete system accessories
- Safety for users thanks to integrated shock protection
- Clear, thanks to the large-surface marking options and easily identifiable switching states



Shielding Clamp

- A shielding clamp, is a device used to ground and shield cables, wires, or components to prevent electromagnetic interference (EMI) and radio frequency interference (RFI) in electronic systems.
- Optimal electromagnetic compatibility thanks to EMC-compliant wiring
- Interference-free signal transmission and signal processing. Optimal shielding attenuation thanks to a large-surface contact pad
- Simple and compact shield clamp mounting on the NLS thanks to various support brackets
- Easy connection of the NLS to the protective conductor of the control cabinet thanks to suitable connection terminal blocks
- We have 3 type of Shielding Clamps which SK Shielding Clamps(Screw Type Shielding Connection), SKS Shielding Clamp(Spring-type Shielding Connection), SCC Shielding Clamp (Contact Spring for Optimum shielding – easy mounting)
- “Three possibilities of wiring:
 - On the busbar
 - Direct mounting
 - DIN rail mounting”
- “SK - for cable diameters from 2 mm to 35 mm
SKS- for cable diameters from 3 mm to 20 mm
SCC- for cable diameters from 2 mm to 20 mm”

SK Shield Clamps



SKS Shielding Clamps

SCC Shielding Clamps



SOCKET

- Sockets that can be mounted on DIN rails serve for easy connection of electrical auxiliary devices for assembly, testing, lighting, etc.
- They enable worldwide use in switchgear, control cabinets, and in simple sub distributions.
- Worldwide use makes it essential to offer the sockets with pin connector patterns that are standard in each country
- The integrated functions such as LED, fuse, switch, circuit breaker or a combination of the functions with each other, offers a wide area of use.
- “The following pin connector patterns can be selected from the sockets:
 - Type AB, type CF, type D, type E, type G, type I, type J, type K, type L, and type N
 - Type E, type G, and type L are also supplied with an integrated shutter system”



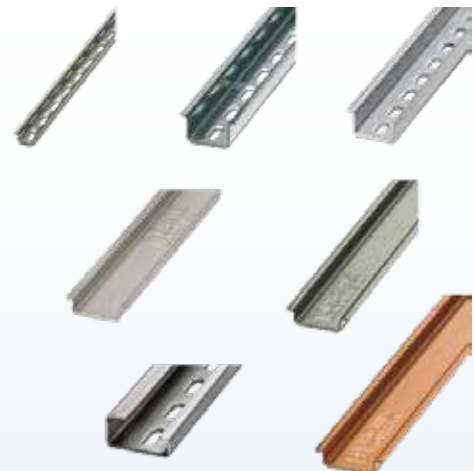
Cable Guiding System – CGS

- Install pre-assembled conductors, cables, and cable harnesses easily, thanks to innovative swivel joints
- Subsequent wiring is quick and easy, thanks to swivel joint openings that can be operated without tools
- Cable routing for the control cabinet door can be planned in the CAD system, thanks to the defined installation space and swivel range
- Easy planning and production of cable harnesses, thanks to the pre-defined cable length
- Quick and easy mounting, thanks to integrated flanges with strain relief
- Mechanical cable protection and bundling, thanks to protective covers that can be attached without tools



Din Rail

- Din Rail is a core product in the control cabinet
- Our portfolio also includes special profiles, various material to meets wide range of requirement
- Versions of NS 15, NS 35/7.5, NS 35/15, NS 32 and NS 35
- Perforated and non-perforated versions for NS 15 and NS 35/...
- Various surface coatings Zinc, White passivated for indoor applications
Thick layer passivated for indoor and protected outdoor applications
- **Stainless steel** – Used in aggressive environments
- **Aluminium and Copper versions** – Used as PEN busbars due to improved conductivity



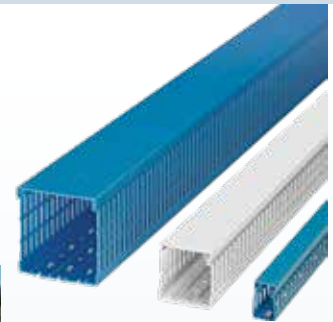
BUSBAR

- Busbars are typically used in electrical power distribution systems to distribute power from a single source to multiple devices
- For applications demanding high current handling capabilities, provides specialized high-current busbars designed for industrial settings where robustness and reliability are paramount
- Additionally, their compact busbar systems optimize space utilization without compromising performance, making them suitable for confined spaces and crowded control cabinets.
- busbar solutions provide versatile and dependable power distribution solutions for a wide range of applications and their blue, green-yellow or black colored housings
- Connection Capacity From 0.5 - 35 sq.mm



Cable Management

- Cable routing: The wide choice of cable ducts provides users with flexible and straight forward cable installation solutions. The cable ducts are available in different colors and with a halogen free design.
- Cable bundling: For bundling cables, detectable cable binders and stainless steel or plastic cable binders are available in either a removable version or with a labeling area.



Din Rail accessories

Busbar and Support

- PEN conductor busbar in 3x10 and 6x6 mm
- Support bracket
 - Single
 - Double - to support 3x10 and 6x6
- Fixing DIN rails
 - Flat brackets
 - Angled brackets – 30 ° tilt angle
- End brackets
 - Snap-on and screw-on versions
 - Plastic and metallic versions
 - Suitable to mount on NS 15 and NS 35 din rails

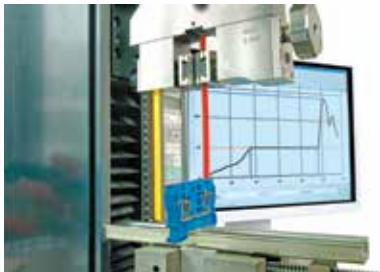


CLIPLINE complete - Quality in every application

The quality of our products is our top priority. This is not only tested subsequently on finished products, but is ensured with responsibility during every step of production. A process-oriented, integrated management system ensures that not only legislation and standards, but also customer requirements are taken into account during the manufacturing of our products.

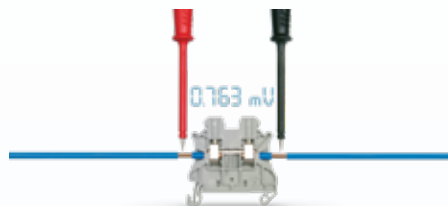
A detailed overview of the individual tests and the associated standards is available on our website and in the CLIPLINE complete quality brochure.

Tests at a glance



Mechanical tests

- Connections capacity
- Mechanical strength
- Flexion test
- Conductor pull-out test
- Tight fit of terminal block
- Vibration test
- Shock test
- Finger and back-of-hand safety



Electrical tests

- Air clearances and creepage distances
- Surge voltage test
- Voltage-drop test
- Temperature-rise test
- Short-time withstand current
- Dielectric test



Fire behavior

- Needle flame test
- Surface inflammability
- Smoke gas development
- Fire behavior
- Fire protection
- Smoke gas toxicity
- Inflammability classification
- Halogen-free flame protection
- Glow-wire test
- Fire load determination



Explosion tests

- IECEx and ATEX
- Types of protection
- Routine testing



Material tests

- Aging test
- Comparative trading index (CTI)
- Insulating material properties



Environment/ambient conditions

- Temperature shock test
- Corrosion test
- Salt spray
- Environmental tests



Industrial Field Connectivity

IP65+ Connectors for Signal, Data and Power applications

PLUSCON FIELD: Sensor/actuator cable

Application	:	Drag chain, Robotics, Welding, Food & Beverage, Outdoor, Railways, Fieldbus Communication, Solenoid Valves and Pharmaceuticals
Type of interfaces	:	M8 and M12
Pin Configuration	:	3 to 17 poles.
Power Ratings	:	Up to 600 V, 16 A
Cable lengths	:	Up to 40 meters



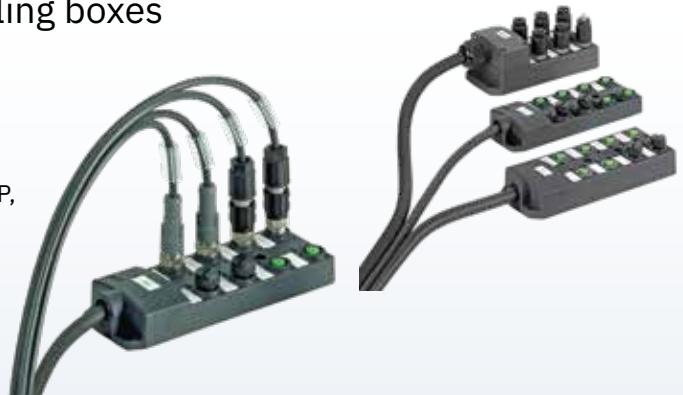
PLUSCON FIELD: Sensor/actuator cable connectors

Application	:	Sensors, Solenoids Valves, ETHERNET, PROFINET and Field bus communication
Type of interfaces	:	M8, M12 and 7/8"
Pin Configuration	:	3 to 17 poles
Power Ratings	:	up to 600 V, 16A
Connection Technology	:	Screw, Solder, Crimp, Piercecon, Push-in, QUICKON (IDC)



PLUSCON FIELD: Sensor/actuator cabling boxes

Application	:	Outdoor, Food industry, Machine building
Type of interfaces	:	M8 and M12
No. of Sensors slots	:	Up to 16
Sensor Type	:	For with or without wire, PNP, NPN and Universal Sensors
Status Indication	:	With and Without LED



PLUSCON Installation: Power Connectors and distributors

Application	:	Hanging Connection, Panel feed-through, 1-in & 3 - out distribution and T distribution
Power ratings	:	Up to 690 V, 40 A
Wire Size	:	Up to 6 mm ²
Cable diameter	:	Up to 20 mm



PLUSCON Heavy: Heavy-duty plug-in connectors

Application	:	Panel feed-through, Surface Mounting, Hanging / Coupling Solution, Blind Mating Connection
Pin Configuration	:	3 to 216 poles
Power Ratings	:	Up to 5000 V, 300 A
Connection Technology	:	Screw, Crimp, Push-in, QUICKON (IDC), Axial Screw, Fiber Optics and Pneumatics
Housing Material	:	Plastic and Metal



PLUSCON Cabinet: Installation and mounting solutions

Cable entry system	:	Frames for 6, 8 and 10 cables Cable Sleeves up to 33 mm outer cable diameter
	:	For IP54/IP55 and IP65 applications.
Din rail plug connectors	:	Up to 108 poles
Service interfaces	:	Different combinations of Universal Power socket, RJ45, USB and D-Sub IP65 protection



PLUSCON Data: Network Cables

ETHERNET	:	For CAT5e and CAT6a applications
PROFINET	:	For 4-wire, CAT5e applications
Fiber Optics	:	Multimode glass and polymer fiber
Fieldbus	:	PROFIBUS DP, DeviceNet/CANopen, FOUNDATION and ASI Cables



Power Supplies

Power solutions for maximum system availability

AC/DC Converter

QUINT POWER with Advance Functionality

QUINT Power maximizes the availability of your system. Output Power available upto 960 W in various adjustable DC voltage range 5, 12, 24, 48, 110 and current from 1 A40 A.

- Universal I/P range for AC & DC applications in 1-phase and 3-phase
- Quick triggering of commercial grade ckt. Breakers with SFB technology
- Power reserve for system expansion and ability to start heavy loads
- Preventive Function monitoring reports critical operating states before they occur
- NFC - Parametrizable power supply



AC/DC Converter

Power Supply with Integrated decoupling MOSFET

QUINT power supply with integrated decoupling-MOSFET enables highest system availability. It fulfills the requirement up to SIL3 and can be used in the application up to SIL 3 according to IEC 61508 and IEC 61511.

- Integrated decoupling-MOSFET for maximize system availability
- Wide temperature range -40°C up to +75°C
- Protective coating- Protection against dust, corrosive gases and 100 % humidity
- Dual OVP with secure shut off.
- SIL 3 certification maximizing operational safety.
- Solution available up to 40 A.



AC/DC Converter

TRIO POWER with Standard Functionality

Trio Power combines basic functionality with high quality and reliability. Output Power available upto 960 W in various adjustable voltage range 12, 24, 48 and current from 2.5 A40 A.

- Wide Input range for 1-phase and 3-phase applications
- Robust design with Metal housing and wide temperature range
- Third negative terminal for grounding on the secondary side
- Compensation of voltage drop with set point in front
- Supply and protection in one device due to the integrated multichannel circuit breaker



AC/DC Converter

UNO POWER with High efficiency for stand alone applications

UNO Power offers the ideal solution for loads up to 960 W especially in compact control boxes. Output Power available in various voltage range 5, 12, 15, 24, 48 and wattage from 25 W ..960 W.

- Wide I/P range 85-264 VAC for 1-phase
- High Energy efficiency of over 90% and low no-load losses < 0.3 W
- Save Space in control cabinet due to high power density
- Simple output voltage monitoring, thanks to the floating DC OK relay contact

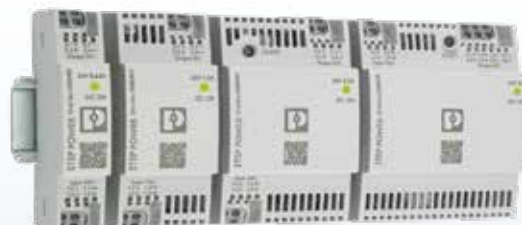


AC/DC Converter

STEP POWER for Decentralized Automation

STEP Power supplies are ideal choice for Measurement & Control Technology and flat control panels for building installation. Output Power available in various adjustable voltage range 5, 12, 15, 24, 48 and current from 0.5 A8 A.

- Universal Input range for AC & DC Application in 1-phase
- Maximum energy efficiency and incredibly low idling losses
- Easy-maintenance with Coded pluggable connectors
- Function monitoring with LEDs and Active Signal Contacts
- Outdoor installation wide temperature range from -25°C to +70°C



AC/DC Converter

CHARX power – for high power application

The scalable CHARX power DC power electronics enable the cost-effective supply of your DC charging infrastructure for the fast charging of electric vehicles & applications where high power (kw) is required.

- CHARX power, Fast charging module for setting up DC charging stations
- Both AC and DC inputs are available
- Low installation costs with Plug and Play and efficient operation
- Uni-directional and Bi-directional modules are available in 19" for standardized installation
- Galvanic isolation



AC/DC Converter

Power Supplies with IP 67 degree of protection

The robust power supplies with IP67 degree of protection are ideally suited for decentral supply in the field. The weather-resistant aluminum die-cast housing protects the devices against dust and water.

- Cabinet-free installation
- Standardized connections - 7/8, M12 and IPD
- Reliable starting of difficult loads with Dynamic Boost
- Robust electrical input and output
- Solution available up to 10 A with Circular, M8 and IPD connectors



DC/DC Converter For Superior System Availability

Quint DC/DC converters alter the voltage level at the end of long cables and also create electrically isolated independent supply system. Output Power available in various adjustable voltage range 5...60 VDC and current from 0.7 A.....20 A.

- Constant voltage, even at the end of long cables
- Wide input voltage range from 9....75 VDC
- Unique feature of SFB and Power Boost available
- Function monitoring with LED, Active signals, Relay contacts



DC/AC Converter INVERTER – for generating alternating currents

The new DC/AC inverter in the QUINT POWER family offers a compact solution to generate alternating current in DC applications. It delivers a pure sine curve and current with constantly high quality.

- Manual selection of AC output voltage via signal terminal enables world wide use.
- Pure sine curve at the output
- USB interface for connection to industrial PCs.
- Can be switched in parallel for various applications
- Compact design saves space



Redundancy Modules DIODE for Decoupling

Diodes enable simple decoupling of two power supplies on the DC side. This is useful in particular when power supplies are in parallel connection to increase power or for redundancy purposes.

- Decouples two power supplies connected in parallel with quick installation
- Redundant wiring up to the load
- Consistent redundancy up to the load

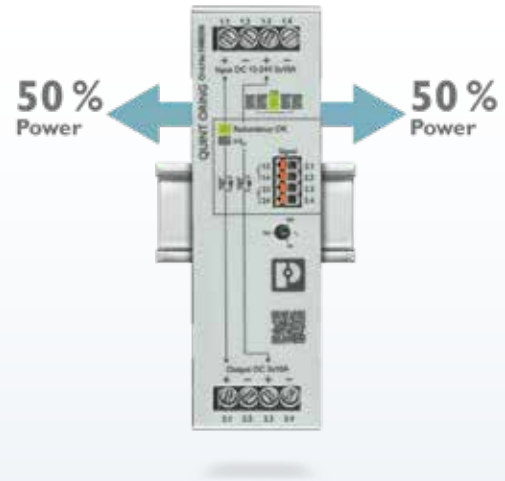


Redundancy Modules

MOSFET - For decoupling, monitoring, and control

The QUINT ORING modules now feature application-specific surge protection, as well as two outputs that ensure maximum system availability.

- Preventive function monitoring through constant monitoring of the input voltage, output current, and decoupling section
- Consistent redundancy through to the load with two positive output terminals
- Service life doubled with uniform load distribution
- Energy savings of 70% with MOSFETs
- Protection against over voltages at the output (overvoltage protection) increases operational safety.

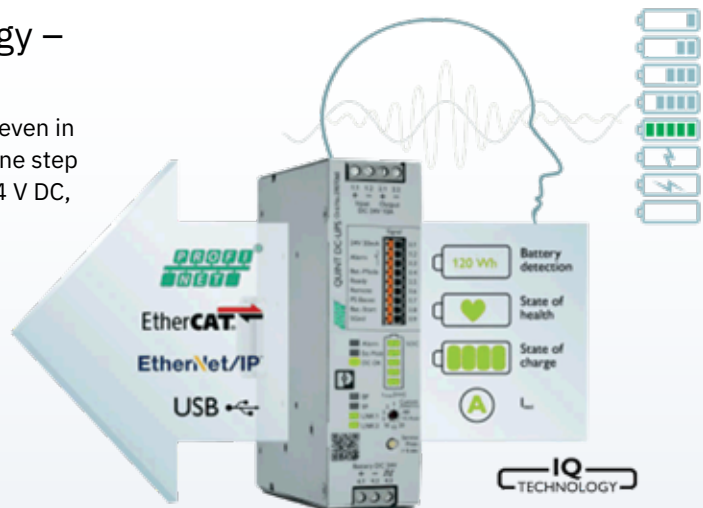


DC-UPS

Intelligent DC UPS with IQ technology – for industrial networks

Uninterruptible power supply continue to deliver power even in the event of mains failure. With IQ technology, you are one step ahead in DC application. O/P power available upto 12/24 V DC, 2A...40 A in DC UPS.

- Complete monitoring of UPS as well as power storage device
- Maximize the service life of power storage device
- Transfer all relevant information to your computer/controllers
- Pre alarming about failure at an early stage
- Integrated interface for PROFINET, EtherNet/IP, USB, EtherCAT and IPTM, EtherCAT and USB



AC-UPS

Supplying AC loads without mains – For online and offline operation

Our uninterruptible power supplies for industrial AC applications ensure maximum failsafe performance and system availability in the event of voltage failures or fluctuations. Solutions available up to 2.5 KVA.

- Smooth transition due to online topology
- Pure sine curve in mains and battery operation
- USB interface for connecting to industrial PCs, for example
- Startup from energy storage possible, even without mains input
- Can be switched in parallel for redundancy and increased performance



Interface Components

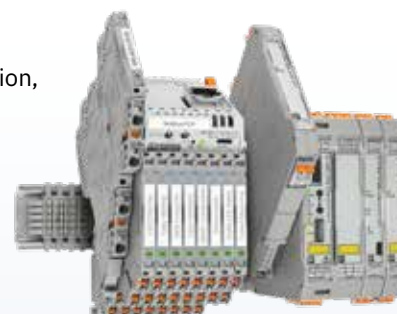
Monitor, Switch, Amplify, Convert, and Digitalize the field signals to the control cabinet with Interface components. The range covers the solution of signal conditioners, relays, Motor Starters and Monitoring components like Energy meters, Current and Voltage Monitoring.

Signal conditioners for standard applications

Unrivaled Compact design of MINI ANALOG PRO Signals enables isolation, conversion, filtration and amplification of field analog signals with isolation level upto 3 KV, worldwide approval and special Zone 2 installation permission makes the signal conditioner ideal for process automation.

MACX analog signal conditioners and measuring transducers offer you functional safety in accordance with SIL IEC/EN 61508, level of SIL 2 SC3 to SIL 3, Certified in accordance with EN ISO 13849 and performance level from PL c through to PL d make it suitable for machine safety.

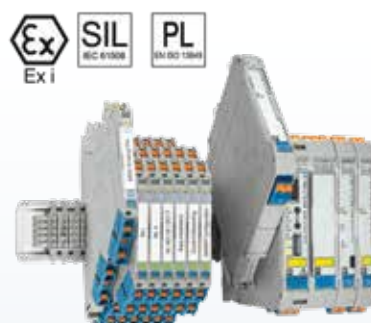
- Achieve space savings of up to 65% with highly compact signal conditioners.
- For Analog, Temperature, Frequency, NAMUR, Potentiometer and Limit values.
- Measurement of Current Loops without disconnecting conductor wire and HART compatible.



Signal conditioners for intrinsic safety (Ex 'i')

Signal conditioners and measuring transducers for explosion protection evaluation in accordance with SIL IEC 61508 and PL DIN EN ISO 13849 along with EX 'i' certificate minimize hazards to an acceptable residual risk and ensure the protection of people, machines, and the environment.

- Single & Two Channel Variants with SIL2/SIL3 certification and for all hazardous area location.
- MINI analog with as compact as 6.2 mm and MACX with 12.5 mm even in dual channel.
- Reliable and safe signal isolation, conditioning, filtering, and amplifying with our signal conditioners and measuring transducers for explosion protection.



Process indicators and field devices

Field Analog series process displays, and field devices enable you to acquire, monitor, and locally display analog and temperature signals, and to control them via digital and analog inputs and outputs. Loop-powered temperature transducers acquire signals from resistance thermometers, thermocouples, resistance-type sensors, and voltage sensors directly in the field and convert them into standard and HART® signals.

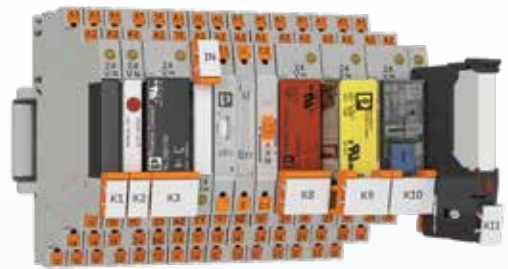
- Multifunctional and universal: Process displays with universal input for current, voltage, and the signals of RTDs, TCs, as well as frequency and pulse signals and HART® communicative.
- Zone 1 installation permission with Head Mounted transmitter and IP67/68 protected loop powered indicators.



Pluggable and Compact “PLC” Relay

The PLC-INTERFACE relay series for universal use provides a wide range of plug-in electromechanical relays and solid-state relays.

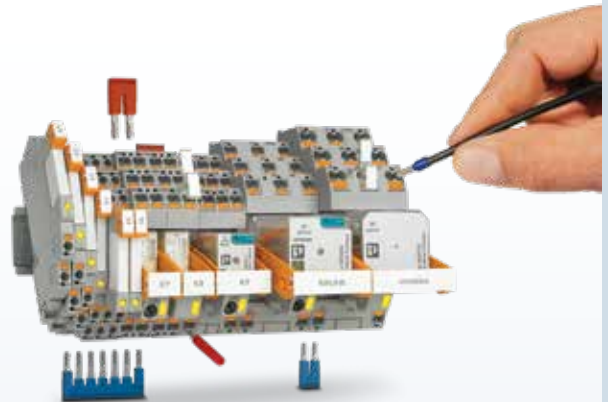
- Comprehensive product range with special versions for special applications
- Optimized installation effort with versatile accessories
- Just 6.2 mm wide with plug-in electromechanical and solid-state relays
- Easy connection technology: screw or Push-in connection.
- Variety of variants with manual actuator, sensor and actuator series relays, Railway certified relays, Interference Filters, with Integrated Restable circuit breaker, Force guided relays, Hazloc certified relays, Higher Inrush current relays, Hybrid SSR along with possibility of Plug-IN Fuse adaptors.
- Quick plug-in connection between controller and relay with system cabling adapter.



RIFLINE Complete Relay

In RIFLINE relay system's universal plug-in design enables quick, easy, and error-free handling along with proven Push IN connection technology.

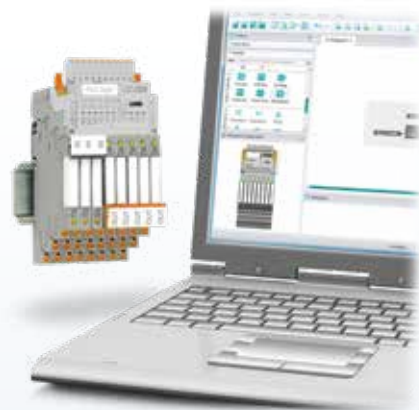
- Complete product family covers all standard relay applications
- Plug-in function modules such as RC, Varistors, Freewheeling diode and Timer Block for extension in according to application along with manual actuator.
- Special functional relays such as high DC switching, replacement of miniature contactors, High inrush current relays, Force guided relays, Octal relays with switching upto 16 A per contact.
- The choice either complete set or individual component.
- Functional shorting bridges, Test plug, Marking.



Programmable logic modules/control relays

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 using a single compact system.

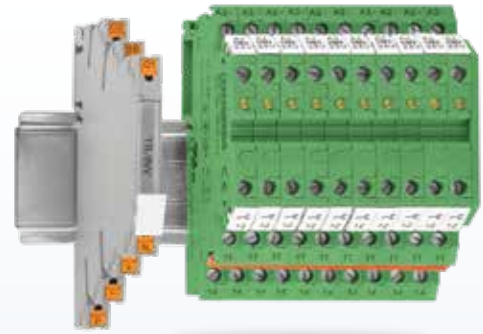
- High availability due to pluggable switching elements.
- Flexible combination: Each channel can be individually equipped with relay or analog modules as input or output.
- Efficient wiring thanks to push-in connection technology and special variants for sensor or actuator wiring.
- Easy realization of projects through intuitive programming via webserver interface.
- Easy network integration with RS485 on board.



Special function Relays

PLC Series & DEK terminal block relays are highly compact solution for special application purpose which helps customer to reduce dependency over customized solution and helps to optimize system performance.

- All global approval with safe isolation DIN EN 50178 (VDE 160) up to 4 kV.
- Signal Status LED, clear marking and switching capacity of 10 Amps.
- 60% Space saving module with 5 VDC to 230 VAC models.
- Special models with interference filter, manual switch, NAMUR switch, PNP/NPN invert modules, pulse expansion module, with electronic timer & integrated circuit breaker.
- Universal marking system, pluggable jumpers and potential distribution.



Multifunctional energy measuring devices

Multifunctional EMpro energy measuring devices acquire your energy data and offer numerous options for communicating the data to higher-level control and management systems.

- Numerous industrial communication protocol like Modbus (TCP/RTU), Profinet, Ethernet/IP, M-Bus & REST API.
- Special modules with direct integration into Phoenix Contact own cloud system Proficloud or local Energy management software EMMA on Premises.
- Harmonics with 63rd degree, DI/DO, 256 times of sampling rate, dual backlit LED, Password protection and multimore advance features making the energy meter comfortable for Industry 4.0
- Aux Supply of 100-400 VAC/DC OR special 24 VDC module.



Energy Meters for Dc Grids

The compact EMpro DC energy meter enables the space-saving, precise, and tamper-proof direct measurement of currents and voltages. The proven RS-485 interface with SLIP protocol in OCMF data format and calibration-law approval are ideal for billing charging processes in e-mobility.

- Space-saving and accurate DC direct measurement with 200 kW and 650 kW in a compact design.
- High reliability with extended an temperature range from -40 to +80°C with adjacent heatsink.
- Simple communication of measurement data to higher-level control systems via standardized plug-and-play connection.
- Ideal for e-mobility charging processes and DC energy grid with the OCMF data format, digital compensation of cable power loss.



Energy Meter for Billing Purpose

EMpro energy meters with MID-certification in accordance with EN 50470 enable cost center-accurate energy data billing. The measuring devices measure the important electrical parameters such as currents, voltages, power factors, and outputs, as well as energy values in all four quadrants.

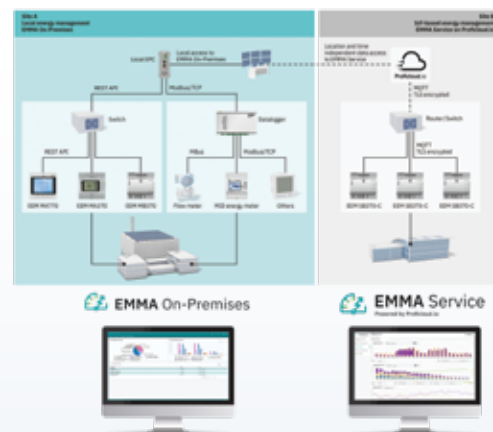
- Easy bus and network connection via M-Bus, Modbus/RTU, or Modbus/TCP interface
- Narrow on the DIN rail with widths of just 17.5 mm or 72 mm for 1-phase and 3-phase.
- Time and cost savings with versions for direct current measuring up to 100 Amps.



EMMA-Services

EMMA Services: the online energy management system and EMMA on Premises: the local energy management system are the smart solution to manage the energy data in an integrated environment, which gives the user to monitor and analyze energy data with intuitive, customizable functions.

- Direct to the cloud without a gateway and TLS encryption
- Visualization options such as pie charts, bar charts, line charts, and more.
- Device Management Service and Time Series Data Service.
- Downtimes and workloads can be planned, Increased product quality through data, Warnings in the Smart Service or via email indicate impending problems, Expertise accessible to every employee.



Pact Current Transformer

PACT current transformers for new installations offer a complete portfolio for converting alternating currents up to 4,000 A AC. PACT current transformers are available as bus-bar, window-type, and winding current transformers with a range of different transformation ratios, accuracy classes, and rated powers suitable for your current measurement tasks.

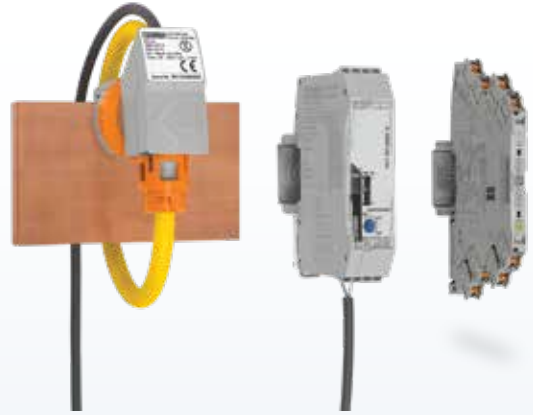
- Proven screw-connection technology, quickly accessible with the simple 90° rotation of the captive terminal cover
- Variable mounting with flexible fastening options
- Measure peak loads reliably with a thermal nominal continuous current of 120% of the primary rated current
- Increased electrical safety with high rated insulation voltages up to 1,000 V (L-N)
- Space-saving design with consistently narrow housing widths of 30 mm



PACT Rogowski Coil

Current transformers for retrofitting, which are based on the PACT RCP Rogowski coil, acquire alternating currents up to 4,000 A and convert them into an AC secondary current or into an AC mV signal, depending on the type of downstream measuring transducer.

- Quick retrofitting of new measuring points without disconnecting electrical conductors
- Practical direct connection to all EMPro energy measuring devices with a 0 to 1 A AC current input
- Space-saving with compact designs
- Secure positioning on busbars, current rails, and circular conductors with professional attachment options
- Suitable for any application with selectable measuring ranges.



Current Transducers

Current measuring transducer for capturing direct, alternating, and distorted currents. The portfolio offers versions for different measuring ranges: from extra-low current, starting at 0 mA ... 100 mA, to higher currents with 600 A. Use the versions with a removable Rogowski sensor to quickly retrofit additional measuring points in existing systems.

- AC/DC and Distorted current measurement upto 600 Amps via 32 mm diameter hole with MCR series transducers.
- MCR AC current measuring transducers measure AC currents of up to 400 A with Split core functionality for retrofitting areas.
- MACX MCR product family measure sinusoidal AC currents up to 12 A and convert them into an analog standard signal.
- ECM UC current measuring transducer range saves you a lot of time with the intuitive device configuration via web-based management (WBM) from 100 mA to 100 Amps.



Voltage Transducers

MACX MCR voltage measuring transducers measure DC or AC voltages and convert them into standard analog signals. Up to 660 VAC and 1500 VDC can be processed with isolation.

- Eight finely graded voltage measuring ranges provide optimum measuring accuracy.
- 3-way electrical isolation ensures high-level operational safety.
- +/-20% of nominal value helps to gain maximum accuracy with respect to input.
- Modules with just 22.5 mm wide and pluggable connectors (Push-in/Screw Connection).
- Automated Teach-In feature for easiest tuning of the transducers.



Timer Relays

Timer relays suitable for LV & MV switchgear customers for precise selection of time operated system without having dependency over a high-level controllers. The user selection of high functionality MACX Series, Compact ETD series and Narrow PLC series relays makes the family for all possible applications of Time functions.

- Up to 14 different types of time functions can be defined and selected based on application of customer.
- Higher switching capacity with higher life cycle.
- MACX series particularly target the users with OLED display for monitoring of exact time range whereas PLC series target the customers to save the size of control cabinet.
- Wide range of approvals and worldwide use along with specifically railways applications, thanks to Push-In connection technology.



Monitoring relay

Monitoring relays are an inexpensive solution for monitoring important electrical and physical system parameters. EMD Series and MACX Series monitoring relays capable to take almost every electrical parameter and can support to provide the digital output in case of any abnormal condition.

- Space saving with the compact installation housing and Clear diagnostics with status LED.
- Monitor overvoltage, undervoltage, overcurrent, undercurrent, phase failure, phase sequence, phase asymmetry, power factor, active power, motor winding temperature, and fill levels.
- Universal auxiliary supply, password protection, and precise setting of parameters.
- Configuration of MACX devices via NFC/Smartphone app is possible and special variant with Modbus RTU for industrial digitalization.
- Application with wide range of approvals along with suitability in railways applications, thanks to Push-In connection technology.



Solid State Contactors

Solid-state contactors are far superior to mechanical contactors in terms of switching speed, service life, and robustness. It can switch resistive and inductive loads silently and without wear. The solid-state contactors in the CONTACTRON series are available for single- and three-phase networks.

- Reliable and fast switching, thanks to wear-free electronics.
- Easy control – with versions with 24 VDC or 230 VAC input voltage.
- Robust – resistant to shocks and vibrations.
- Easy wiring, thanks to integrated locking circuit and load wiring.
- Switching capacity up to 18.5 kW.
- Direct start and reversing of single and three-phase asynchronous motors.



Starter for DC Motor

Electronic load relays and reversing load relays enable the fast switching of mechanically commutated DC motors up to 24 V/10 A without wear. The output is protected against short circuits, overvoltages, and overloads ensures reliable operation in the system. The internal locking circuit and load wiring minimize the wiring effort.

- Reliable and fast switching, thanks to wear-free electronics.
- Easy wiring, thanks to integrated locking circuit and load wiring.
- Direct start and reversing of mechanically commutated DC motors.
- Robust and resistant to shocks and vibrations.



Contactron Hybrid Motor Starter

Hybrid motor starters replace a conventional reversing contactor and the motor protection with a single device. Switch motors safely and reliably with hybrid motor starters. Use the devices wherever three-phase asynchronous motors need to be reversed and protected.

- High system availability, thanks to 10 times longer service life with hybrid technology
- Less space required due to the narrow design: 22.5 mm overall width
- Adjustable motor protection with bimetal function with three performance class of 0.6 Amps, 2.4/3 Amps and 9 Amps.
- Standalone model, Group Start/Stop and networkable starters along with option of E-Stop.
- Specific models with integrated fuse protection at input side to achieve coordination type II.
- Variants with 2 in 1, 3 in 1 and 4 in 1 user choice selection.

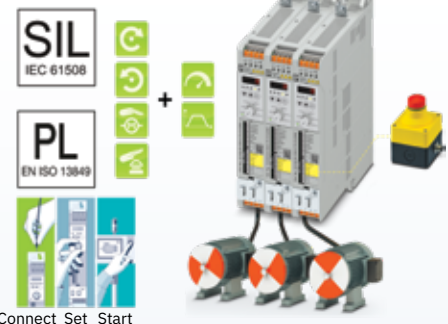


Contactron Speed Starter

The Speed Starter is the device class between motor starters and frequency converters. This compact solution provides forward /Reverse, Overload protection, soft start/stop, safe stopping with the Safe Torque Off (STO) function and features simple operation with various speeds, from normal speed, creeping speed, and soft start, all the way to energy efficiency and ramping functions.

- Fast and reliable mounting with optimized Design, fixing, latching, and screw connection.
- Five different class 0.25, 0.37, 0.55, 0.75 and 1.5kW with EMC or without EMC model along with option of Single phase or three phase input.
- Safety level of SIL3, Performance class ,e' makes the device suitable to integrate into SIS systems.
- Dedicated wiring terminals with push-in connection makes the device setup within few minutes and ready to operate.
- Display for configuration and wide range of error acknowledgment.

Contractron Speed Starter



Front Adapters for Controller IO Cards

Front adapter marshals the signals, eliminating the need for complex wiring with single-core wires. Simply plug the adapter into the correct input/output card of the controller. Solutions are available for the following controller manufacturers: ABB, Allen Bradley, Emerson, Honeywell, GE Fanuc, Phoenix Contact, Mitsubishi Electric, OMRON, Schneider Electric, Siemens, Yokogawa.

- Clean and error free plugging.
- Vibration proof and specified for the IO cards.
- Compatible with all IO accessories to make isolated/non-isolated system.



System Cabling – Cable and Harnessing

Controller-specific and standard cable harness solution for quick, error-free connection to the controllers / Machines or Systems. Time savings of up to 90% and space savings of up to 60% in comparison with conventional individual wiring solution.

- 100% Quality tested and plug/play possibility with dedicated front adapters/ connectors.
- Reduce system testing efforts & easy handling during maintenance.
- Solution for customer specific requirement with local manufacturing in accordance to fulfil the gap of standard solution.
- Variety of cable connectors available as standard such as DSUB, IDC/FRC, ELCO, FCN, Phoenix Connector etc with multicore cables, wire size 0.14 sq.mm to 1.5 sq.mm.



Varioface Professional : VIP Modules

VARIOFACE termination boards ensure your reliable signal transmission between the field and automation levels. Reliable signal transmission: the universal termination boards couple high-position connectors to screw, Push-in or spring-cage terminal blocks – for IDC/FLK, D-SUB, ELCO, DIN rail, or RJ45:

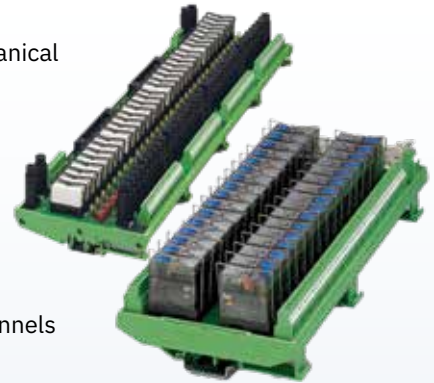
- Modules can be precisely defined due to variable marking
- Easy handling with the metal foot for DIN rail mounting with vibration proof.
- Universal modules for all common numbers of positions and with screw or Push-in connection technology.
- Potential distribution with multichannel upto 48 termination points.



Standard multichannel RELAY BOARD

Varioface Relay Modules are the compact modules carrying a no. of electro mechanical relays on as single PCB along with the required screw terminals and necessary protection and signalling circuitry.

- Visual indication for Relay status, necessary protection circuits. e.g. Free wheeling diode with DC relays.
- Solution with contact protection by means of fuses and fuse failure indications, direct connection to IO cards by means of compatible system cabling components.
- From 1NO contact, up to 4 C/O contacts makes the family complete with channels from 2 to 16.
- Solid state and electromechanical both options as per the requirement of customers.
- Locally developed Customer specific solution to fulfill the gap of standard product and tested according to the application demand.



Universal IO Signal Marshalling

VIP I/O marshalling. The system combines signal marshalling and processing in a controller-independent solution for your universal I/O system. Pluggable input/output accessories with various interface functions enable universal configuration of individual channels.

- Shorter project duration with a consistent Universal I/O approach
- Changes to the I/O assignment are possible in every project phase with plug-in IOAs
- Lower number of control cabinets, because additional marshalling cabinets are not necessary
- Reduced wiring effort with various system cabling solutions for connection to distributed control systems (DCS)
- Easy migration into existing systems by reducing downtimes during retrofit work



ECOR Line Relays

ECOR series of relays are efficient, modular industrial relay system with basic functions, consisting of relays, relay bases, retaining brackets, and plug-in function modules. Take advantage of a flexible range with one to four changeover contacts and input voltages of 12 V DC to 230 V AC. Essential edition Relays available in 1 to 4 changeover contacts.

Advantages

- Securing high product quality with 100 % testing of isolation and function.
- Reliable system for high machine and system availability.
- Function plug-in modules for coil suppression and status display.
- Robust bolt connection/universal screw connection technology.
- UL and CSA approval



MINI ANALOG Basic

ESSENTIAL edition signal conditioners are space-saving and efficient with proven quality. The highly compact signal conditioners feature electrical isolation, signal conversion, signal filtering, and signal amplification for comprehensive signal conditioning with an overall width of just 6.2 mm.

- Save up to 65 percent space compared to other signal conditioners on the market, thanks to the 6.2 mm overall width.
- High operational safety in the event of disturbances, thanks to 3-way electrical isolation.
- Convenient configuration via DIP switch.



Essential Timer & Monitoring Relays

Compact timer relays in a 17.5 mm wide housing for controlling time sequences. Single-function timer relays, multi-functional timer relays, and monitoring relays are suitable for most universal requirements. Monitoring relays quickly recognize deviations from key system parameters. They report these deviations or shut system parts down selectively.

- Optimum time control with setting range from milliseconds to 10 hours
- Monitoring relay ideally suited for simple monitoring tasks
- Easy handling, as time parameters can be adjusted conveniently on the front of the housing.
- Space saving.



Essential Series Energy Meters

This device is a digital single-phase electric energy measuring device, suitable for measuring active power in the 230 V / 45 A power grid by the method of direct measurement, with 2 pulse outputs, RS-485 interface, and operating temperature up to +70°C, certified in accordance with the MID directive.

This device is a digital three-phase electric energy measuring device, suitable for measuring active power by direct measurement in the power grid not exceeding 480 V / 100 A, with 2 pulse outputs, RS-485 interface, and operating temperature up to +70°C, certified in accordance with the MID directive.



Systems Protection Technologies

Surge protection with safe energy control (SEC)

Lightning Current Arrester (Flashtrab)

Protect from lightning Surges (TYPE 1/Class B - 10/350 μ s)

“Flashtrab” family with KEMA certification offer high-capacity surge arresters in a standardized, user-friendly installation design. It should be installed at main distribution panel.

Features

- Inbuild fuse - Busbar Connection
- Single high-capacity spark gap arresters
- Pluggability with status and remote indication facility
- Free from line follow current and no need of fuse in series



Surge Voltage arrester (Valvetrab)

Surge Protection for the sub distribution (Type II/Class C - 8/20 μ s)

VALVETRAB is for protection against switching surges. “Valvetrab” family with KEMA certification can fit into the small space requirements common with industrial, telecom and control cabinets and for the sub-distribution level power supply.

Features

- Pluggable with mechanical and remote indication
- Thermal disconnect device
- No need of fuse up to 125 A load current



Surge Arrester (Plugtrab)

The PLUGTRAB PT series provides excellent protection for equipment, including power supplies, PLCs, PCs, controllers, and other electrical devices. It is available in voltage ranges from 24 V to 230 V, making it the perfect solution for control cabinets.

Features

- Function display on the device and remote indication.
- High nominal current, up to 26 Amps.
- Complete function test with CHECKMASTER.



Photovoltaic Systems Device Surge Arrester (VALTRAB)

Protect your photovoltaic system with the VAL-MS/MB DC-PV lightning and surge arresters. These arresters comply with IEC 61643-31 standards for surge protection in photovoltaic installations and are certified by DEKRA.

Features

- Qualified for 600 VDC, 1000 VDC, and 1500 VDC in all directions (+/- to PE and + to - poles).
- Surge current: In 20 kA (8/20 μ s), I_{max} 40 kA (8/20 μ s).
- Complete function test with CHECKMASTER.
- Suitable for use in high altitudes up to <6000 m (amsl).



Systems Protection Technologies (MCR/signal Line)

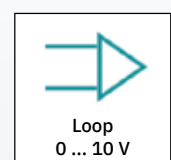
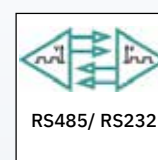
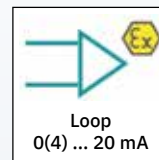
Pluggable solution for all signal circuit protection

TERMITRAB

The TERMITRAB product range offers surge protection against lightning and switching surges for Signal circuits with a design width of just 3.5 mm. KEMA /CCOE/ATEX certified and SIL 2 complied.

Features

- Space-saving and inexpensive, thanks to a narrow overall width starting from 3.5 mm.
- Continuous monitoring of protective devices, plus mechanical status indicator with remote signaling option
- Connection up to 4 wires on 6 mm.
- Thanks to the complete range of products with customized features.



SURGETRAB

Transmitter protection

SURGETRAB is a surge protection device that are especially intended for installation on measuring heads/TRANSMITTER to protect against current loops or similar standard signals. Two, three and four conductor transmitters can be protected. It has KEMA/CCOE/ATEX approval.



DATATRAB

Surge Protection for IT and communication

DATATRAB generation protects high speed networks reliably against damage caused by surge voltages. DATATRAB combines high transmission speeds and different data protocols like those of Ethernet, Power over Ethernet (PoE), ISDN, token ring, RS 485, RS 232 and MODBUS application.

Features

The device can be usable as an adaptor and rail-mountable device.

COAXTRAB: Coaxial Surge Arrester

Protection of UHF, VHF, Antenna, Video, GSM signals and it comes in different.



Surge Monitoring/SPD health Monitoring

ImpulseCheck: The World's First Intelligent Assistance System for Surge Protection

ImpulseCheck is the world's first intelligent assistance system (monitoring system) for surge protection in the field of mains protection. It provides clear insights into the system and safeguards your efficiency.

Features

- Displays the calculated State of Health (SoH) for each individual protection path.
- Convenient plot function for visualization of measured surge currents.
- Lists specific data, such as amplitude and charge of measured surge currents.
- Comprehensive tool for the analysis of detected transient overvoltages.



Thermomagnetic /thermal Magnetic device circuit breakers

Thermomagnetic /thermal Magnetic circuit breakers feature a thermal tripping mechanism as well as a magnetic tripping mechanism.

Features

- Maximum overcurrent protection over long cable paths, thanks to SFB tripping characteristic
- Integration in remote signaling concepts, thanks to integrated changeover contact.
- Reduced installation costs, due to bridgeable device circuit breakers (in the base element)
- Protection of 230/240 V AC control voltages, thanks to the M1 characteristic curve
- Thermomagnetic device circuit breakers are a part of the COMPLETE line system.



Single-Channel Circuit Breaker

The PTCB single-channel electronic circuit breaker is versatile for 48 VDC applications and can safely start heavy loads. With a compact width of 6 mm, it can be adjusted from 1 to 8 A and integrated into the CLIPLINE complete terminal block system.

Features

- Integrated Remote Signaling and Visual Status Indicator: Provides clear status updates and remote monitoring.
- Resettable: Allows for quick resetting after a fault.
- Adjustable Current: Can be set between 8 nominal current values.
- Multi-Stage Characteristic Curve: Enhances performance for starting heavy loads.



Multi-Channel Circuit Breaker

Features

- Easy Configuration & electronic locking.
- 0.5A to 10A in one device.
- Fast tripping for short circuits
- Adjustable & fixed nominal currents
- Remote resettable, undervoltage & overvoltage protection
- Analysis and signaling with Remote indication.
- Space saving solution



Circuit Breaker with Communication via Ethernet / IP™

- Individual modular system for overcurrent protection
- Scalable, expandable, replaceable, flexible
- Optional communication with different feed-in module:
 - IO-Link
 - ProfNet
- Easy operation through tool-free assembly
- Push and pull modules without tools and without interruption.
- Variants with Ex- Approvals i.e., ATEX, IECEx



EMC Filter

Filters without surge protection

Features Key features of FIL-1S-1 type EMC/EMI filters:

- Used to protective sensitive equipment against high-frequency conducted interference
- Suitable for 1-phase AC and for DC
- Additional PE terminals for EMC-optimized installation
- Plastic housing
- Mounting on a 35 mm DIN rail
- Conductor connection: Screw terminal blocks (UT) or spring-cage terminal blocks (PT)



Filters with surge protection

Key features of SFP2-1S-1 type EMC/EMI filters:

- Used to protective sensitive equipment against high-frequency conducted interference
- With integrated surge protective device (SPD)
- For 1-phase AC
- Status indicator and remote indication contact
- Metal housing
- Mounting on a 35 mm DIN rail
- Conductor connection: Screw terminal blocks (UT) or spring-cage terminal blocks (PT)



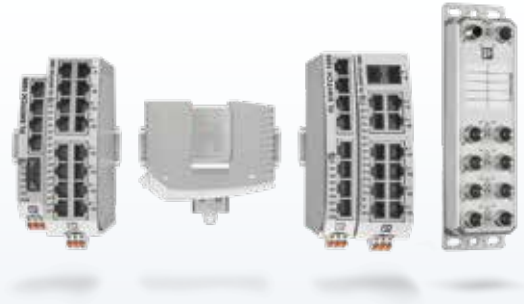
Automation Infrastructure

Excellent products for your automation infrastructure

Flexible automation: Scalable performance to meet your specific application

Industrial Layer 2 Unmanaged Switches

- DIN rail mounting Industrial switches up to 24 Ports
- Wide range of articles with or without integrated OFC ports
- Suitable to use for Industrial comm. protocol profile like Profinet, Bacnet, Ethernet/IP, CC link IE & many etc.
- Very low Energy Consumption – Best in Industry
- Available solution for Power over Ethernet (POE)
- Available Solution in IP67 Variants as well for direct Installation without cabinet
- Global Approvals for various Industrial applications



Industrial Layer 2 Managed Switches

- DIN rail mounting Industrial switches up to 16 Ports
- Wide range of articles with or without integrated 100 Mbps OFC ports or Gigabit SFP
- Suitable to use for Industrial comm. protocol profile like Profinet, Bacnet, Ethernet/IP, CC link IE & many etc.
- Available solution for Power over Ethernet (POE)
- Global Approvals for various Industrial applications like ATEX / IECX, GL/DNV
- Suitable to use in Harsh noxious gas – G3 Compliance
- Available with Gigabit Combo Ports – Scalable for Design
- Available for latest cutting-edge technologies like TSN Communication Profile & Single pair Ethernet
- Available products with Power Over Ethernet (POE) up to 90 watt per port capability



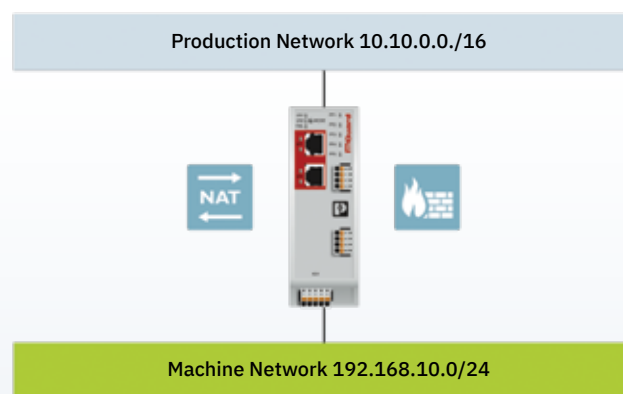
Industrial Layer 2 & Layer 3 Managed Switches for IEC 61850-3 (Substation Hardened)

- Complete Solution for Energy Market
- Available with Redundant High Voltage/ Medium Voltage AC/DC Power
- Available with various options of connectivity like Ethernet RJ45, Fiber Optic Single Mode 100 or 1000 Mbps, Multimode 100 / 1000 Mbps in Various interface
- IEC 62443-4-1 Secure Product lifecycle & Various Security options
- Available With PRP/HSR function
- Available Layer 3 wide portfolio with VPN & others security feature



Industrial OT Firewall/Routers

- Numerous configuration options like Firewall , NAT, Routers & DMZ zoning
- Firewalls functions are Stateful inspection , IO/Port Wise , DNS name wise etc. available .
- The new Firewall Assistant supports you in the creation of firewall rules
- Test Mode checks the created firewall rules without restricting system availability
- Increased data throughput of almost 1,000 Mbps, the security routers provide a higher level of security without any restrictions on data traffic



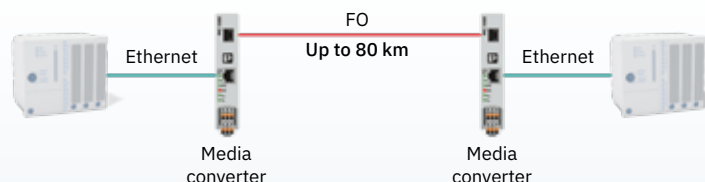
Ready to Use Smart Ethernet Box for video surveillance

- The Smart Ethernet Box is an outdoor PoE switch with integrated power supply, surge protection, splice tray for fiber optics, and a DIN rail for additional accessories
- Water-and dust-tight in accordance with IP65/NEMA 4X, and therefore protected against jet water and harsh environmental influences
- Sabotage alarm (door opening, cable tampering)
- Configuration via Web based management , CLI etc.



Industrial Media Converter for Ethernet Network

- Wide Range of Media Converter with numerous OFC interface like ST, SC & LC etc.
- Available options in Fast Ethernet / 100 Mbps Fiber & Gigabit Fiber
- Available option with LFPT – link fault pass through for ring communication
- Low latency for applications with real-time protocols like Profinet, Powerlink, Ethercat etc (due to cut off mode)
- Available options with IEC 61850-3 , EN 50121-4 , hazardous approvals etc.



Ethernet Extender for connect Ethernet networks over large distances via copper cable

- Connect Ethernet networks over distances up to 20 km via simple 2-wire cables.
- Available options With the Power-over-Link (PoL) and Power-over-Ethernet (PoE) functions, you can supply the entire network and connected devices with power via the data lines.
- Easy commissioning with Plug and Play
- Options are available for Point to point, Daisy Chain & ring topology communication
- Use of existing 2-wire cables



Industrial Wireless LAN (WLAN & Bluetooth) for Material Handling

- Industrial Wireless LAN, or Industrial WLAN or IWLAN for short, allows easy wireless connection in PROFINET, EtherNet/IP™, or Modbus/TCP networks
- PROFIsafe, even safety-related applications can be controlled via wireless
- Support NAT function for integration of identical machines with same IP
- Availability of Wifi 6 technology



Ethernet APL

Ethernet APL enables the direct two-wire Ethernet connection of devices and sensors in the Ex- zones of process technology applications ("Ethernet in the field"). In this way, the communication infrastructure enables the consistent use of Ethernet in the process industry.

The APL technology offers the following features:

Bridging large distances: Trunk lengths of up to 1,000 m, spurs up to 200 m

Use in explosion-protected areas is possible (zones 0, 1, and 2)

Interoperability of the devices and systems of different manufacturers

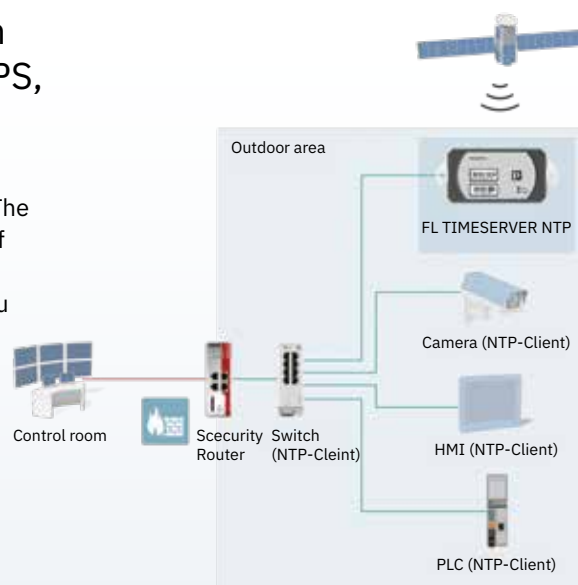
Capture and analysis of huge amounts of additional data is possible (big data) – new solutions such as predictive maintenance can be realized to increase availability

Cost-efficient modernization of systems thanks to use of existing cabling and proven Ethernet protocols such as EtherNet/IP™, HART IP, OPC UA, and PROFINET



Industrial time servers: Time and position localization for Ethernet networks with GPS, GALILEO, or GLONASS

The FL TIMESERVER NTP industrial time server makes time information available in the Ethernet network via NTP protocol. The time is received via GPS, GALILEO, or GLONASS independently of other NTP services and without an Internet connection. With the robust IP68 housing with integrated antenna and PoE supply, you can install the device outdoors without any problems.



Serial device servers

Serial device servers enable the easy integration of legacy serial devices and buses into modern Ethernet networks.

- Embedded web server allows easy startup and configuration
- Can be used in any industry with the wide operating temperature range (-40°C ... +70°C) and approval for hazardous areas
- Minimal space required in the control cabinet due to the compact shape and size
- The 256-bit AES encryption and authentication mechanisms prevent unauthorized access to the devices
- The user can troubleshoot problems quickly and easily with the extended diagnostic functions of the serial ports
- Seamless integration of virtual COM ports due to native Windows drivers ensures consistently high performance, especially for multi-port applications



D-SUB Subcon Connector

- Metal Plated D-Sub Connector for Profibus/ CAN Open and serial Ports to ensure High EMC Protection
- Wide range of Product in various angles for cable entry



Fieldbus repeaters and serial interface converters

Modular design

Copper repeaters for increased system performance:

- Start delimiter detection filters damaged PROFIBUS telegrams
- Bit retiming enables the devices to be cascaded to any depth
- High-grade electrical isolation ensures immunity that is suitable for industrial applications
- The modular concept of the PSI-MOS devices also ensures the desired mix of copper and FO channels: the devices can be quickly and easily connected to each other via the DIN rail connector. This is how the cross-wiring for data signals and supply voltage is achieved.
- Fast installation without wiring errors
- Combine up to 10 devices to suit the application and extend to up to 30 channels, either in copper or FO
- Even during operation, individual modules can be replaced without affecting the others
- Optional system power supply can also be used redundantly



Media converters for fieldbuses (Profibus, DeviceNet, CANopen, Modbus Serial)

- Media converters from the PSI-MOS product family enable you to convert copper-based PROFIBUS interfaces to FO (fiber optics). A transparent protocol is used to convert all data rates up to 12 Mbps. This gives you important advantages:
- Automatic data rate detection or fixed data rate setting via DIP switches
- Integrated optical diagnostics for continuous monitoring of FO paths
- High-quality electrical isolation between all interfaces
- Bit retiming for any cascading depth
- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors
- Intrinsically safe FO interface (ex op is) for direct connection to devices in zone 1



Industrial Wireless

- License free frequency band communication on 2.4 Ghz band
- Wide variety of solutions for IO-IO, Serial, Ethernet Data Communication
- Longer distance up to several kilometers is possible
- Reliable modulation technology to work in indoor and outdoor area application with coexistence
- Easy to install and use – No programming software
- International Approval FCC /ETSI, ATEX, EN 50121-4, UL etc.
- Wide range of accessories to ensure reliable and faster installation



HART IP Converter

- Convert your HART Signals into Modbus TCP/IP or Profinet
- Support HART IP to calibrate with Asset Management Software
- Support FDT/ DTM Library to integrate with Asset management
- Modular & Flexible to use as per application needs – maximum up to 40 signals
- Option of Loop Powered Analog Signals
- Numerous International approvals



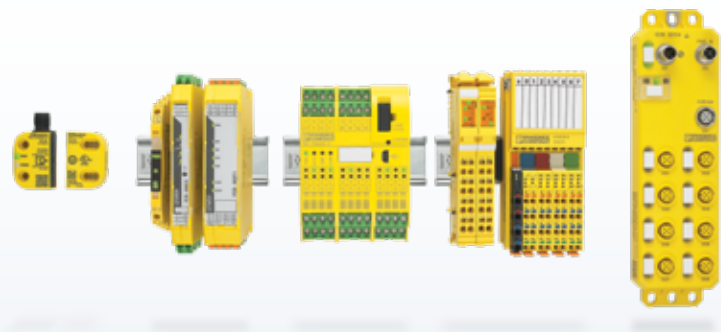
Safety Interlock Switch

- The PSR switch is an electronic, coded safety switch with a compact design
- With integrated RFID transponder technology and intelligence
- Can receive maximum protection against tampering and outstanding safety in accordance with EN ISO 14119
- Safe series connection with comprehensive diagnostic information Consistent M12 connection technology for convenient installation
- Safe, cost-effective complete solution for the digital factory
- Emergency stop switches
- Our TÜV-certified emergency stop switches allow you to switch your machines or system over to a safe state immediately in the event of an emergency. Our control devices with emergency stop or emergency switching off function are suitable for applications in accordance with EN ISO 13850 and EN 60204-1.



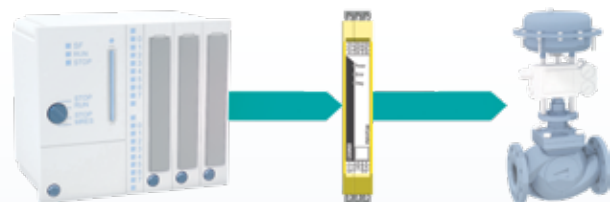
Safety Relay for Machine

- Wide Range of safety relay for E-STOP
- Door Switch, Magnetic Switch, Light Curtain and Two Hand control applications
- Meet high level of Safety up to PL “e” as per ISO-13849
- Available Output contact as per application requirement with instantaneous delayed contact option



Process Safety Coupling relay

- Up to 70% space saving without limiting performance, thanks to new relay technology
- Easy and quick proof test, thanks to force-guided contacts
- Installation up to Ex zone 2, thanks to extensive approvals
- Quick and error-free startup using the system cabling
- TUV approved IEC 61508 SIL 3 Relay
- Line / load monitoring without additional loop/feedback wiring in F&G



Configuring safety modules flexibly

PSR modular is a configurable small-scale controller. It allows you to monitor several safety functions in a single application. It is easy to create the safety logic using the PSR modular software and drag and drop.

The system functions as a stand-alone solution and can act as the overall machine control system for smaller machines. You can use the basic module as a separate component for this purpose. The following features are included in an overall width of just 67.5 mm:

- Eight safe input signals for evaluating safe sensors
- Up to four safe outputs (up to category 4)
- Clock and signal switching outputs
- Contact multiplication or contact amplification possible via external contactors in conjunction with integrated monitoring
- Certified in accordance with TÜV, UL, CSA
- Advanced approvals: maritime approval (DNV), G3
- Option available : ATEX zone 2, heat treatment (in accordance with EN 746, EN 298, EN 50156), UL Class I, Div. 2



Stand still speed monitoring Safety Relay

Highly compact downtime monitoring without additional sensors

With the narrow PSR-MM25 zero-speed safety relays, machine downtime is monitored without the need for additional sensors, and an interlocking device, for example, is actuated. To detect downtime, a voltage induced in a motor winding is evaluated.

- Overall width 12.5 mm
- Easy startup via configuration button
- Can be used for machines with and without frequency converters
- Force-guided relay outputs, two signal outputs



Compact zero-speed and over-speed safety relay

With PSR-MM30 zero-speed and over-speed safety relay, you can monitor up to three different operating modes in addition to zero-speed mode. PSR-MM30 ensures high system availability, due to reliable measuring procedure.

- Overall width 22.5 mm
- Compatible with modern safety encoders up to SIL 3
- Motion detection via encoder or proximity switch
- Force-guided relay outputs, configurable signal outputs
- Live monitoring with the PSR motion software
- Startup via USB connection
- Compatible with PSRswitch safety switches, thanks to integrated safety door monitoring
- Up to PL e and SIL 3



EtherWAN – A Phoenix Group Company

When Connectivity is Crucial

EtherWAN Systems, founded in 1996 in Irvine CA, has become a leader in supplying Ethernet connectivity for applications in various markets including; intersection traffic monitoring, transportation, building automation, security & surveillances, utility, oil & mining, field automation, etc.

EtherWAN specializes in designing and manufacturing fiber optic Ethernet products for harsh environments and conditioned rooms. EtherWAN designs and manufacturers a full line of Ethernet Switches, Media Converters, Ethernet Extenders (Phone Wire & Coax) and Serial Servers for commercial and hardened environments.

- NEMA TS2 for ITS and Transportation
- IEC 61850/IEEE 1613 for Utility Substations
- EN50155 for Railway and Train Applications
- IEC 61000 for Industrial Automation Applications
- ISA 12.12.01 (UL 1604) for Hazardous locations in
- PoE for Security & Access Control
- All Switches Run at Wire Speed



iS5 – A Phoenix Group Company

iS5 Communications is an integrated global provider of advanced solutions for cybersecure digital energy cloud platforms. Platforms in which our customers demand high reliability, performance, modularity, scalability, and security.

RELIABLE, HARDENED, FUTURE-PROOF NETWORK COMMUNICATIONS THAT ADDRESS THE NEEDS OF CRITICAL INFRASTRUCTURE



Automation Systems

Innovative and future-proof Automation Solutions

Inline Class 100 series

Modular small scale controller

Inline controllers are the proven all-rounders in the control cabinet. These devices support all common communication technologies such as Ethernet and mobile communication. In addition, they can be extended with a variety of Inline I/O terminals. Thanks to integrated Modbus/TCP, the controllers communicate with numerous fieldbus devices without any additional programming, both passively as a Modbus server as well as actively as a Modbus client. In addition, the parameterization memory can be expanded with an SD card.

Your advantages

- High processing speed, thanks to the high-performance Altera NIOS II processor
- Maximum flexibility in I/O connectivity, thanks to integrated fieldbus master and Modbus/TCP
- Expandable through the addition of functions with optional parameterization memory on an SD card
- Optimal communication with integrated, freely programmable web server
- Versatile use, as all common Ethernet protocols are supported
- Easy to integrate in existing PROFINET networks by means of PROFINET device functionality
- Programmable as per IEC 61131-3



Axioline Class 1000 & 3000 series

Fast and robust PLC

Axiocontrol PLC with local Axioline F I/O and safety modules

The PLCs from the Axiocontrol series (AXC) are designed for maximum performance, easy handling, and use in harsh industrial environments. Their particularly robust housing and excellent EMC properties provide the basis for this. Furthermore, they provide increased safety, thanks to an integrated uninterruptible power supply. Together with the Axioline F I/O system from Phoenix Contact, Axiocontrol controllers offer maximum speed, thanks to direct bus connection.

Your advantages

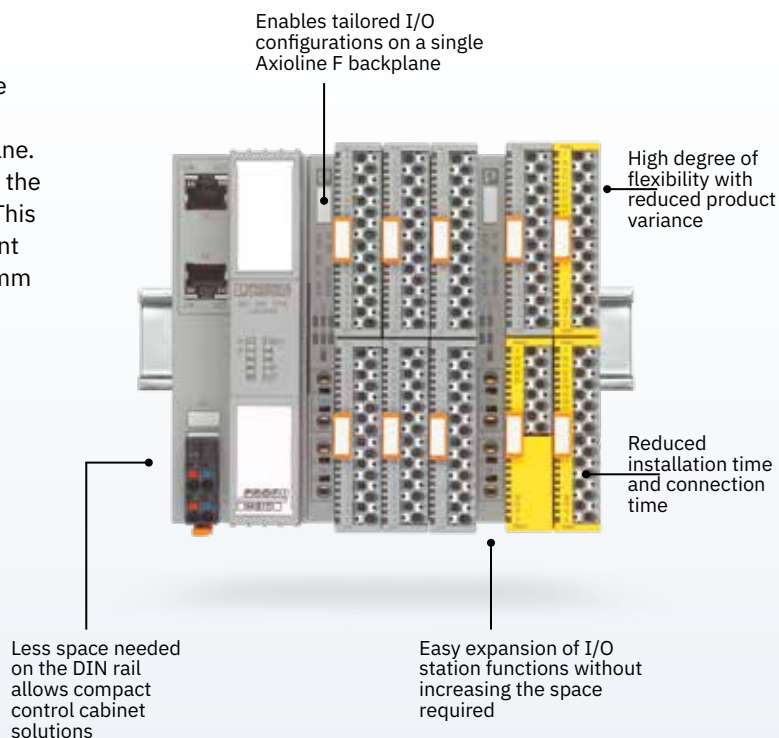
- Thanks to high performance Altera NIOS II & Intel Atom E660 processor
- Reliable, thanks to robust housing and a High level of EMC protection
- Increased safety thanks to an integrated uninterruptible power supply
- Safe wiring time with Push-in connection technology
- Fast access, e.g. for diagnostics, thanks to USB connection
- More parameterization memory, thanks to optional SD card



Space saving IO modules - Axioline Smart Elements

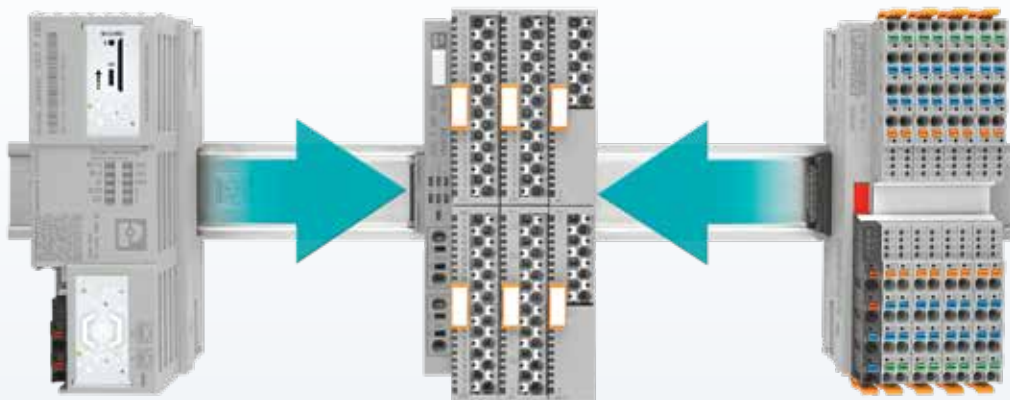
32 channels within 15 mm

First and foremost, you can use the Axioline Smart Elements within an Axioline F station. Axioline F backplanes with four or six slots are available for this. You can insert the Axioline Smart Elements at any position in the backplane. The two-row design of the backplane reduces the overall width of the I/O station considerably. This means that up to 32 channels and two different I/O functions can be implemented within 15 mm of space.



Compatibility of the Axioline Smart Elements

Within an I/O station, Axioline F modules and Axioline Smart Elements can be freely combined as desired. They can therefore be operated on existing Axioline F bus couplers or Axiocontrol devices (PLCnext Control devices and conventional PLCs). You can therefore select from more than 80 I/Os, bus couplers, and control components in just one product range.



Controllers based on PLCnext Technology

Open control platform

PLCnext Technology from Phoenix Contact is a unique, open ecosystem for modern automation capable of meeting all the challenges of the IoT world. The PLCnext Controllers enable the realization of automation projects without the limitations of proprietary systems. You can connect to the Proficloud directly, and integrate cloud services individually. The PLCnext Control devices enable parallel programming based on established software tools. Thus, for example, you can freely combine functions in accordance with IEC 61131-3 with routines from C/C++, C#, or MATLAB® Simulink®, and merge these to create a complete system.



Your advantages

- PLC-typical real-time performance and data consistency, also for high-level languages and model-based code
- Limitless adaptability, thanks to quick, simple integration of open-source software, apps, and future technologies
- Intelligent networking through cloud connection and integration of current and future communication standards
- Quick application development: several developers can work independently in different programming languages
- Convenient engineering with your favorite programming tools

Industrial cyber secured RTU For Automation systems

In automation, standard IEC 62443 “IT Security for Industrial Automation Systems” plays an extremely important role because it approaches security holistically from the perspective of the operator, system integrator and manufacturer. The more products are developed on long-term in accordance with IEC 62443, the easier it will be for operators and system integrators to implement security when assembling and operating automation systems and to ensure security throughout the life cycle of the installation..

Phoenix Contact is the first company to receive certification for a PLCnext controller (open PLC platform) according to “IEC 62443-4-1 ML 3 Full Process Profile” in combination with IEC 62443-4-2. This certificate shows that the secure development lifecycle has been fully applied in the development of the PLCnext Controllers and that the PLCnext controllers meet the required cyber security level.

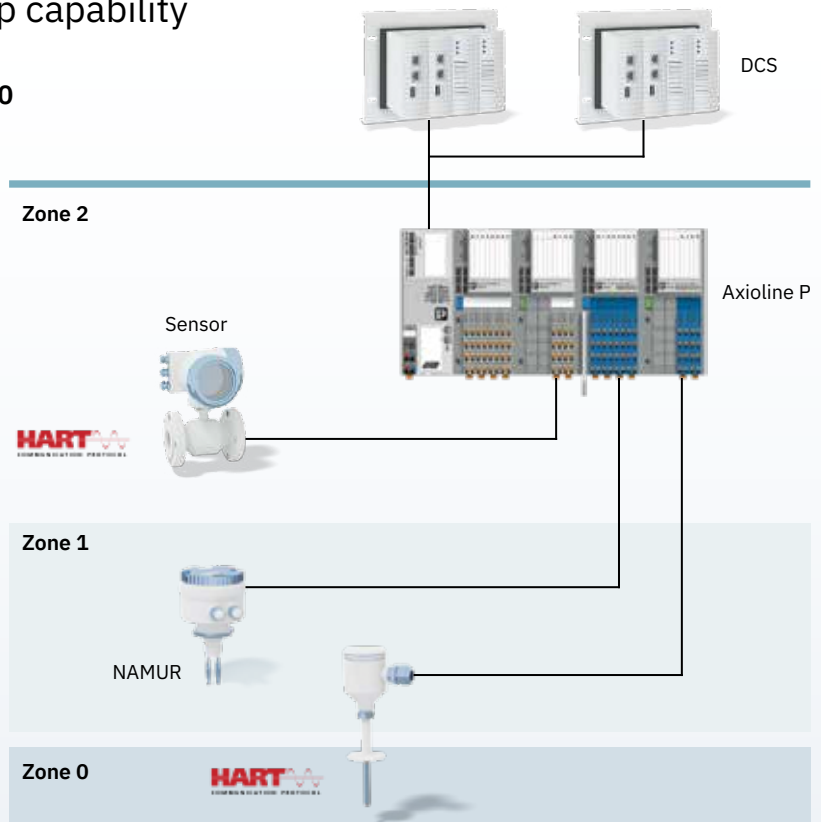


High availability with hot-swap capability and redundancy

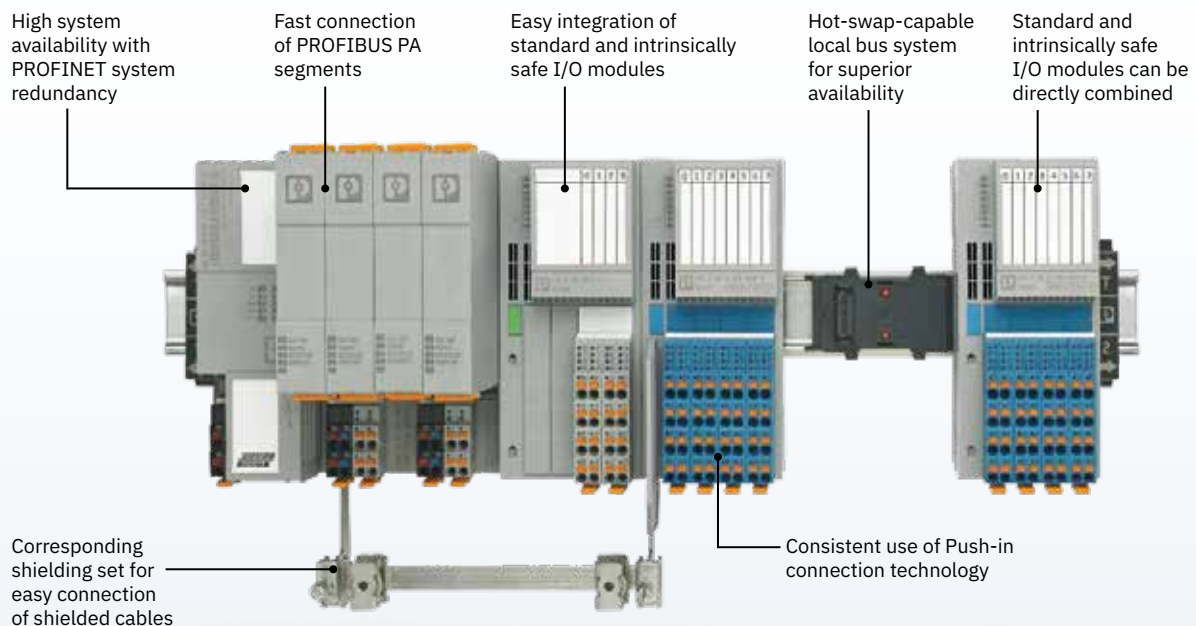
Suitable for connection through to zone 0

Axioline P devices can be connected directly to a distributed control system (DCS) in the form of a remote I/O system. PROFINET system redundancy is supported, which ensures very reliable communication between the I/O station and DCS.

The Axioline P system can be installed in zone 2, and allows a direct connection of sensor and actuator signals from zones 2, 1, and 0. The portfolio includes important functions for process automation, such as analog input and output modules for HART communication as well as digital input modules for connecting NAMUR sensors. This allows you to integrate intrinsically safe modules into the I/O station without additional components.



Axioline P



Axioline F

Fast data acquisition and easy handling – even in the toughest conditions systems

The portfolio features bus couplers for all common Ethernet systems. PROFINET system redundancy: the AXL F BK PN TPS PROFINET bus coupler supports the specification for realizing S2 system redundancy using a single bus coupler. This means that the bus coupler can communicate with two redundant PROFINET controllers, thereby ensuring high systemic fail-safe performance.

Axioline E – one product family, a wide range of functions

The new generation of Axioline E devices are highly robust with their IP65/IP67 degree of protections and a fully-cast zinc diecast housing. Because of their outstanding resistance to EMI and the robust mechanics, you can minimize downtimes in your system with these devices. Due to their extended temperature range and their strong resistance to environmental influences, common cooling and greasing agents, and welding beads, they can be used in many different applications.



Smart Production Cabinet – For Digital Factory Solutions

Powered by PLCnext technology Configurable and modular cabinet system Pre developed applications from PLC next store Easy configuration via configurator Open for any protocol Integrated cyber security according to IEC 62443-4-2 Future-proof and AI/ML compatible One system for various applications like controlling, monitoring, AI integration, predictive maintenance etc.



Industrial PC

Specialists for every application

Together with the right software, industrial PCs (IPCs) are efficient and versatile solutions for controlling, operating, and monitoring systems and machines.

- High system availability, thanks to fanless design suitable for industrial applications and the absence of moving parts
- Long-term availability, thanks to Intel Embedded Roadmap components
- Large-scale compatibility, thanks to open IT standards and numerous interfaces
- Particularly easy to maintain, thanks to easily accessible components in the IPC housing
- Individualized solutions, thanks to customer-specific adaptations to hardware and software
- Processor performance suited to the application with the latest generation of high-performance and energy-efficient Intel Atom, Celeron, Pentium® or Core™i processors
- Operating systems for every application: Windows®7, Windows® Embedded Standard 7 or Windows®10 IoT Enterprise LTSC



Proficloud

Maximum simplicity, maximum transparency: the industrial cloud for companies with no or limited IT resources.

Proficloud.io is a Plug and Play IIoT platform that empowers small and mid-sized companies having no own or only limited IT resources to easily connect their devices to a cloud infrastructure. The goal? Use the full scope of advantages of Smart Services to unleash the full potential of your business!

PLCnext devices integrate seamlessly with the Proficloud. Using smart services in Proficloud you can secure, manage and view data from PLCnext Devices.

Device Management Service – View the health data of connected devices. Update firmware and also controller software of devices.

Time series Data Service – Variable data from PLCnext can be stored and visualised without any complex configuration and in only a few clicks



Marking & Identification

Marking systems, marking material, software, and services

MARKING Systems

There are numerous and varied requirements for markings that are used in industrial applications. Whatever your marking requirements, we have the right system for you. Whether manual or automated identification, all systems provide intuitive support when creating markings. Choose from resilient direct laser marking, versatile UV LED printing, or flexible thermal transfer printing. For identification directly in the application environment, we recommend our mobile printers.



TOPMARK NEO

The TOPMARK NEO marking system enables you to flexibly implement the requirements of challenging identification applications. With modern laser technology, you can create durable and resilient marking materials for use in industrial applications. The laser marker processes materials in card and sheet format, creating markings that impress with their excellent resilience against a wide range of environmental and mechanical influences. The marking is just as robust as the marking material itself.



BLUEMARK ID & BLUEMARK ID COLOR

The BLUEMARK ID printing systems are the all-in-one solution for processing high print volumes in industrial identification. Materials in card and sheet format as well as aluminum markers are printed quickly and easily by the versatile printers. In addition to the BLUEMARK ID for monochrome printing, the BLUEMARK ID COLOR system also prints CMYK multicolor markings. Both printing systems have a stacking and de-stacking function.



THERMOMARK ROLL 2.0

This thermal transfer printer has been designed for printing rolls and continuous media. You can easily create accurately printed labels, markers, and shrink sleeves for terminal, conductor and equipment marking. The compact printer design enables space-saving stationary use.



THERMOMARK CARD 2.0

This thermal transfer printer prints marking material in card and sheet format. You can produce your terminal, conductor and equipment marking easily in impressive quality. The compact printer design enables space - saving stationary operation.



THERMOMARK GO.K SET

The handheld printer processes self-adhesive labels and signs in continuous format, as well as shrink sleeves.. The THERMOMARK GO. K can be connected to other system via USB interface. Complex projects can be managed using the PROJECT complete marking software.



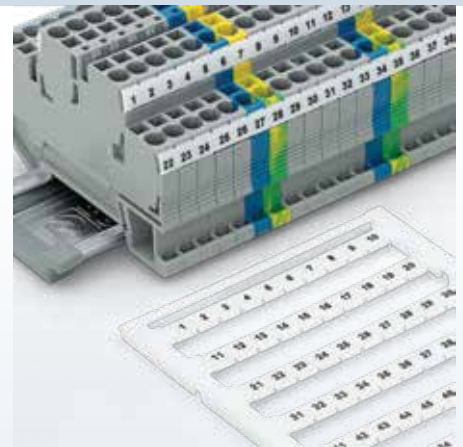
GROUP MARKERS

The precise engagement mechanism enables infinite adjustment of the labelling area height. The KLM range has been specifically developed for end brackets.



Terminal marking

Large-surface and clear marking of terminal points is essential for the quick and error-free wiring of terminal strips. In particular, this simplifies the commissioning and maintenance of control cabinets and systems. Terminal strips are assembled flexibly with different terminal blocks whose geometries can differ from each other. The decisive variables for the terminal markings are the pitch and the marking groove. Phoenix Contact provides a comprehensive range of versions that enable secure positioning on the terminal blocks from other manufacturer also.



Wire and cable marking

Easily visible and permanent wire and cable marking increases safety and simplifies work workflows – especially when servicing is required. In addition to the wire and cable cross-sections, the installation situation and ambient conditions also determine the type of marking solution that is suitable. Adhesive wire-wrap labels and slide-on shrink sleeves can cover all cross-section ranges and do not add bulk. They are particularly suitable for tight installation situations. Markers that are attached with cable ties can be used for any diameter and can even be mounted retrospectively.



Equipment marking

Whether in the control cabinet, in production plants, or in outdoor installations – equipment markings are used everywhere. This multitude of applications places numerous demands on the markings used, which can only be met with specialized materials and special adhesives. For uneven surfaces, for example, highly flexible PVC labels that adjust perfectly to the surface are ideal. On the other hand, only labels with special and particularly strong adhesives will bond to rough and low-energy surfaces.



Plant marking

The comprehensive and clear identification of plants not only ensures safety, but is also a legal requirement. Along with warning information, prohibition signs, and mandatory signs, markings identify emergency stop buttons and fire alarm systems, for example. Identification with hazardous substance labels in accordance with the international standard ensures the necessary protection when handling hazardous substances. Furthermore, pipeline markers are used to indicate which fluids or gases are flowing in the pipes, as well as the direction of flow.



Planning and marking software – Process innovations for control cabinet building

- Intuitive software operation that is clear and convenient with the customizable user interface
- Perfect integration with optimized interfaces to all common ECAD systems
- Quick and easy ordering in real time with direct connection to the web shop
- Comprehensive process support from planning through to the fully assembled DIN rail



Perfect CAE integration

PROJECT complete also features optimized interfaces to all common ECAD systems. With just a click of the mouse, the software imports the data from electrical planning and automatically designs the corresponding terminal strip.



Intuitive software operation and ordering in real time

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



Easy marking

With PROJECT complete marking, you can create markings easily and conveniently – despite the wide range of different marking materials.

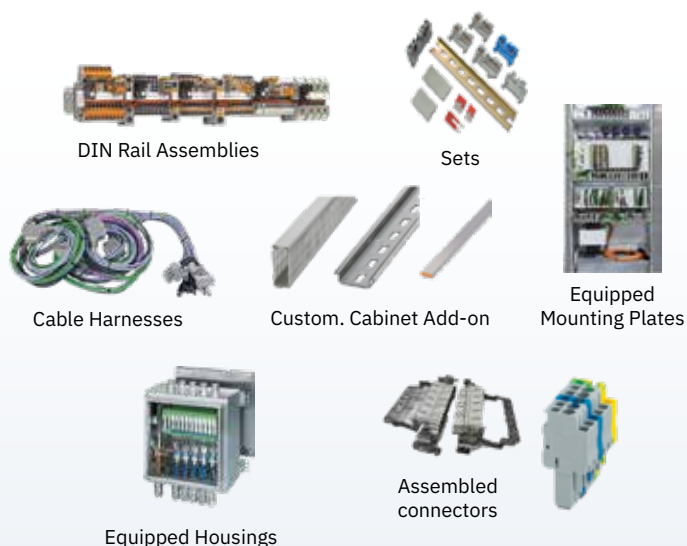


Industrial Cabinet Solutions

Value Added Services

Phoenix has created new vertical called “VAS (Value Added Services)” which provide us the opportunity to pull additional products or bundle. It may result in the development of new product or services. Value added services tend to position us as “Solution Provider & Problem solvers”.

- Order Peak Management (Just-in-time supply)
- Stock Availability (Reduction of storage and logistics costs)
- Relief of Skilled Workers (Focus on core business)
- Consistent Digital Processes (Reduce effort in project planning through simple interfaces to common ECAD programs)



Planning and Engineering Software: Clipx Engineer

- Intuitive software operation, clear and convenient, thanks to customizable user interface
- Perfect integration, thanks to optimized interfaces to all common CAE programs
- Quick and simple orders in real time, thanks to direct connection to the web
- Comprehensive process support from planning through to the fully assembled DIN rail



Wire Preparation System: Clipx Wire Assist

The clipx WIRE assist worker assistance system enables efficient conductor processing. The software-supported system guides users through the process of semi-automated conductor processing, automatically controls the relevant output devices, and provides the necessary information based on CAE data.

- Convenient in application with intuitive user interfaces and simple data retrieval from CAE programs
- High process reliability through software-supported conductor preparation with direct device control
- Efficiency and flexibility increased with mobile application options and optimum positioning of hand tools, automatic tools, and printing systems



CLIPSAFE junction boxes and empty enclosures

Designed by Phoenix Contact

- Innovative product range of 140 high-quality stainless steel enclosures as the basis for individual junction boxes
- Safe use in extreme conditions thanks to enclosures made from stainless steel up to 2 mm thick, AISI 316L/1.4404 (V4A) and AISI 304/1.4301 (V2A)
- Safe use outdoors thanks to 1P66 rating according to EN 60529 and NEMA 4X according to NEMA 250
- Reduced assembly and approval effort thanks to ready-equipped junction boxes
- Individual assembly thanks to the extensive, Ex-approved CLIPLINE complete system terminal block product range



TOOLFOX

The full range of professional processing and measuring tools for all electrical engineering applications. The ergonomically designed tools for cutting, stripping, crimping, screwing, and testing impress with their optimum handling and quality. Specially hardened tool steels ensure maximum durability. Cutting devices, stripping machines, and crimping machines can be used to automate work steps.



Individualized Tools and Sets, Automatic Devices

Cutting, Stripping and Crimping wires quickly and reliably in just one step with our automatic devices. It takes just two seconds to assemble the wires.

- Easy startup with plug-and-play.
- Short cycle time due to perfectly coordinated subprocesses.
- Fast cross-section change due to the modular design.
- Time savings of up to 75% using the Crimphandy due to the combination of work steps and very easy operation



Ferrules & Connectors

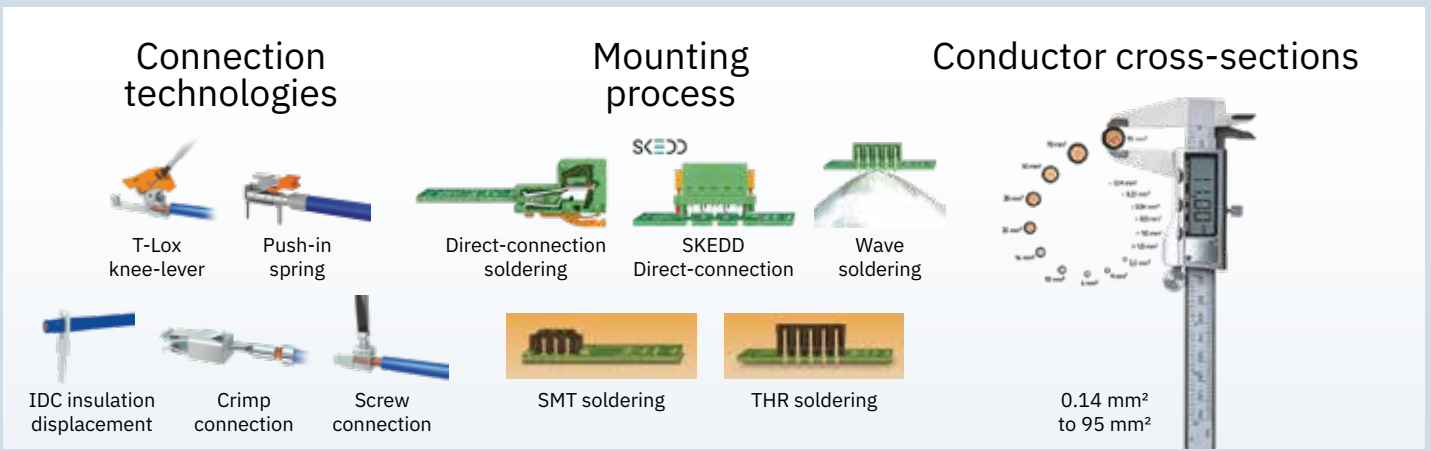
Ferrules & Connectors are used in process-reliable conductor processing and wiring. They protect the conductors against splicing and make it easier to connect in terminal shaft. Process conductors professionally and safely with our high-quality ferrules & Connectors. Our comprehensive product range comprising uninsulated and insulated ferrules & Connectors in various sizes and colors also meets the requirements of international standards.

- Available in various variants (insulated, non-insulated, with additional crimp zone)
- Reduction in cable breakage.
- Increased vibration resistance.
- Reliable connection, even with repeated rewiring.
- We were one of the first manufacturers to have ferrules combined with a selection of crimping tools and crimping devices certified DIN 46228-1/-4 in accordance with the UL 486F standard.
- High-quality ferrules and standard-compliant ferrules – Made in Germany.



PCB Connectors & Terminal Blocks

Device Connection Technology For Signal, Power and Data Application



PCB connectors for easy and flexible conductor connections

PCB connectors are used for connecting conductors to printed circuit boards for the transmission of signals, data, and power.

- Current up to 125 A (IEC) / Voltage up to 1,000 V (IEC).
- Wire cross-section from 0.8 mm² to 35 mm².
- Pitches from 2.5 mm to 15 mm.
- With screw, spring, lever, and crimp connection.



PCB terminal blocks for simple conductor connection on the PCB

Easy and safe transmission of signals, data, and power to the PCB. They are suitable for a variety of applications in numerous industries, markets, and for Industry 4.0 applications.

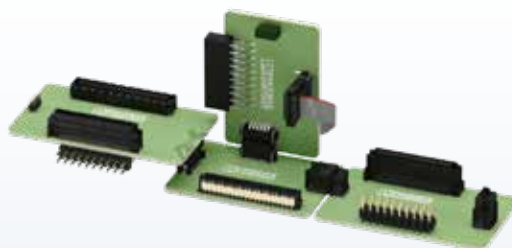
- Current up to 232 A (IEC) / Voltage up to 1,000 V (IEC).
- Wire cross-section from 0.14 mm² to 95 mm².
- Pitches from 2.5 mm to 20 mm.
- With screw, spring, lever, and crimp connection.



FINEPITCH board-to-board connectors for the connection of PCBs within the device

With the board-to-board connectors of the FINEPITCH product range, Phoenix Contact provides shielded and unshielded solutions for signal and data transmission.

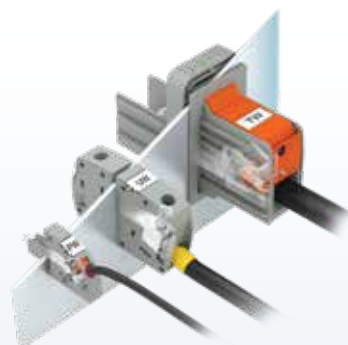
- Pitches from 0.635 mm to 2.54 mm.
- High-speed data transmission up to 52 Gbps.
- Stack heights from 6 to 21 mm.
- High contact density from 6 to 100-pos.



Feed through terminal blocks for high-current applications

Panel feed-through terminal blocks provide a reliable and convenient conductor connection rating up to 232 A, 1000 V and wire cross section up to 95 mm².

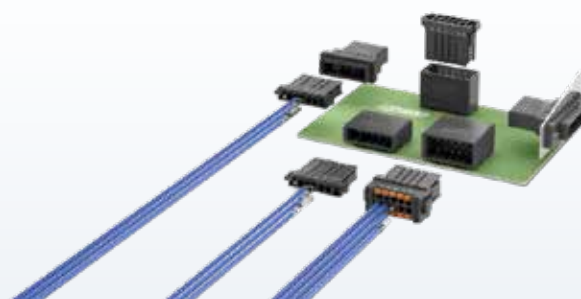
- Various fixing options like screw, flange, revert and fastening through tool-free snap-in locking (T-LOX).
- For panel thickness of 1 to 6 mm.



CONNEXIS: Wire-to-board connectors optimized for cable assemblies

The new portfolio of crimp-based PCB connectors for cable assemblies includes connectors and headers with horizontal or vertical connection direction as well as panel feed-throughs.

- Currents up to 8 A / Voltages up to 320 V.
- Pitches 2.5 mm, 3.81 mm, and 5.08 mm.
- Suitable for numerous signal and low-voltage supplies.
- Easy, time-saving production with preassembled connectors.



Customer-specific PCB connections

- Tailor-made solutions for your PCB connections.
- Partial assemblies, custom printing, pin length variation and screw variation customization options available.
- Availability of over 6,000 product versions from 150 product families.
- High delivery reliability, worldwide production facilities, and local warehousing.



Field Device Connectors

Signal, Power and Data Connectors for Industrial Applications

Circular Connectors

Phoenix Contact offers circular connectors in numerous sizes for industrial automation. From small to large, straight or angled, molded or designed for assembly on site: The wide-ranging portfolio offers optimum solutions for transmitting signals, data, and power.

- M5 to M58 circular connectors.
- For Signal, Power and Hybrid cabling.
- Up to 28 signals, 150 Amps power and 10 Gbps data transmission.
- Standard thread locking and fast locking options available.
- Solder and crimp connection technologies.



Data Connectors

Phoenix Contact offers a comprehensive portfolio of data connectors for copper and fiber cabling used in industrial networking and factory automation.

- Copper: RJ45, USB, D-Sub, HDMI, Circular and Single Pair Ethernet data connectors.
- Fiber: SC, LC and ST style Duplex FOXP (LIU), Patch cords and connectors.
- IP20 and IP67 interfaces
- DIN rail LIUs for Zone-2 applications.



New Energies – SUNCLIX

SUNCLIX is the consistent safe and reliable Photovoltaic connector. SUNCLIX with self combinable feature avoids harmful cross manufacture compatibility and protect the Solar systems.

- Tool free and crimp connection.
- Up to 1,500 V / 65 Amps.
- Conductor cross-sections 2.5 mm² to 16 mm².
- IP68 protection.
- Fast locking.



New Energies – Battery Pole and Busbar Connectors

Install your energy storage systems for applications up to 1,500 V quickly, safely, and cost-effectively with pluggable battery pole connectors and connectors for busbar.

- Flexible and reliable front cabling up to 350 Amps
- Wire cross-sections: 16 mm² to 120 mm²
- Degree of protection up to IP65 & IP67
- Contactless connections for 4 mm busbar up to 200 Amps



New Energies - PRC Series Connectors

PRC installation system with screw connection for pluggable power distribution in the outdoor environment up to 35 Amps.

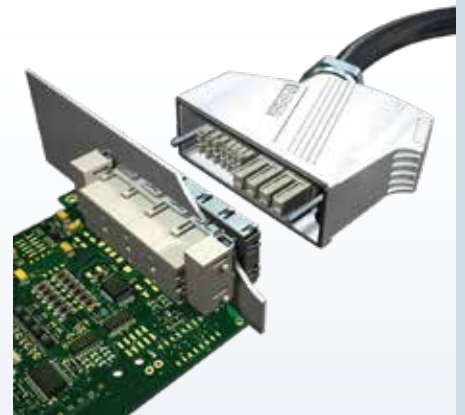
- Wire cross section from 1.5 to 6 mm²
- Number of positions (2 to 5 Pins)
- Protection classes IP66/IP68 (24 h/2 m)/ IP69K
- Approvals: ICE, UL, 2PFG, DNV-GL
- Solutions: Panel-feed thorough, Hanging, H & T distributors
- ArcZero: 20 Amps system for disconnection under DC load



New Energies – Modular Rectangular Connectors

The modular rectangular connector (VARIOCON) system offers compact connections for transmitting signal and power directly on to the printed circuit board (PCB) without creating wiring mess over the circuit inside the devices or equipment's.

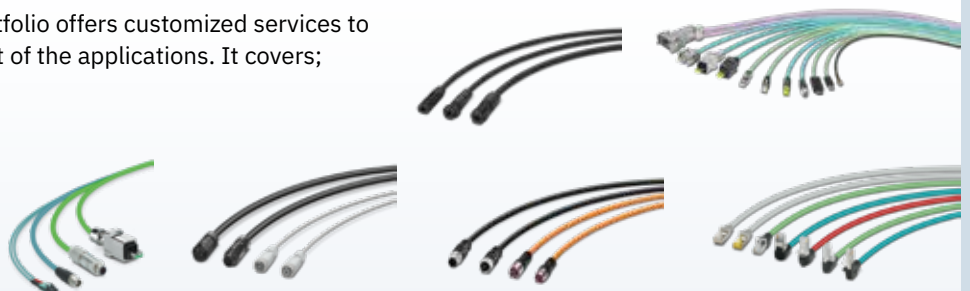
- Currents up to 70 A, Voltages up to 690 V.
- 40 signals in just 77.4 mm cutout width.
- Pluggable screw connections on the field side.
- With IP65/IP67/IP68/IP69K protection.
- Plastic, Metal and EMC field housing



Service – VAS

The Value-Added Service (VAS) portfolio offers customized services to meet the non-standard requirement of the applications. It covers;

- Customized cable assemblies
- Customized kitting & printing
- Customized solutions



Device Connector Solutions

Housings solutions for your device development

Housings systems for the field application

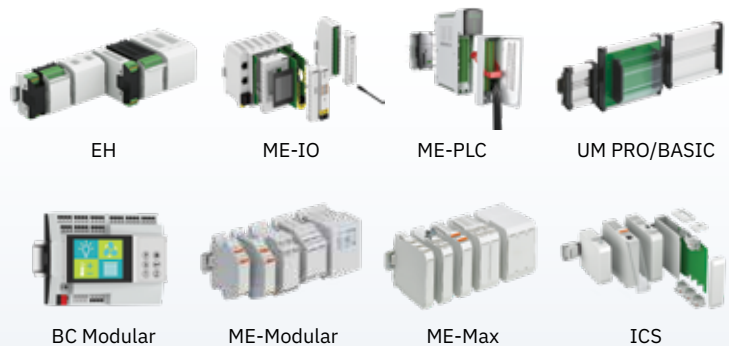
Field housings with a high degree of protection are ideal for many areas of application, such as building automation, logistics, and vehicle technology. Ideal for display units, robust outdoor devices, or embedded systems.

- Flexible mounting options.
- IP40 to IP69 protection.
- Comprehensive accessories.
- Integrated matching displays from a single source.

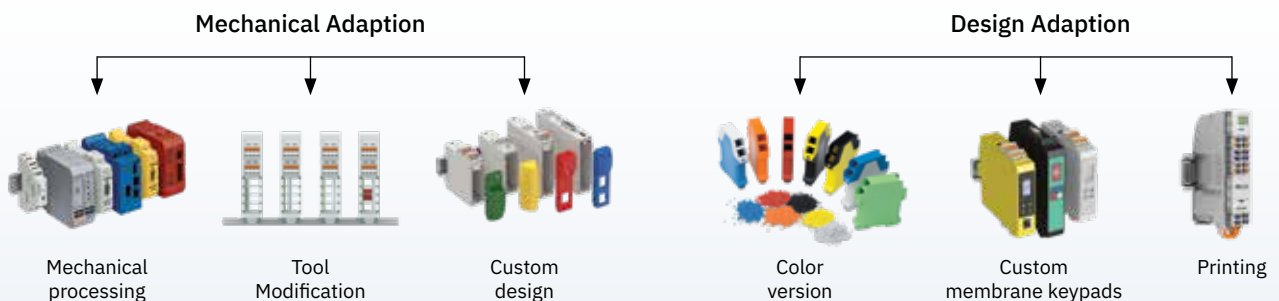


Housings systems for control cabinet applications

- Full flexibility in shape, color and function.
- Perfectly integrated interfaces for transmitting signals, data, and power.
- Automated thermal simulation and individual off-tool covers.
- Tailor-made solution for maximum brand recognition value.
- Din rail connectors for module communication.



Customization



New customer-specific product developments

You have a challenge – we have the solution.
We will support you throughout the product lifecycle.

- Expert consultation.
- Detailed design of your concept.
- Development of the ideal production concept.
- In-house product qualification.
- Certification of the solution.
- Targeted project management to the start of series production.



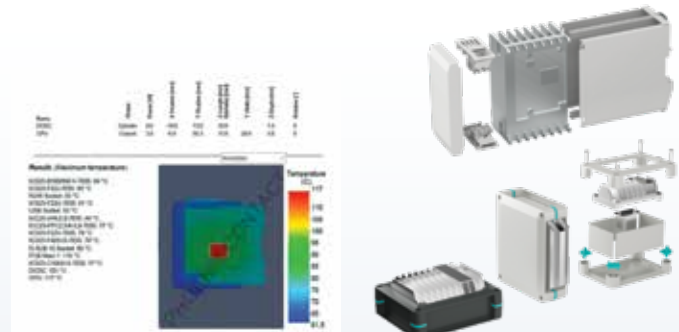
Thermal management in device development

Thermal simulation

Optimize your application based on the general thermal condition. Simulate and analyze your application online.

Tailored heatsinks

Reliable heat dissipation through customized heatsinks integrated into the housings.



Thermal simulation

Tailored heatsinks

HMI components and accessories

HMI components and accessories that turn various electronics housing into functional display and operating elements.

- TFT, Capacitive touch displays carriers in different color.
- Membrane keypads for input systems.
- Light guides in a wide range of design.
- Profile brackets for monitors with standardized VESA interfaces.



Display carriers



Membrane keypad



Light guide



UTA DIN rail adapters



Ground contact

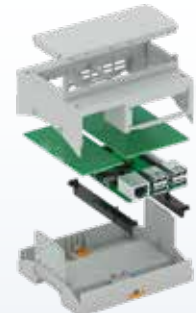


Profile brackets

Development kits (DEV-KITs)

Development kits (DEV-KITs) are used to test the usability of the housing for the intended application. The DEV-KITs include a perfboard to create an electronic circuit.

- Product prototype and pre-series device quickly with the development kits (DEV-KITs).
- DEV-KITs enable individual electronics layout and connection solutions.
- Development kits available for BC, EH, ME-IO, ME MAX, ME-PLC, PRI-BC and UM-BASIC series.



E-mobility

Charging infrastructure

The functional areas of a charging station

Modern charging stations and home chargers have to meet high requirements in terms of availability, safety, and convenience based on the field of application. Complex structures made up of numerous individual components are not unusual. Developers, designers, and engineers are therefore often faced with technical challenges and issues. To keep things simple, we have divided a complete charging station into five functional areas to give you a function-oriented overview of our extensive product portfolio.



Charge

- Power electronics
- Power contactor
- Fuse
- Charging connection
- Cooling



Connectivity

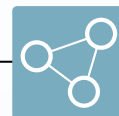
- Cable entry
- Power connection
- Marshalling
- Potential distribution
- Data connections
- Maintenance connections
- Charging connection





Control and monitor

- Charging controller
- Energy measurement
- Residual current measurement
- Insulation monitoring
- Temperature measurement
- Signal coupling



Network and communicate

- User authorization
- Visual status indicator
- Touch operation
- Ethernet connection
- Cellular connection



Power reliability

- Power supply
- Surge protection
- Device protection
- Higher-level load measurement and energy monitoring

Charging technology for e-mobility

Solutions for electric vehicles and charging infrastructure

Infrastructure charging socket

More safety and convenience when charging: The premium variants of the new type 2 infrastructure charging sockets are the world's first with temperature sensors to protect against the dangers of overheating.

Your advantages

- Fast detection of the charging status through colored LED display
- Safe from overheating due to fast, accurate temperature measurement
- Easy replacement during maintenance due to plug-in cables
- Flexible and time-saving assembly due to modular portfolio
- Water- and dirt-tight thanks to fully molded contacts



Charging inlets for electric cars and utility vehicles

From AC charging to High Power Charging: The universal CHARX connect vehicle inlets cover all charging standards and power classes and are suitable for all vehicle types.

Your advantages

- Fast HPC charging with temporary up to 500 kW charging power
- Safe from overheating thanks to precise temperature measurement
- Jet-proof and dirt-proof due to high protection class up to IP67, front side additionally IP6K6K and IP6K9K
- Simple design-in due to uniform dimensions and screw-on points of the AC or CCS charging inlets among each other
- Developed according to automotive standard IATF 16949 and compliant with IEC 62196, SAE J1772 and GB/T 20234



DC charging cables for home charging stations and fast charging stations

- Developed according to automotive standard IATF 16949 and compliant with IEC 62196, SAE J1772 and GB/T 20234
- Charging capacities up to 375 kW are supported natural cooling
- The cooled variants for High Power Charging (HPC) can even achieve charging capacities of up to 500 kW
- This makes the charging process comparable to refuelling a vehicle with a combustion engine



AC charging cables for electric cars, charging stations, and home charging points

The CHARX connect mode 3 charging cables are suitable for the AC charging of electric vehicles. They achieve charging powers of up to 22 kW and are available with type 1 and type 2 connectors as well as GB/T standard.

Your advantages

- Fast detection of the charging status through colored LED display
- Safe from overheating due to fast, accurate temperature measurement
- Easy replacement during maintenance due to plug-in cables
- Flexible and time-saving assembly due to modular portfolio
- Water- and dirt-tight thanks to fully molded contacts



DC power electronics for fast charging stations

The new 20, 30 and 87.5 kW power module is ideal for building DC charging infrastructure up to High Power Charging.

Your advantages

- Fast installation and maintenance thanks to 19" standard dimensions as well as Push-Lock and T-LOX quick connection technology
- Efficient, space-saving operation due to high efficiency, high power density and innovative design
- Compliance with European safety and EMC standards
- Scalable charging power through flexible interconnection of modules
- Flexible design of charging systems thanks to galvanic isolation



AC charging controllers for charging stations and home charging points

The scalable portfolio covers all AC charging applications, receives continuous hardware and software updates, and forms the platform for smart services.

Your advantages

- Charging parks can be scaled as required thanks to modular system architecture
- Fast installation and commissioning thanks to plug-and-play capability, convenient configuration and Push-in connection technology
- Intelligent and communicative by supporting all common communication protocols



Industry Solutions

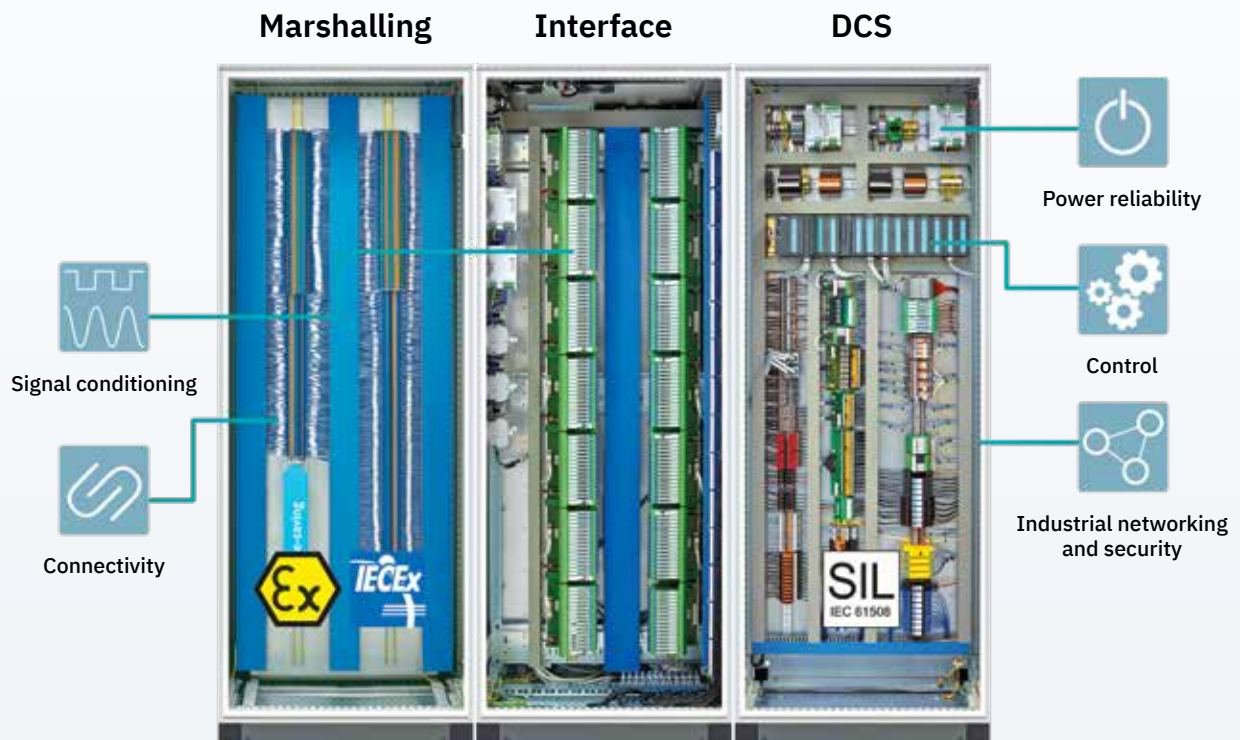
Excellent Products – Innovative Systems – Inspiring Industry-specific Solutions

Process Industry

Process automation – creating solutions for a sustainable industry

Creating sustainable processes with innovative products, open and secure digitalization solutions, and scalable services. The key to this is electrification, networking, and automation to create a resource-conserving world, the All-Electric Society.

We offer various products and solutions developed from connection, power reliability, networking & communication, OT Cyber security, Safety, Signal Conditioner, RTU and automation technology for typical control, monitoring, and optimization tasks. They enable you to reliably capture, transport, and process data.



Marine & Offshore

Maritime 4.0 – the digital transformation of the maritime industry

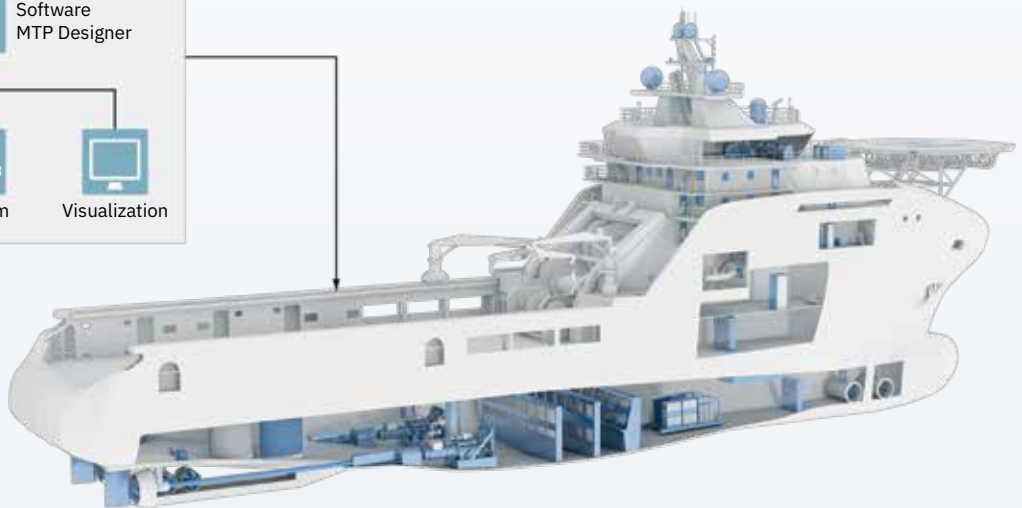
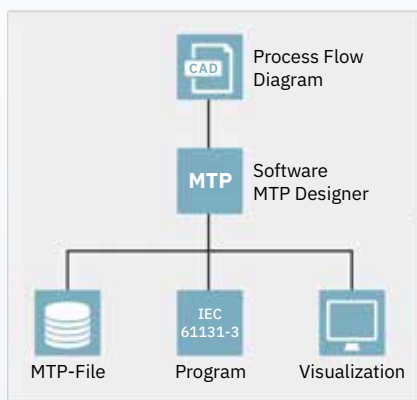
Data acquisition, control, and visualization – benefit from the increasing networking and digitalization in the maritime industry. Not only do we offer network technology and automation solutions from a single source, but we also ensure that your data is protected against cyber crime and modern piracy. Whether you are faced with the challenge of operating your entire fleet more efficiently or whether you want to make individual maritime trades more modular and connect them to the control system more quickly – we are there for you. Immerse yourself in our digital, maritime world.

Your advantages

- Collect, process, visualize, and use data intelligently.
- Easy integration possibilities of all common maritime communication protocols
- Tested quality: certified in accordance with DNV, ABS, LR, RINA, EN 60945, and IEC 62443

Phoenix Contact Offers Solution for

- Solutions for the engine room
- High-availability automation for the hydraulics
- Reliable tank and ballast water management
- Solutions for heave compensation
- Intelligent battery management for electric ferries
- Fuel cell automation



Power-to-X

Shaping a carbon-neutral future together with green hydrogen

In solar, wind, and hydroelectric plants, a surplus of electricity amasses when there is a lot of sunshine, a lot of wind, or an excess supply of water respectively. This surplus is used to produce fuels (power-to-fuel), hydrogen and methane (power-to-gas), ammonia and methanol (power-to-liquid), and other chemicals.

Phoenix Contact Offers Solution for

- Controlling and monitoring electrolysis plants
- Monitoring tank systems
- Controlling and monitoring fuel cells and combined heat and power plants

Pilot projects

In addition to transferring expertise from similar applications toward the power-to-X industry, we are already dedicating ourselves to specific, new applications.

Automation, electrification, and digitalization in the hydrogen industry.

To increase the efficiency of an assembly line, we have, for example, equipped fuel cells with automation technology as part of the pilot projects. In order to contextualize the special requirements of such applications, we are working on pilot projects concerning electrolysis processes. To this end, we have taken over the complete automation of a pilot plant with the aim of significantly increasing output.

Would you like to learn more about our solutions for automation, electrification, and digitalization in the power-to-X industry? Feel free to contact us.



Energy

Fossil Power Generation

Innovative technologies for power stations

Intelligent and reliable solutions for efficient processes
Process optimization as the goal of every power station:
Smooth processes, improved quality & reduce emission are the positive results that we drive forward together with you.

Your advantages

- Phoenix Contact's power supplies, DC-DC Converter, control systems, networking & communication systems meet the highest quality standards and therefore ensure optimal system availability.
- We provide easy planning, configuration, and installation of electrical connections. Plan and configure terminal strips quickly and conveniently.
- Our solutions function reliably even under extreme environmental conditions. They are specifically designed to meet the requirements of power stations.

Phoenix Contact Offers Solution for

- Marshalling panels for potential distribution
- Products for DCS Control Cabinets
- Pipe wall temperature monitoring
- Products for material handling like conveyor, stacker reclaimer, paddle feeder etc.
- Products for Sensor / Actuator communication over fieldbus technologies
- Products for LV/MV cabinets
- Products & solution for AQMS
- K+S marking system for Power station



Solar

Solutions for sustainable energy

Solar power is essential for renewable power generation. It makes a major contribution to meeting our continually rising energy requirements. Networking, monitoring, and communication are indispensable in this regard, particularly in relation to consistent network quality and maintenance in line with requirements. Phoenix Contact is your expert partner for the optimal and reliable operation of photovoltaic systems. From ground-mounted systems and rooftop systems to hybrid energy systems, we always provide the right solution.

Your advantages

- Wide product Portfolio for voltages up to 1,500 V application.
- Fast & reliable connection technologies for rapid commissioning & reduce maintenance cost.
- Surge Protection device tested and certified as per IEC 61643-31 from international laboratory KEMA-KURE.
- Cyber Secure & IIOT ready Data logger
- Wide range of networking & communication devices on every media i.e. copper, fibre & wireless for reliable data transportation.
- Power plant controller to meet country specific statutory guidelines.

Phoenix Contact Offers Solution for

- Electrification, protection, networking, and automation Solutions for PV Park Management
- PCU for Feed in Management
- Intelligent solution for measuring environmental data.
- Connectivity, Protection & wireless solution for String combiner Box.
- Products & solution to measure energy, managing loads & Providing control energy for hybrid Photovoltaic system.



Wind

Design a sustainable power supply with inspiring industry solutions

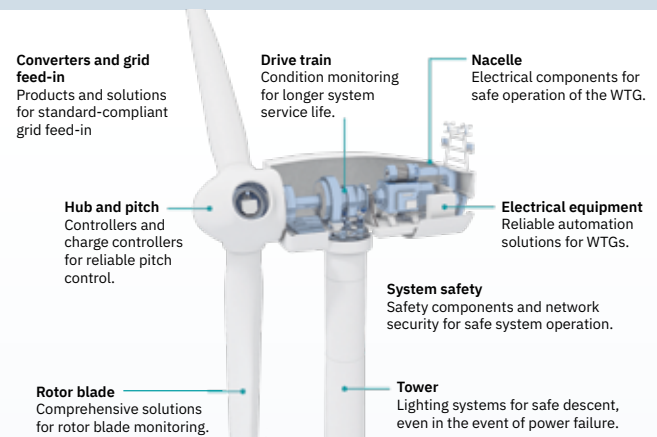
Harsh environmental conditions and long lifecycles – wind turbine generators place high demands on electrical engineering. To ensure the efficiency of your systems in the long term, our experts use their many years of technical expertise and passion to focus on the challenges you face. Excellent products which are intelligently combined to form innovative systems are at the heart of our solutions.

Your advantages

- Maximum Availability with robust components, even under extreme conditions
- One stop solution for Connection, protection, networking, safety, switching & automation solution.
- PLC Next Cyber secure controller with possibility to use high level language & model-based code.
- Customer specific value-added solution.

Phoenix Contact Offers Solution for

- Solutions for condition monitoring allow wind turbine generators to be operated much more efficiently, as downtimes for maintenance and repair are reduced to a minimum.
- Phoenix Contact offers intelligent solutions that you can use to efficiently automate sub-applications, complete WTGs, and even a wind farm. Phoenix Contact PLCnext technology and software solutions allow you to stay competitive and respond flexibly to dynamically changing circumstances.
- Phoenix Contact offers providing top notch cable assemblies solution.
- Phoenix Contact offers reliable, rugged Connectivity, protection, power reliability, safety & industrial ethernet products & solution to meet wind industry requirement with certifications.



Transmission & Distribution

Monitoring, controlling, and protecting systems in the energy sector

With our comprehensive products portfolio – from connection technology right through to the automation of substations – we provide tailor-made products and solutions for all voltage levels.

Your advantages

- Efficient processes Optimize and streamline your processes. Plan and configure your terminal strips quickly and conveniently with our complete solution for control cabinet manufacturing.
- PLCnext technology RTU with IEC 62443-4-2 & IEC 62351 cyber security certification for IEC 60870-5-101/104 & IEC 61850 Communication.
- Industrial networking Switches with security & latest features for processing and transmission of all relevant data in compliance with the IEC 61850.
- Redundant auxiliary voltage supply product for substation which meets highest EMI/EMC standards / tests.
- Extremely compact control and switching.
- Easy and reliable connection ensure the reliable transmission of power and data even under the harshest conditions.
- Quick and easy potential distribution.
- The modular, pre-configured FAME plugs and terminal strips offer all switching actions for safe protective testing, enabling time-saving measuring and testing processes.

Phoenix Contact Offers Solution for

- Products for all type of cabinets from LV to ultra-High voltage.
- Products & solution for Automatic Demand Management System-Smart Grid project
- Transformer Auxiliary Monitoring Systems
- Smart RTU/FRTU & Protocol Gateway for various T&D applications



Battery Storage System



Battery storage systems play a crucial role in the energy revolution. Rely on innovative technologies from Phoenix Contact for your energy storage solution. With reliable connection and automation technology for energy storage systems of varying size coupled with expert consulting, we will work with you to develop tailored solutions for your energy storage needs.

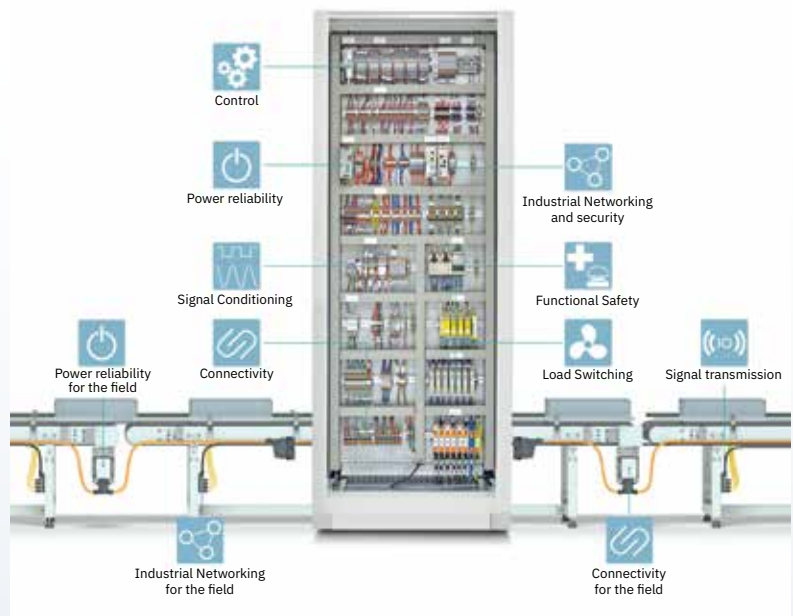
Your advantages & Our Solution

- Our coordinated product portfolio ensures reliable operation of high-capacity storage systems. Especially noteworthy is our portfolio of connectivity, network, and control technology. Our products are subject to stringent quality requirements. This is intended to minimize any hazards that may arise for the plant and the storage system during operation.
- With our field-proven connection systems, you can count on a high level of safety in the management of high currents and power, which many customers have relied on for years. Combined with our industry-leading power supplies, supply reliability for monitoring and controlling the energy storage system is guaranteed.
- The coordinated portfolio of network, communication, and automation technology also offers you every freedom for optimum system design for today's needs and those of the future.
- Our components ensure the reliable use of monitoring and control functions.
- Benefit from our portfolio of PCB connections, connectors, and electronics housings that demonstrate our strong innovation power. Get solutions for signal, data, and power transmission from a single source and integrate them into your applications.
- Phoenix Contact battery-pole connectors are color-coded and mechanically coded. The plus pole only fits into the plus position, and negative only into the negative. Moreover, it is also ensured that the two polarities cannot be short-circuited.
- Battery-pole connectors can be plugged in and pulled out in any orientation. Moreover, they can be rotated through 360° when plugged in. This makes maintenance and troubleshooting so much easier.
- OT-IT convergence Controller/ IIOT gateway is capable to communicate on different OT communication protocol like Modbus, Profinet, CAN with multiple IO connectivity option to monitor battery parameters to connect with EMS via OPC UA, MQTT & many others connectivity option.
- Our control solution provides openness to program it via different communication language like IEC 61131-3 and for high-level languages such as C/C++ and Matlab® Simulink®. The patented task handling allows any combination of IEC 61131-3 code, high-level languages, and model-based tools in one task. Also, it contains OCI container which allow to run node-RED & many ready to use application from marketplace.
- Bump less Networking solution with PRP/HSR for high end application demand.

Machine Building

Your strong partner for machine building

Machine building is a global and highly dynamic market. The competition you face as a provider is tough. It is important that you meet the requirements of your customers and develop a range of products and services that allows you to remain competitive for the long term. The focus is firmly on the cost-effectiveness, quality, flexibility, and performance of your machines. Phoenix Contact offers you a comprehensive range of products and services – making a significant contribution to your competitiveness.



Automotive

Intelligent solutions for any production area

To stay competitive, production systems and processes must always be at a high level in terms of technology, especially in the automotive industry. What this means: The degree of automation, complexity, and networking are at a maximum. Count on us to be your reliable partner. Our range of technological competencies and services will help you increase your production efficiency, improve sustainability, and enhance cyber security in your automotive production.

From secure networking and automation to artificial intelligence

For many decades, one of our key industries has been automotive production, for which we work tirelessly every day to develop solutions for digitalization, networking, and safe automation. Key factors here are an intelligent network of all systems with state-of-the-art communication and security standards, as well as secure collaboration between man and machine. Benefit from our expertise and make your production processes more resilient and more secure against system downtimes. Make your factory smarter with AI-assisted data analysis and create more flexible production processes by making better use of your data to operate more economically and sustainably in the long term.



Our Products & Solutions offer you

- Higher availability: Reliable components and services are the basis for the high functional safety of your production systems and processes.
- Flexible Process: PLCnext Technology enable the flexible control of material flow in production and make it possible to respond quickly to changes in volatile markets.
- Safety & Security: The security of your data is critical. Our TÜV-certified 360° security solutions in accordance with IEC 62443 ensure that system shutdowns as a result of sabotage and data loss as a consequence are prevented and that your automotive production is constantly protected.
- Sustainable Production: Sustainability guidelines, eco-regulations, carbon footprint performance – work with us to improve your environmental footprint. Use the latest technologies to become cost-efficient and environmentally efficient.

Infrastructure & Transportation

Water & Waste Water

Intelligent networking for future-oriented water management

New constantly emerging requirements due to climate change, drinking water shortages, and an aging water infrastructure place even greater pressure on operators responsible for water supply, wastewater disposal, and drinking water treatment. There is also the growing demand for network technologies and Smart Water applications to contend with, as the future of water management is going digital.

Benefit from our digital technology and open systems for safer and more efficient processes in water management. With our global team and collaboration projects with industry partners, we develop intelligent solutions that enable the networking of components, system parts, and people with the environment and water cycle.

Field of Application

Wastewater treatment

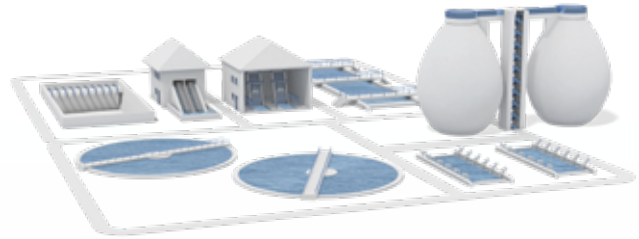
Wastewater treatment involves many various processes and procedures – from pretreatment, through biological and chemical-physical purification, right through to treatment of the wastewater. Taking this challenge into consideration, we will develop solutions for your specific application together with you. We provide scalable concepts based on innovative and open systems that you can easily extend and adapt. Our comprehensive technology and product portfolio for monitoring and controlling your wastewater plant ensures a reliable supply and makes processes more efficient.

Drinking water supply

The processes and procedures in drinking water treatment are very diverse – from water extraction and water treatment to water distribution. Accordingly, we will work with you to develop solutions for your specific application. Based on innovative and open systems, we provide scalable concepts that can be extended and adapted easily. Our comprehensive technology and product portfolio for monitoring and control creates supply reliability with consistent water quality, and makes processes more efficient.

IoT-based water technology

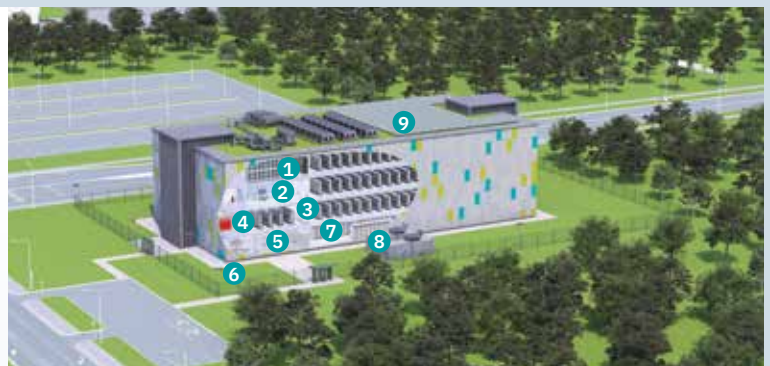
It is not just water that flows in modern treatment plants; there is also a stream of large volumes of data. The challenge lies in presenting the digital information in a meaningful format and linking the resulting complexity of the various volumes of data together logically. Internet of Things structures open up the opportunity for storing and processing information in an external computer network. A wide range of data, such as rainfall levels, can be incorporated as a basis for making decisions. A real-time overview can be obtained from anywhere, at any time, and on any device.



Data Center

Solutions for modern data centers

Data centers are the motor of the digital transformation. They ensure the flow of information and store huge amounts of data for the constant availability of information, the demand for which is constantly increasing. This results in more complex requirements for security and availability when planning data centers. We help you to power, protect, connect, and monitor with solutions for the continuous operation and rapid development of data centers.



Solutions for Data Centers
Relevant Application Areas

- | | |
|--|--------------------------------------|
| 1 Cooling Infrastructures | 6 Video Surveillance |
| 2 Control Center, Offices | 7 Emergency Power Supply - Batteries |
| 3 Server Room with Energy Distribution | 8 Emergency Power Supply - Genset |
| 4 Fire Alarm System | 9 Solar Rooftop System |
| 5 Low Voltage Switch Gear | |

Transportation

Data is changing our mobility

The quality of mobility is often directly related to the attractiveness of a city and region. Steady increases in transportation capacity in ever-more complex structures call for smart concepts for our roads and waterways more than ever before. To make mobility more efficient, digitalization and artificial intelligence are being used for improved, innovative information gathering and traffic guidance. The data-based control and networking of the transportation infrastructure will not only lead to greater energy efficiency of the transport modes, but also improve mobility convenience and traffic safety.



Field of Application

- **Public Lighting:** intelligent lighting control offers huge potential for energy efficiency and enables the smooth and individually adjustable operation of lights. The portfolio ranges from electromechanical components and control and communication components with integrated remote-control technology to cloud-based light management systems for urban applications.
- **Traffic Management:** Carbon emissions, noise, and increased traffic jams have wide-reaching consequences for society and nature globally. In the future, intelligent traffic management using traffic and environmental data will be indispensable. A digitally optimized traffic flow does not just increase the energy efficiency of the mode of transport, but also improves traffic safety in the city.
- **Tunnel:** Road, rail, and subway tunnels play a crucial role in the development of an efficient and sustainable mobility system. Large-scale increases in transportation capacity in ever-more complex structures call for smart automation solutions. Here, the focus is on urban mobility and the safety of road and transport users. Phoenix Contact is a reliable and experienced partner, who can work with you to turn even challenging tunnel automation projects into a reality – from the control technology as the central element, the connection of sensors and actuators, and surge protection through to a comprehensive safety concept.

Railway

Solutions for railway technology Making railway operations safe and reliable

Safe and highly available railway operation requires components that feature high quality, a long service life, and reliability. We have been supporting our customers in the railway industry as a reliable partner for 100 years. We introduced our very first commercial product – a catenary armature for streetcars – in 1923.

And we will also be there for you in the future: With smart solutions for railway technology that ensure safe operation and railway infrastructure digitalization. Learn more about our products and solutions that satisfy the stringent requirements of the railway industry.

Field of Application

Railway infrastructure and signal technology: The requirements on components for railway infrastructure are stringent. They are used in safety-relevant applications and safeguard the availability of railway operations. At the same time, railway infrastructure is increasingly digital. Intelligent solutions are needed that enable remote monitoring and diagnostics, as well as cloud services. Products and solutions from Phoenix Contact satisfy the stringent requirements and, at the same time, provide digital interfaces in order to realize smart infrastructure for railways.



Realizing digital transformation

Phoenix Contact provides the ideal portfolio for the digitalization of railway technologies: Reliable installation, secure signal transmission, and real-time data communication, as well as cloud services, make it possible to digitalize railway infrastructure.

Ensuring railway infrastructure system availability

Preventing failures, utilizing capacities: Products from Phoenix Contact offer digital interfaces that enable remote diagnostics and predictive maintenance – for the superior availability and safety of signal systems.

Ensuring safe railway operations

Safe operation is the number-one priority for rail transport. To certify products for railway operations, they must ensure impact freedom for signal circuits and other operating equipment, among other things. At Phoenix Contact, these demands are taken into account early, during the product development phase.

Upgrading existing systems and optimizing costs

In order to continue operating an entire railway and signal technology system, it is often necessary to replace individual components. With components available in series that can be seamlessly integrated into existing systems, Phoenix Contact allows you to modernize your railway infrastructure safely and cost-effectively.

Rolling stock: Wherever systems and products in rail vehicles must be supplied with power and signals and data must be distributed, components from Phoenix Contact are used. Our products feature reliability and safety. And they are suitable for installation in confined spaces.

Space-saving connection

In modern rail vehicles, the need for usable area and traveling comfort is growing. At the same time, less and less space is available for the required installations, such as for infotainment, passenger information systems, lighting, air conditioning, and door systems. Phoenix Contact offers compact connection solutions with different numbers of positions, conductor cross-sections, and installation options that are particularly well-suited for space-saving electrical wiring.

Safe transmission

An increasing number of data networks that exchange information and perform control tasks are being installed in trains. The circular connectors they use must satisfy the more stringent requirements of the rail industry and also be easy and safe to install. Installers that work with many lines expect fast installation, ideally without any tools. The M12 Push-Pull system from Phoenix Contact meets these expectations particularly well. Our rail-specific portfolio is rounded out by heavy-duty industrial connectors.

- Reliable availability of passenger information and infotainment systems
- Reliable cabling of communication networks in rolling stock

Permanent marking

Marking solutions for rail vehicles must be reliable and stable. Fire protection also plays a crucial role. MARKING systems from Phoenix Contact provide the ideal marking solution for all rail industry applications. Select from among more than 2,000 halogen-free marking solutions optimized for fire protection, more than 10 different printing systems, and three marking technologies.

Reliable supply

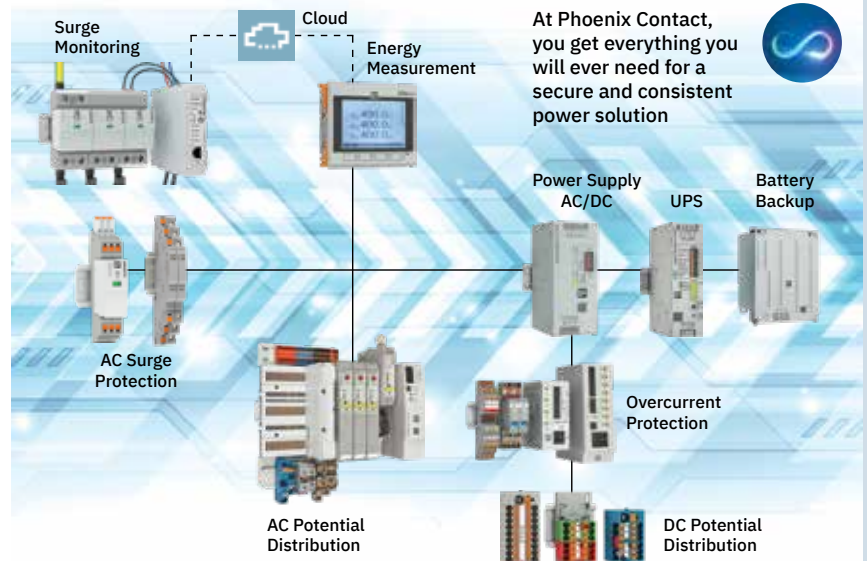
Usually, DC power is already available on the train. However, this power must be converted into voltage that can also be used for end devices or stabilized against fluctuations. Furthermore, railway engineering must comply with requirements for temperature, fire protection (EN 45545-2), and resistance to EMC, vibration, and the environment, as well as the specific additional requirements of EN 50155. Phoenix Contact provides solutions for power supply from different DC bus voltages. With them, CCTV, infotainment, door systems, air conditioning, and similar loads can be supplied.

- Interference-free and stable supply for train control technology
- Supplying energy to track maintenance trains for maintenance work

Power Reliability – endless possibilities

Solutions for superior system availability

The increasing electrification, networking, and automation of the sectors is increasing the need for reliable power supply and monitoring solutions. For efficient operation, you need reliable supply solutions consisting of surge protection, power supply, device protection, and energy monitoring with the corresponding measurement technology. Choose us as a partner who provides you with everything from a single source, from selection to installation right through to operation.



ICS Cyber Security, not a Choice, but a Necessity

IEC 62443-4-2

Authentication

- Use accounts
- Authentication of Credentials
- Authorization

Integrity

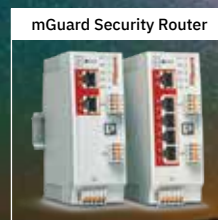
- Principle of least privilege
- Defense in depth
- Network segmentation

Confidentiality

- Use of secure protocols
- Secure remote maintenance
- Cryptography
- Protection of expertise

Availability

- Monitoring and attack detection
- Tamper protection



How does Phoenix Contact implement IEC 62443?

Phoenix Contact provides a convenient all-in-one security package ranging from individual products and services to entire solutions. In this respect, cyber security is firmly rooted in the life cycle of our products and solutions: in the form of a secure product development process, in the sense of modern security functions, when advising customers, when creating secure network concepts, and also through a professional vulnerability management system (PSIRT). For some of these areas, we are already certified by the TÜV Süd certification body.

- We have been certified in accordance with **IEC 62443-4-1** for the development of Secure-by-Design products since 2018.
- We have been certified in accordance with **IEC 62443-2-4** for the design of secure automation solutions since 2019.
- The “Remote Monitoring and Control” blueprint from Phoenix Contact has been certified in accordance with **IEC 62443-3-3**.

NEW PRODUCTS

New Products 2024 Developed with passion

Our engineers are constantly developing new products. See more than 100 small and large innovations in connection technology, device connection technology, and automation technology.



Discover our new products



Empowering the All Electric Society[®]



ELECTRIFICATION



NETWORKING



AUTOMATION



