The intelligent production of tomorrow

Phoenix Contact – your partner for Industrie 4.0

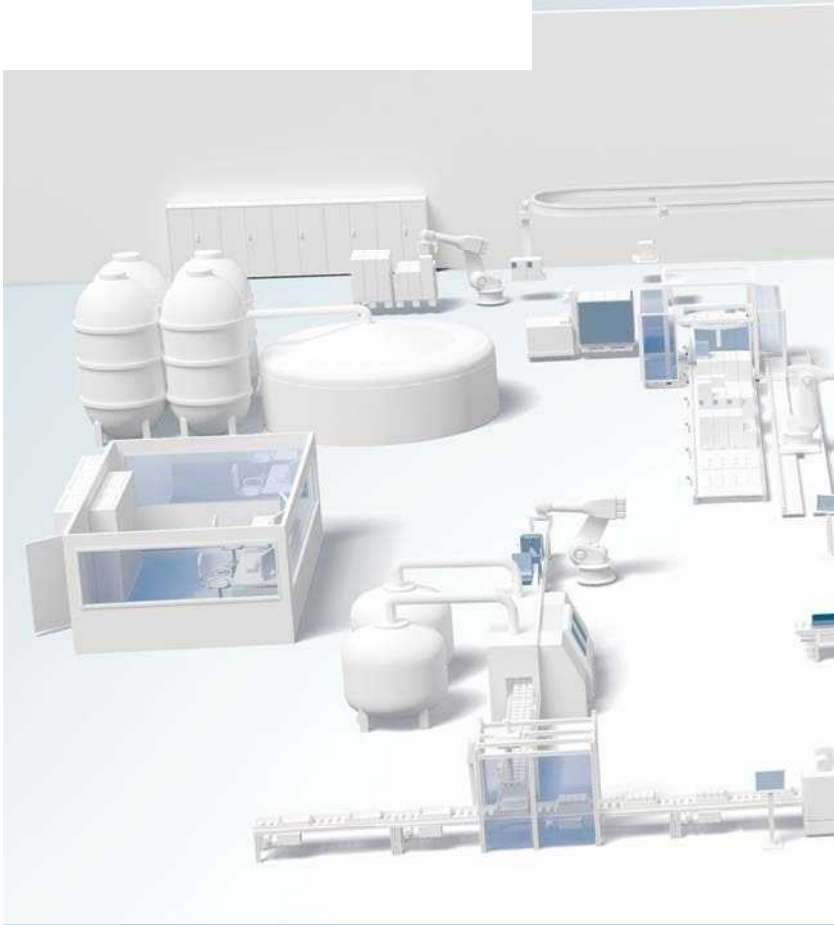
PHOENIX CONTACT
INSPIRING INNOVATIONS

The intelligent production of tomorrow

The world is changing. It is becoming more digital, intelligent, and flexible. Initiatives such as Industrie 4.0 in Germany, the Industrial Internet Consortium in the USA or China Manufacturing 2025 are providing the first responses to the question of how digitalization will affect our surroundings.

Manufacturing companies can use the increasing demands in terms of flexibility, individuality, and efficiency as an opportunity to be competitive over the long term. The Industrie 4.0 future project demonstrates solutions.

To this end, Phoenix Contact defines easy, practice-oriented areas of action.

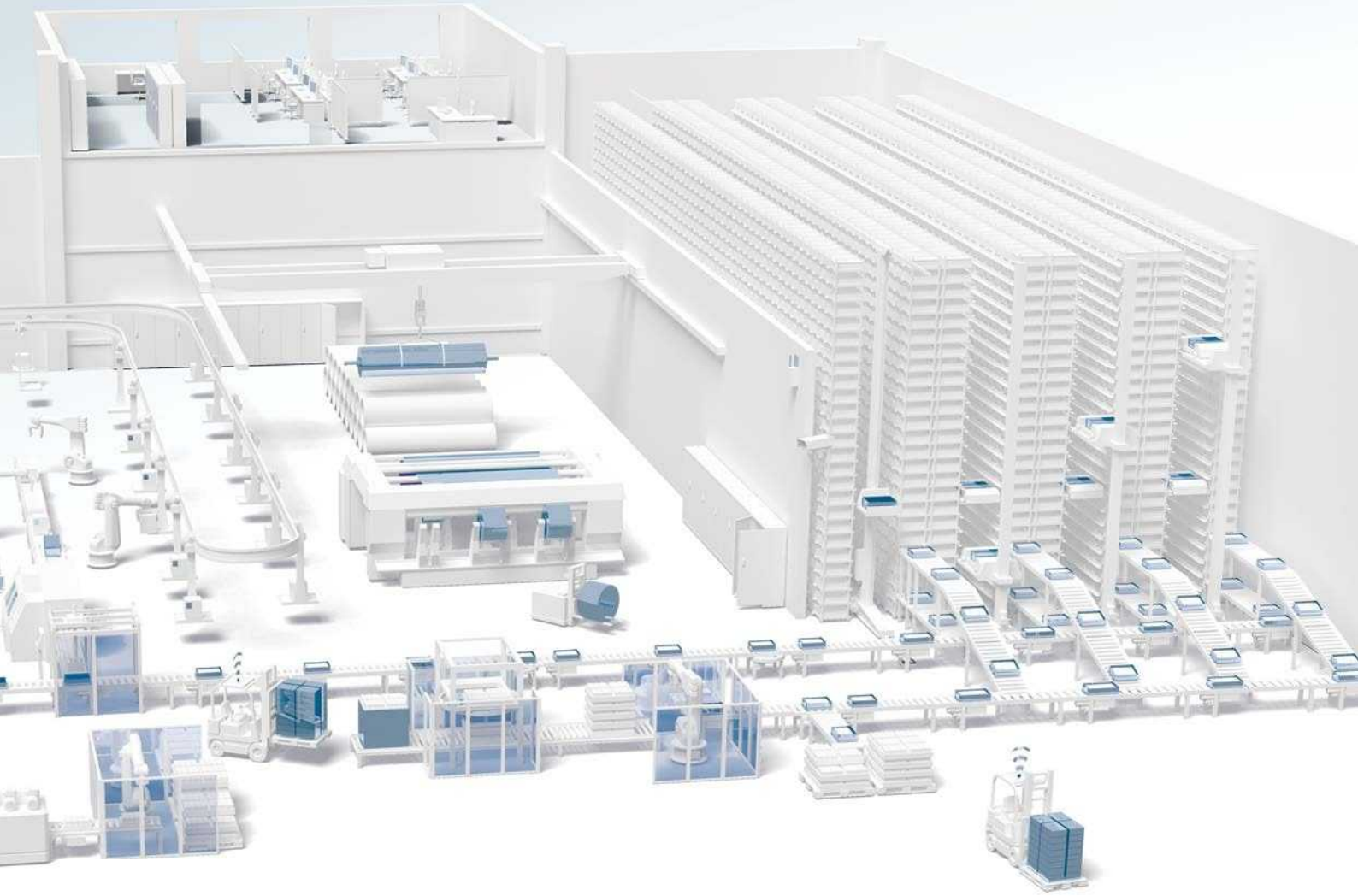


Consistently digital description

Products and processes are first of all created virtually and are fully transparent. The basis for this is that the entire construction plan and manufacturing cycle are described digitally. Production is then easily simulated or configured at any time, and can thereby be optimized.

Easy to install

The consistent data flow from configuration through to the finished marking label ensures fast, error-free installation and manufacturing. Pre-assembled connectors contribute to this, with which distributed devices can be networked with no need for tools.



Communicative and secure

Intelligent mechatronic systems communicate across locations and companies using network infrastructures. This communication method, based on Ethernet and Internet, networks distributed structures and forms the basis for flexible, self-optimizing production processes. Reliable protection in the event of unauthorized third-party access and electrical faults is a key requirement.

Autonomous and adaptable

There is no longer a central controller; instead there is intelligent collaboration. Unexpected events do not lead to production downtimes or reductions in quality. In distributed systems that work autonomously, safety functions are becoming ever more important.

Easy to operate

Thanks to digitalization and communication, as well as the learning capability of the system, the required information is prioritized and provided to the user. Assistance systems indicate the courses of action that the user requires in the respective situation. Operation and decision-making is made easier despite the increasing complexity of systems.

Resource-efficient

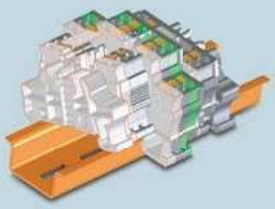
Energy and material usage can be adapted individually and precisely, as all the data required for intelligent management is available. This means that only the energy that is actually required is used. Building and manufacturing infrastructure is planned in a forward-looking manner, and is easy to operate.

Benefit from the advantages of tomorrow's intelligent production today

Plan and implement complex production processes cost-effectively, manufacture without interruptions, and do all this flexibly? To master these challenges, Phoenix Contact is already implementing Industrie 4.0 in its own production lines. Producing batch sizes of 1 at the same cost of mass production has become a reality.

Learn how you can optimize your production today.

① Consistently digital description



Digital image of a terminal block

- As soon as the material is located on the workpiece carrier, a connection is established to the higher-level system, providing all information. The basis for adaptable manufacturing is the now clearly assigned description.
- The setting data for all process steps is automatically provided for each item. This reduces system startup times and ensures quality.
- The digital image ensures transparency when it comes to the product and production. Operating states are known at all times; their visualization simplifies analysis and planning.

④ Easy to install

Marking and labeling

- Professional markings are automatically created by transferring data from engineering. The printing data for marking is provided for each item, with no need for revision or retrofitting, thanks to the digital description.
- Innovative connection technologies and pluggable installation systems reduce your costs and assembly times through quick and error-free wiring.

② Communicative and secure

- All stations are networked with each other. As part of this, different transmission paths are used, e.g., wireless technology, Ethernet, and PROFINET. People, machines, and products communicate with each other.
- Security products protect against malware and unauthorized access.
- The control system documents relevant parameters and results from the process steps, for a thorough production history that, among other things, serves as quality control.

Industrial Ethernet

③ Autonomous and adaptable

- Modular systems make manufacturing so flexible that even batch sizes of just one item can be produced cost-effectively. Soldering, painting, marking, and testing are customized procedures. This means that technology that requires minimal set-up avoids downtimes during item changeovers.
- All stations are installed and removed during operation. As such, production adapts ideally to changing requirements.
- The feeder technology can be set up during ongoing production for the manufacture of other variants. As such, uninterrupted operation is possible.

Controllers and Functional Safety

⑤ Easy to operate

- Assembly assistant systems support employees in complex tasks and diverse work steps. The higher-level control system is informed of the processing states of the products.
- System operators adjust production processes independently; laborious programming is no longer required.

HMIs and industrial PCs

⑥ Resource-efficient

- The energy requirement is recorded in detail and evaluated to optimize energy costs at product level.
- The system operating state controls the ventilation system in the building in order to reduce energy costs.
- For a material supply tailored to the actual need, mobile terminals record material requirements and automatically trigger the ordering process.

Energy and power measurement

Our experience for your success

Together with customers and partners, we are actively shaping solutions for the future. With almost 100 years of experience in machine building and automation, we are ideally placed to take the digitalization of our world and turn it into the intelligent production of tomorrow. Here, our experience in machine building, process expertise in manufacturing, and our products for intelligent automation are just three of the many reasons why Phoenix Contact is the best partner for tomorrow's intelligent manufacturing.

"I have worked at Phoenix Contact for over 30 years and have taken part in shaping automation technology here right from the start. I find Industrie 4.0 incredibly fascinating. We are all experiencing how our world is changing through digitalization. We can assume from this that our industrial environment will also significantly change in the coming years, at great speed. In this world, all parts of industry will be connected: people, machines, and products communicate with each other. New opportunities will be created."
Roland Bent, Executive Board, Marketing & Development

Your partner for Industrie 4.0

Experience in machine building

Our in-house machine building provides expert knowledge of processes and automation. We are familiar with the challenges of machine building, as we plan and construct our own manufacturing systems and optimize intelligent production with the latest technologies.

Process expertise in manufacturing

We experience intelligent production in our own manufacturing systems with extensive manufacturing capability and on a daily basis with our customers. We manufacture across the world, using the latest procedures – from screws to industrial PCs. That's why we are taking advantage of the opportunities that Industrie 4.0 offers.

Products for intelligent automation

Our components, systems, and solutions are offering competitive advantages already and will also fulfill the practical requirements of tomorrow. We are actively shaping Industrie 4.0, through research into the areas of communication technology and IT, web technology, security and safety, installation, and engineering.

We shape the intelligent production of tomorrow

In order to benefit today from all the advantages of the intelligent production of tomorrow, the connection between the real product and the processes based on digital data is necessary. The foundation for this is the digital description of the components involved as well as the individual workstations.

Data exchange as well as the design of the contents to be communicated must fulfill the requirements of our production systems. To be successful in the future, too, standards and guidelines must be open to development. This means that changing framework conditions and new business models can be provided for, too.

The interplay of future systems is currently described in different working groups by using models. Currently, there are proposals for standards and regulations based on the existing Reference Architecture Model Industrie 4.0 (RAMI 4.0). The Internet of Things, services, people, and machines, is at the heart of this. As such, prerequisites are created in order to describe and implement flexible solutions.

Smart Engineering and Production 4.0

The basis for tomorrow's intelligent production is the use of consistent digital information. The technology network made up of EPLAN, Rittal, and Phoenix Contact develops a consistent, automated process from the digital product through engineering to production.

Industrie 4.0 platform

The joint project by the German trade associations BITKOM, VDMA, and ZVEI is implementing the German Federal Government's future project, Industrie 4.0. In the meantime, 80 different organizations and more than 7000 companies have now become part of one of the largest international networks.

It‘s OWL – Intelligent Technical Systems Ostwestfalen Lippe

In the technology network, world market and technology leaders from the machine building, electric, and electronic industries as well as the automotive supplier industry, work together with regional research institutes to develop specific projects.

Further information on Industrie 4.0:
Simply scan the QR code or type the web code into the search field on our website.

Web code:
#1086

Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

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Product range

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- Connectors
- Controllers
- Electronics housings
- Electronic switchgear and motor control
- Fieldbus components and systems
- Functional safety
- HMIs and industrial PCs
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- Industrial communication technology
- Industrial Ethernet
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- Lighting and signaling
- Marking and labeling
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- Protective devices
- Relay modules
- Sensor/actuator cabling
- Software
- Surge protection and interference filters
- System cabling for controllers
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- Wireless data communication

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