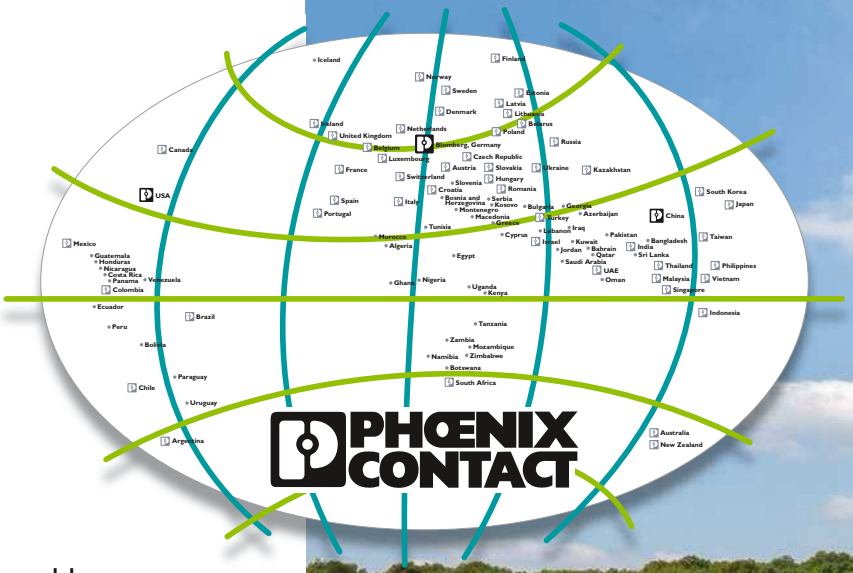
Water and Wastewater Treatment

Solutions for wastewater and drinking water treatment

PHOENIX CONTACT
INSPIRING INNOVATIONS

In dialog with customers and partners worldwide



Phoenix Contact is a global market leader in the field of electrical engineering, electronics, and automation. Founded in 1923, the family-owned company now employs around 14,000 people worldwide. A sales network with over 50 sales subsidiaries and more than 30 additional global sales partners guarantees customer proximity directly on site, anywhere in the world.

Our range of services consists of all kinds of products with a wide range of electrotechnical applications. This includes numerous connection technologies for device manufacturers and machine building, components for modern control cabinets, and tailor-made solutions for many applications and industries, such as the automotive industry, wind energy, solar energy, the process industry or applications in the field of water supply, power transmission and distribution, and transportation infrastructure.

Company independence is an integral part of our corporate policy. Phoenix Contact therefore relies on in-house competence and expertise in a range of contexts: the design and development departments constantly come up with innovative product ideas, developing special solutions to meet customer requirements. Numerous patents emphasize the fact that many of Phoenix Contact's products have been developed in-house.

"An increased awareness of quality, new engineering processes, the demand for greater sustainability, increased safety, and seamless procedures mean that water management operators are facing new challenges. We offer you technological advancement and rely on open interfaces, from the control room, to the network and control levels, to the field level. With a team that is networked across the world and collaborations with industry partners, Phoenix Contact is your reliable partner for water management."

Joachim Pucker, Global Industry Manager

Contents

Overview: solutions for water and wastewater treatment

Wastewater treatment

The process of energy-efficient wastewater treatment encompasses the entire wastewater treatment plant. Maintenance in line with these requirements can be achieved thanks to Phoenix Contact system solutions: redundant control technology, the most innovative fieldbus technologies and easy integration of wireless technology for monitoring field devices, from the sewerage system to biology.

For more information, see page 6

Drinking water supply

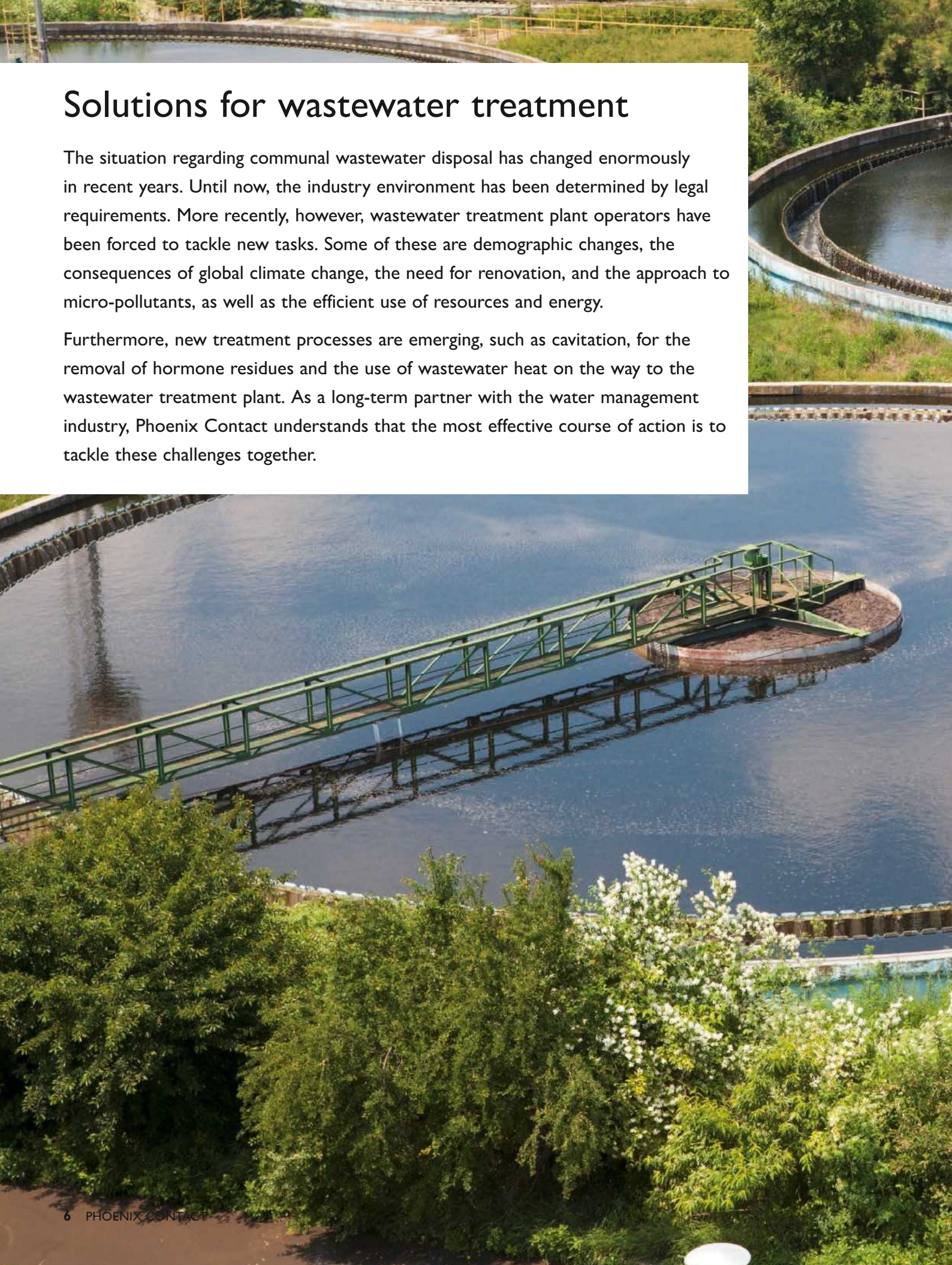
High system availability and uninterruptible processes contribute to a guaranteed supply and cost-optimized processing. Depending on the application, Phoenix Contact provides the right solution: from extraction of untreated water, to local network distribution with intelligent surge protection, to modular control technology, and standardized remote control technology.

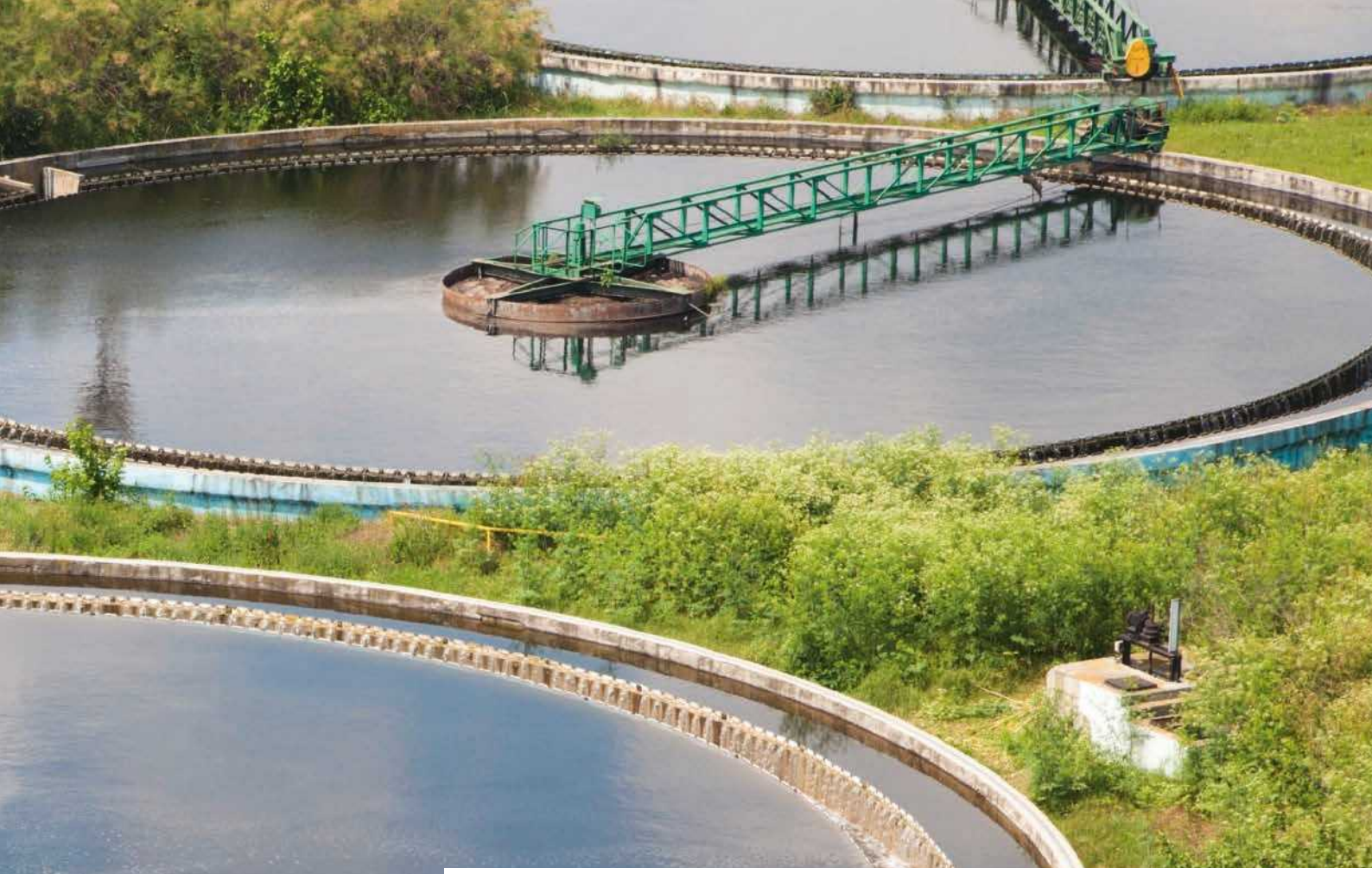
For more information, see page 18

Solutions for wastewater treatment

The situation regarding communal wastewater disposal has changed enormously in recent years. Until now, the industry environment has been determined by legal requirements. More recently, however, wastewater treatment plant operators have been forced to tackle new tasks. Some of these are demographic changes, the consequences of global climate change, the need for renovation, and the approach to micro-pollutants, as well as the efficient use of resources and energy.

Furthermore, new treatment processes are emerging, such as cavitation, for the removal of hormone residues and the use of wastewater heat on the way to the wastewater treatment plant. As a long-term partner with the water management industry, Phoenix Contact understands that the most effective course of action is to tackle these challenges together.





Overview: wastewater treatment

Ramp metering

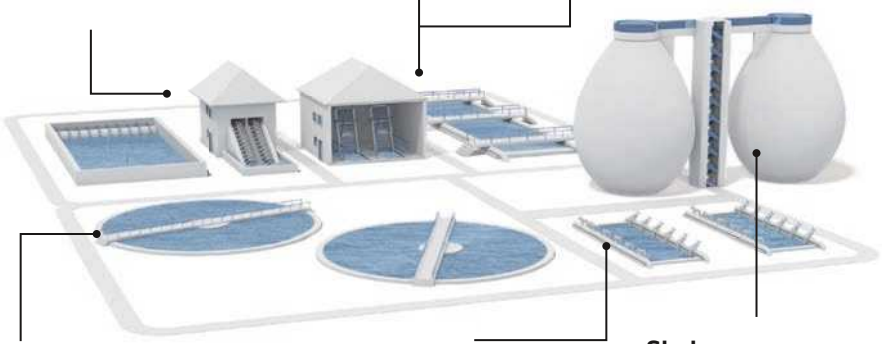
Reliable automation technology to control inflow.

Mechanical precleaning

Solutions for data acquisition in the Ex area and non-Ex area

Mechanical precleaning

Communication solutions for moving system parts, such as a sand and grease trap.



Final sedimentation

Safe process-data communication of all relevant measured values.

Biological treatment

Solutions for continuous monitoring and control of remote stations.

Sludge treatment

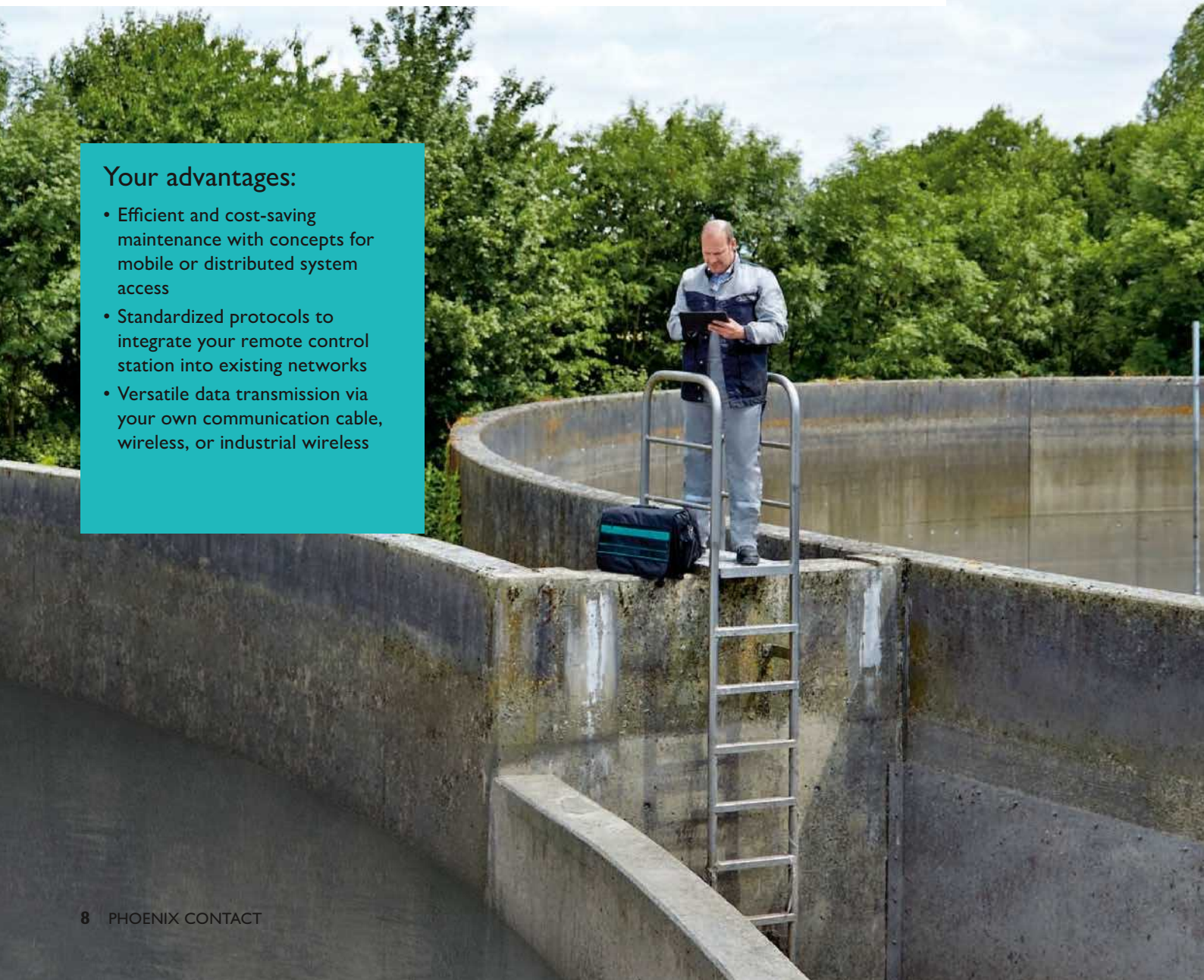
Solutions for energy-efficient operation of drive technology.

Solutions for wastewater treatment

Ramp metering

Rain and wastewater (mixed water) is collected in a sewer prior to reaching the wastewater treatment plant. From there it is dispensed to the wastewater treatment plant with a delay. A rain overflow basin relieves the sewerage system. The introduction of water into the process is controlled depending on utilization. The control of the inflow pumps to the wastewater treatment plant is based on level measurement that is aligned with set values.

Phoenix Contact provides reliable control solutions for storm-water relief systems and wastewater pumps. Specially developed function blocks and components for motor management serve to control the valves and frequency inverters. This ensures that the inflow corresponds to requirements.



Your advantages:

- Efficient and cost-saving maintenance with concepts for mobile or distributed system access
- Standardized protocols to integrate your remote control station into existing networks
- Versatile data transmission via your own communication cable, wireless, or industrial wireless

Inflow monitoring from the rain overflow basin to the wastewater treatment plant

Thanks to class 100 modular control technology from Phoenix Contact, inflow to the wastewater treatment plant from the rain overflow basin is controlled according to requirements and levels are continuously recorded. It is possible to easily integrate all standard measuring devices using preprogrammed function blocks.

Remote control technology for decentralized wastewater pumping plants

Regardless of whether it is mobile communication, cable, wireless technology, or DSL, Phoenix Contact provides you with modular remote solutions for existing and new systems. Freely combining various transmission paths ensures the best possible adjustment to the system structure. Thanks to the Resy+ remote library, you can transmit your data securely from the decentralized station to the control room via standardized protocols.

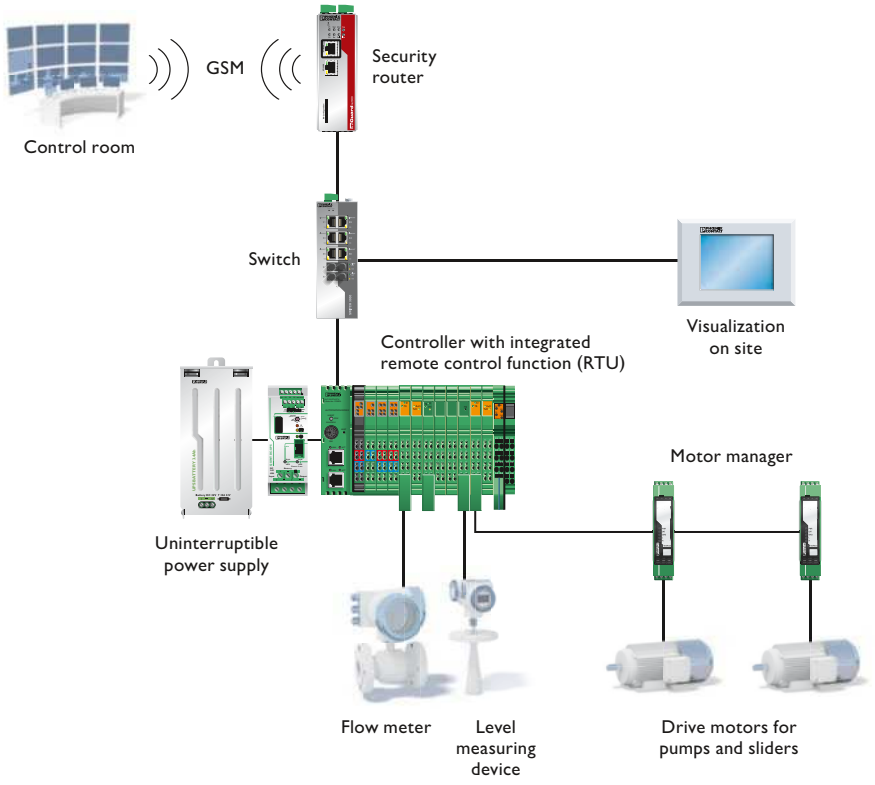
Remote diagnostics

Access your system on a flexible basis and diagnose the system state. Thanks to atvise®, the web-based visualization solution, you can view and access your system remotely at any time via your smartphone or tablet. This provides efficient operating and monitoring solutions for your technicians. You can also reduce costs for diagnostics and troubleshooting over the long term, by means of planned maintenance interventions in line with requirements.

Solutions for wastewater pumping stations: From motor management to secure data communication

When controlling wastewater pumping stations, the class 100 modular, small-scale controller ensures reliable reading out and transmission of relevant process data relating to level and flow measurements. Depending on the technical and geographical requirements of your wastewater pumping plant, mGuard security routers ensure reliable and secure communication to and from the control room.

The CONTACTRON motor management solution combines the function of a traditional reversing contactor circuit with safety functions in just one device.

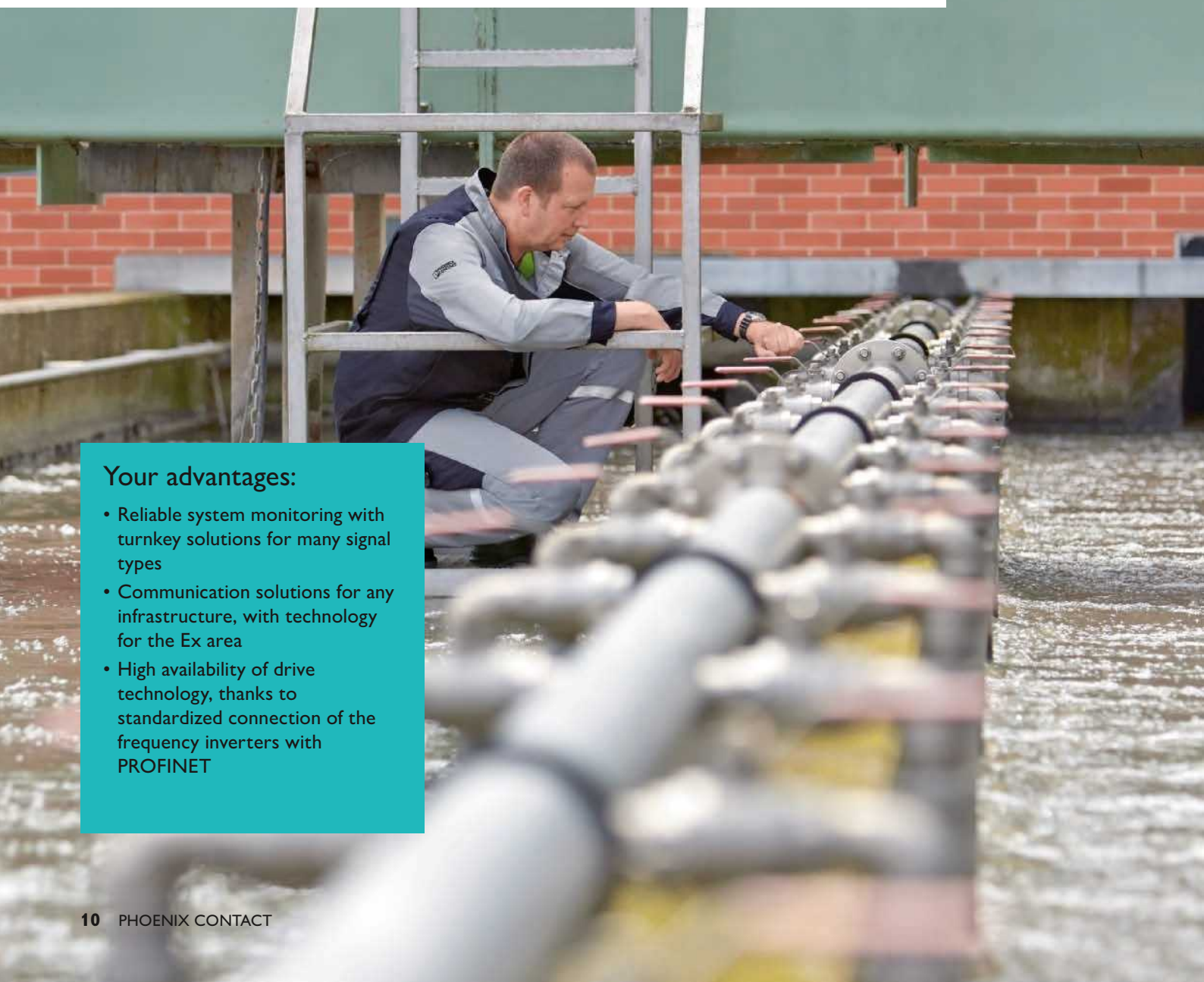


Solutions for wastewater treatment

Mechanical precleaning

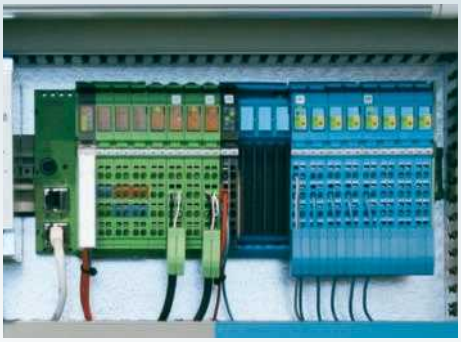
During mechanical precleaning, screens and a sand trap remove coarse soiling and mineral solids, e.g., stones or glass shards. This prevents blockages and results in the best possible biological cleaning process. To operate the wastewater treatment plant so that minimal maintenance is required, a reliable controller is essential. The fans, motors, and valves must also be monitored.

Phoenix Contact provides reliable solutions that fulfil requirements according to ambient conditions, thereby ensuring processes operate seamlessly. Included among these are modular control solutions, intrinsically safe input and output modules, as well as communication solutions.



Your advantages:

- Reliable system monitoring with turnkey solutions for many signal types
- Communication solutions for any infrastructure, with technology for the Ex area
- High availability of drive technology, thanks to standardized connection of the frequency inverters with PROFINET



Intrinsically safe signal acquisition

In Ex areas, such as coarse and fine screens, safe signal acquisition is required. To this end, Phoenix Contact provides a comprehensive product range for potentially explosive atmospheres.

Your I/O station is installed in zone 2, while the sensors and actuators are installed in zone 0, 1, or 2 as required.

Reliable wireless communication

Phoenix Contact provides solutions for wireless control of moving system parts, such as those in the sand trap, using powerful wireless connections with Trusted Wireless 2.0. Benefit from fast, easy startup without programming, thanks to straightforward address assignment of input and output modules.

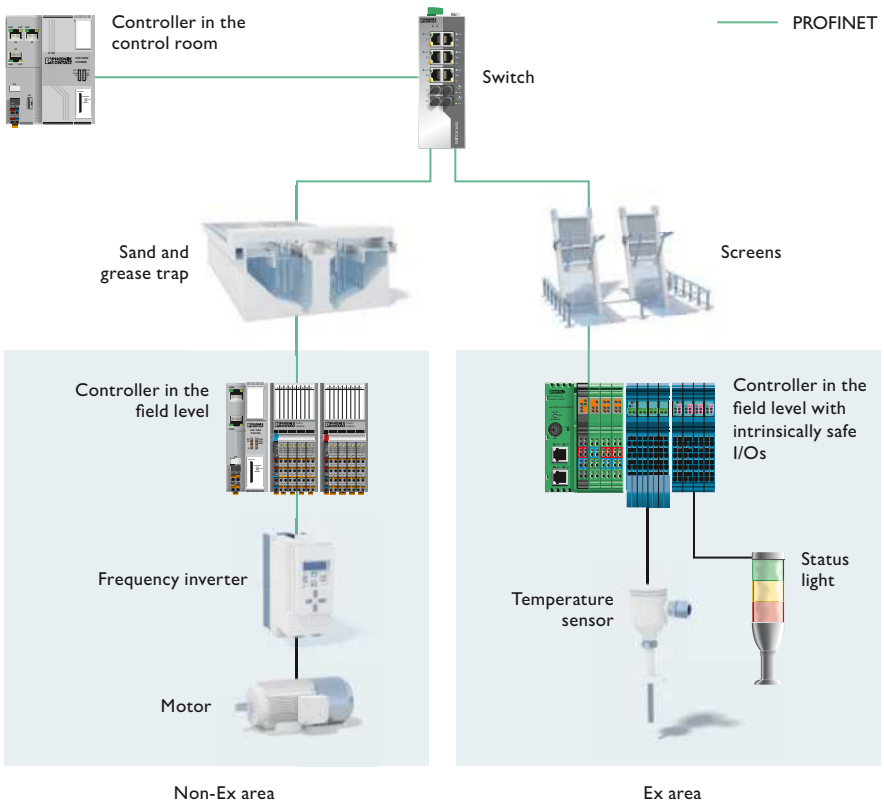
Standardized connection of frequency inverters via PROFINET

In the sand and grease trap, the high availability of drive technology is of great significance, as the fans must continue to operate uninterrupted in order to maintain the flow velocity. This is the only way to ensure sedimentation of the particulate material. Connecting the frequency inverter with PROFINET wireless technology ensures standardized and reliable integration into the automation system.

Data acquisition from the Ex area and non-Ex area

Thanks to PROFINET, it is easy to integrate all decentralized areas, such as the sand and grease trap, into the system network.

The signals from the Ex areas – the screening building – are acquired with the help of intrinsically safe input and output modules and then reliably transmitted to the control room.



Solutions for wastewater treatment

Biological treatment

At the heart of the wastewater treatment plant is biological treatment. Precisely controlling process sizes, such as the oxygen content in the aeration tank, is essential in achieving the best possible wastewater cleaning process, as well as the operation of an effectively functioning treatment plant.

You can save energy by controlling the rate of air inflow in a targeted way. Special function block libraries, precise energy measuring devices, secure network components, and modular control technology all contribute to the efficient operation of a plant.

Your advantages:

- Secure communication technology, from the measuring point to the control room
- Flexible wireless solutions with different wireless technologies, for a wide range of applications, such as Trusted Wireless, Bluetooth, WLAN (IEEE 802.11), GSM/GPRS, and WirelessHART

Easy integration of measuring devices typical to the sector

Preprogrammed function blocks from the Waterworx library greatly simplify the manufacturer-independent connection between measuring devices and pumps. The recorded measured values, such as the dosing quantity and fill level, are reliably acquired with the class 300 modular controller and are transmitted to the control system.

Wireless process data transmission

While refurbishing system parts, such as the aeration tank, high costs often arise due to the subsequent laying of cables.

Wireless communication via WLAN is a flexible, cost-effective alternative for communicating process data from the field to the control room.

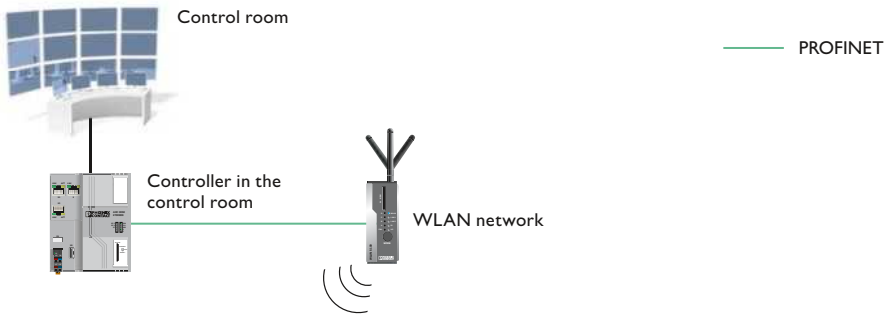
Energy-efficient ventilation control

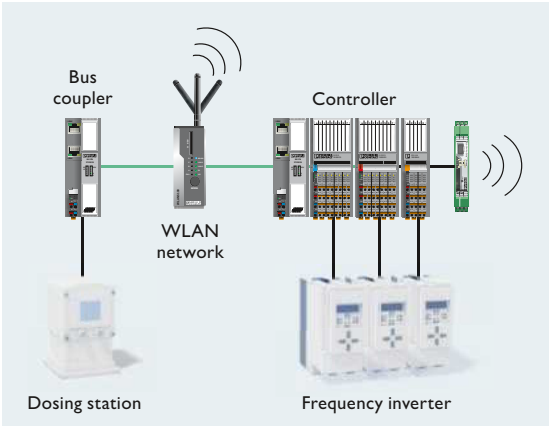
The energy-intensive oxygenation in the aeration tanks is continually monitored. Modular control solutions and the Waterworx function block library ensure energy-efficient operation of the frequency inverters and ventilation technology.

Wireless data transmission from the aeration tank to the control room

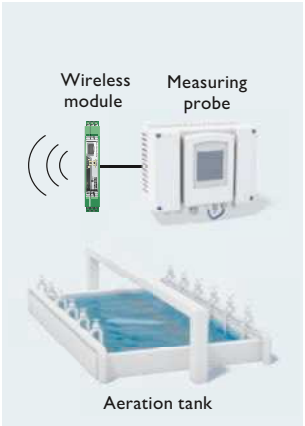
Modern wireless communication provides you with the required flexibility for any application.

Process data can be exchanged between individual areas, such as the dosing station and aeration tanks, via PROFINET and WLAN. All relevant process sizes are safely transmitted to the control room.





Operational building with dosing station and drive technology



Aeration tank with measuring probe

Solutions for wastewater treatment

Final sedimentation

The sludge removed, consisting of precipitated phosphates and bacteria, is partly pumped into the final purification tanks and partly into the sewage process, in which the water is provided with new bacteria. In doing so, the sludge level is monitored in order to calculate the exact quantity of recirculated material. For optimum water quality, the pH, turbidity, and nitrate values are also monitored.

With solutions from Phoenix Contact, you can ensure uninterrupted operation of your system and, thanks to wireless process data communication, you can keep an eye on your system at all times.

Your advantages:

- Reliable data communication for moving or hard-to-reach system parts
- Low installation and maintenance effort, thanks to Bluetooth communication
- Uninterruptible system operation with reliable motor protection

Hybrid motor management with integrated safety function

In the biological phosphorus removal tanks (bio-P tanks), the phosphorus in the wastewater is removed by means of the bacteria contained in the sludge.
The CONTACTRON 4-in-1 hybrid motor starter reliably protects the motors and enables uninterruptible operation. The integrated safety functions make use of all emergency stop requirements.

Secure communication of process data via Bluetooth

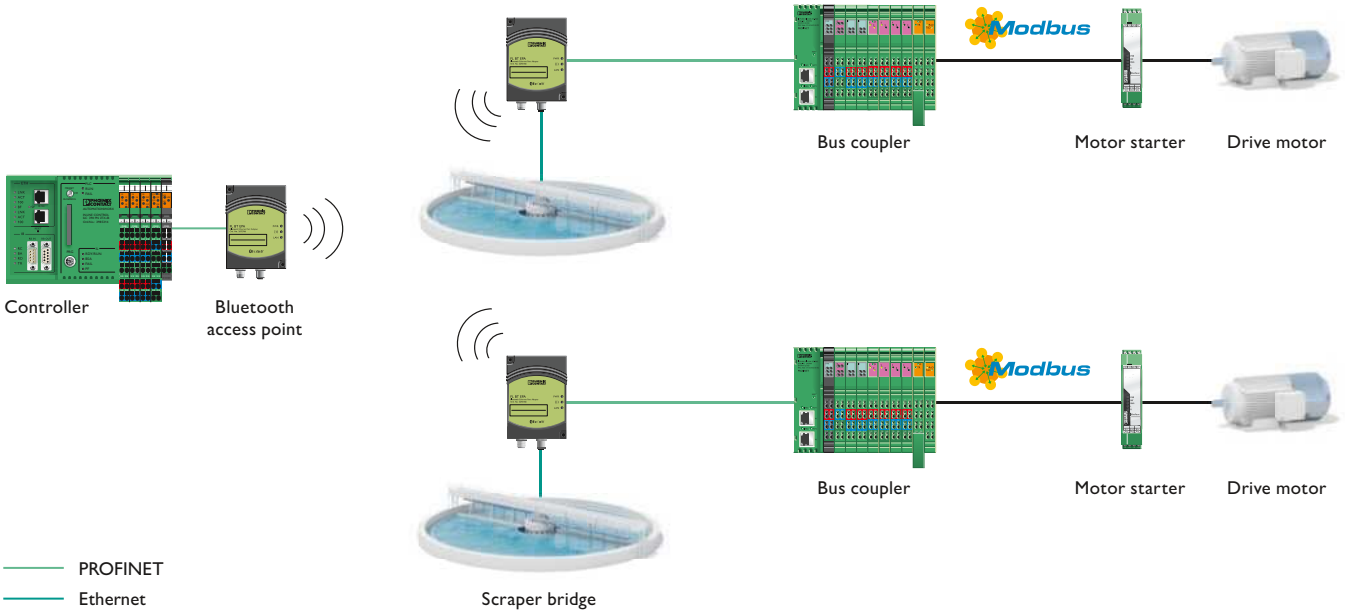
Slip rings can represent a problem in data communication, particularly in rotating applications. Bluetooth modules from Phoenix Contact let you easily, reliably, and cost-effectively integrate mobile, difficult-to-access automation devices into your PROFIBUS or Ethernet automation network. Benefit from the advantages of Bluetooth technology also when transmitting digital and analog process values.

Increase system availability thanks to surge protection

In the field of water management, availability of the measuring signals, data communication, and control technology is required for reliable system operation. Long communication paths as well as switching operations of large pumps and drives make the use of surge protection indispensable. Our complete concept for surge protection offers user-friendly, ready-to-install solutions for all applications.

Wireless data communication with Bluetooth in final sedimentation

Whether it is PROFIBUS or PROFINET, you will achieve the best water quality with secure monitoring of the final sedimentation process. Use Bluetooth as a cost-effective alternative, e.g., for slip rings. Process sizes from the final purification tanks are reliably transmitted to the superordinate control level. Prevent failure-prone slip-ring transmission, which is often linked to high installation and maintenance effort.



Solutions for wastewater treatment

Sludge treatment

In wastewater treatment, many solids accumulate in the form of sludge. The objective is to further process this sludge as efficiently as possible or remove it. To do so, the sludge is handled before disposal in such a way that it loses the capacity to putrefy. There are various ways of processing sludge: sludge digestion, thickening, stabilization, and drying. In each of these processes, energy-efficient, reliable operation is of key importance.

Phoenix Contact provides a wide range of solutions, from acquisition of energy data to storage of operational data and evaluation in the control room.

Your advantages:

- Secure storage and processing of operational data
- Tailored reporting, thanks to flexible data acquisition and evaluation
- Solutions for Functional Safety in wastewater applications

Reliable storage of operational data

A range of measured data is detected and stored, from the wastewater intake to outfalls. They form the basis for the overall process of recording and analysis.

Detailed reports are created easily, at any time, thanks to the reliable data management software ACRON, which is used for detection, long-term storage, and evaluation of operational data.

Energy data acquisition for energy-efficient operation

When drying and purifying sewage sludge, energy-efficient control of the pumps and stirrers is crucial. In order to save energy, and operating costs, a wide range of measured values such as voltage, current, and electrical power are required. We provide the widest range of current measuring devices for all standard interfaces, such as Modbus, PROFINET, and PROFIBUS.

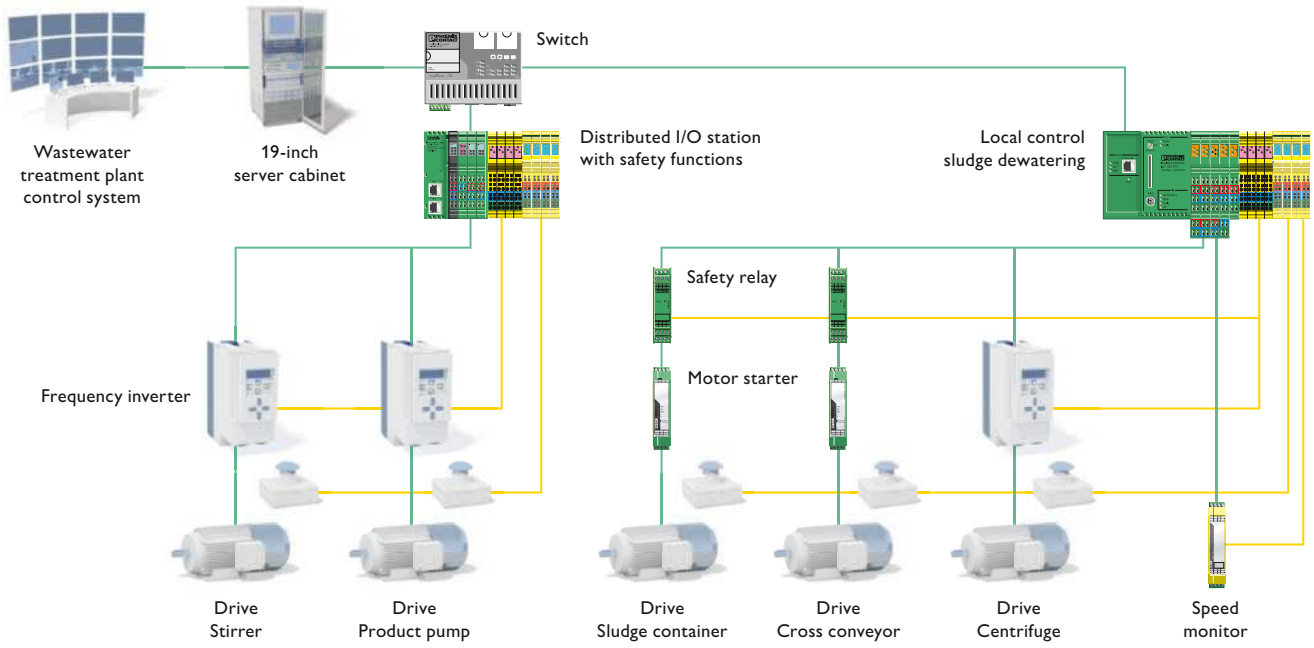
Solutions for safe operation according to machinery directives

Centrifuges in sludge dewatering serve to thicken surplus and digested sludge. These centrifuges operate at more than 3000 revolutions per minute.

Here, the safety of man and machine plays an important role. Phoenix Contact provides safe solutions and reliable services for Functional Safety, which comply with all guidelines.

Safety concept for centrifuges

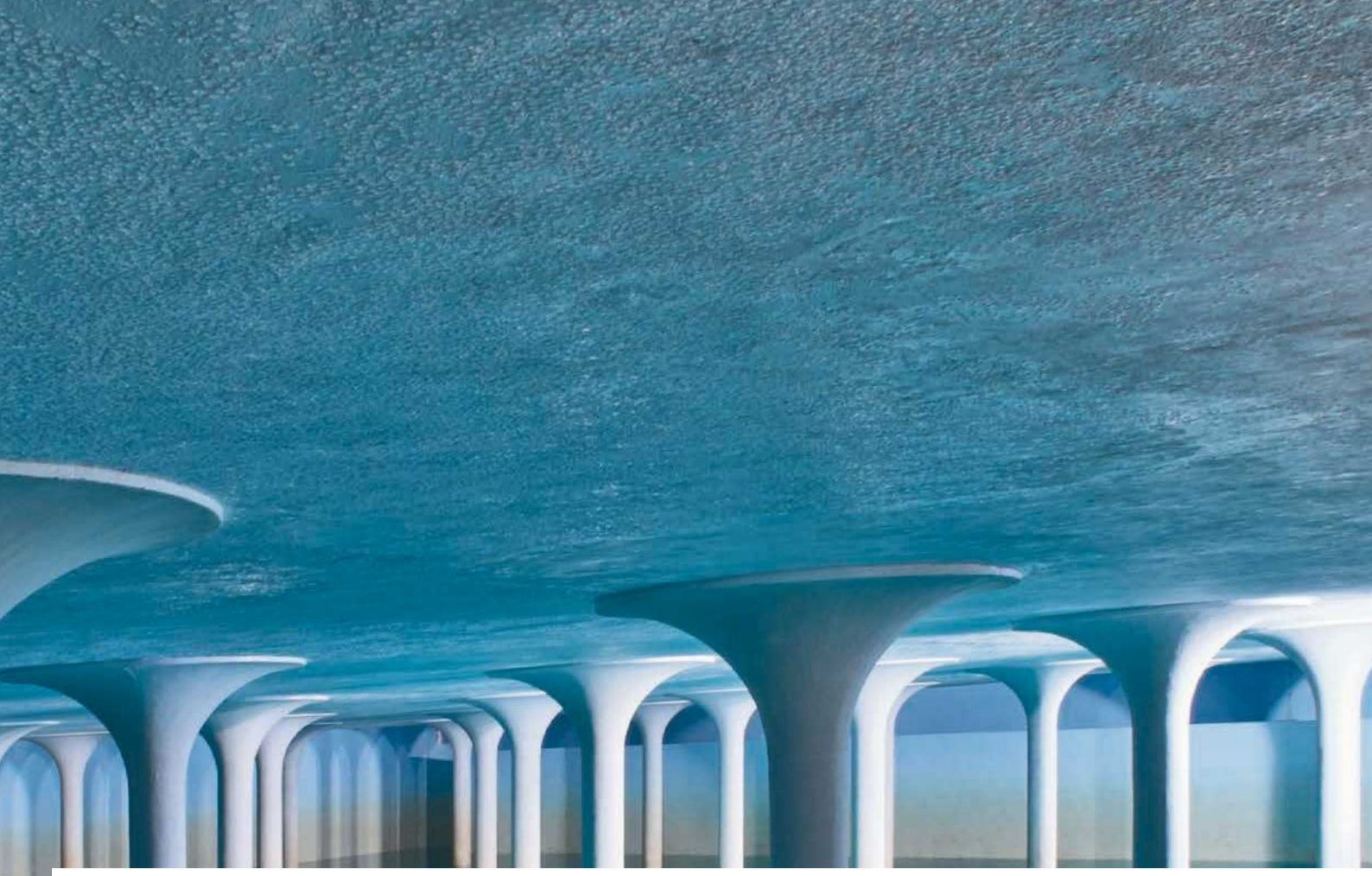
The safety bridge modules do not require a higher-level safety controller. Despite this, a logic that can be programmed by the user is integrated into a special, safe output module. If the safe speed measurement process determines an overspeed or one of the many emergency stop control devices is actuated, the logic module switches off the centrifuge's two drives and, if required, any linked units, such as the sludge pumps.



Solutions for the drinking water supply

Drinking water quality is subject to extremely high legal stipulations. Operators of water treatment plants are responsible for ensuring a safe supply to the population as well as complying with legal requirements. Operators are always facing new challenges, given the varying quality of untreated water and the need to protect water resources from contamination.

Phoenix Contact provides a comprehensive system in order to guarantee reliable water treatment, storage, and distribution.



Overview: drinking water supply

Water extraction

Automation solutions for reliable water extraction from ground or surface water.

Removal of suspended matter

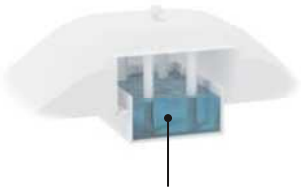
Reliable measured data acquisition for energy-efficient operation of filtration stages.

Disinfection

Integrated remote diagnostics solutions, thanks to modular control technology.

Oxidation

Fail-safe turnkey solutions, from the field level to the SCADA level.



Water transport and distribution

Innovative remote control technology for seamless transport and distribution of drinking water directly to the consumer.

Solutions for the drinking water supply

Water extraction

Drinking water is extracted from various sources, such as ground and surface water. Depending on the quality of those sources, a variety of preparation processes are available for the supply of drinking water. Phoenix Contact's application solutions include reliable monitoring and control of distributed well fields, outlet towers, and reservoirs, all thanks to standardized remote control communication.

Your advantages:

- Protocol conversion from IEC 60870-5-104, IEC 60870-5-101, Modbus/RTU, Modbus/TCP to IEC 60870-5-104 or IEC 60870-5-101
- Easy integration of distributed stations into the system network, thanks to preprogrammed function blocks.
- Intelligent tank management, thanks to managed control of the frequency inverters.

Intelligent quantity management with Waterworx

In order to achieve optimum utilization of the well pumps when extracting ground water, intelligent tank management is a must. Thanks to blocks from the Waterworx library, you can ensure targeted control of the frequency inverters and control output.

High system availability

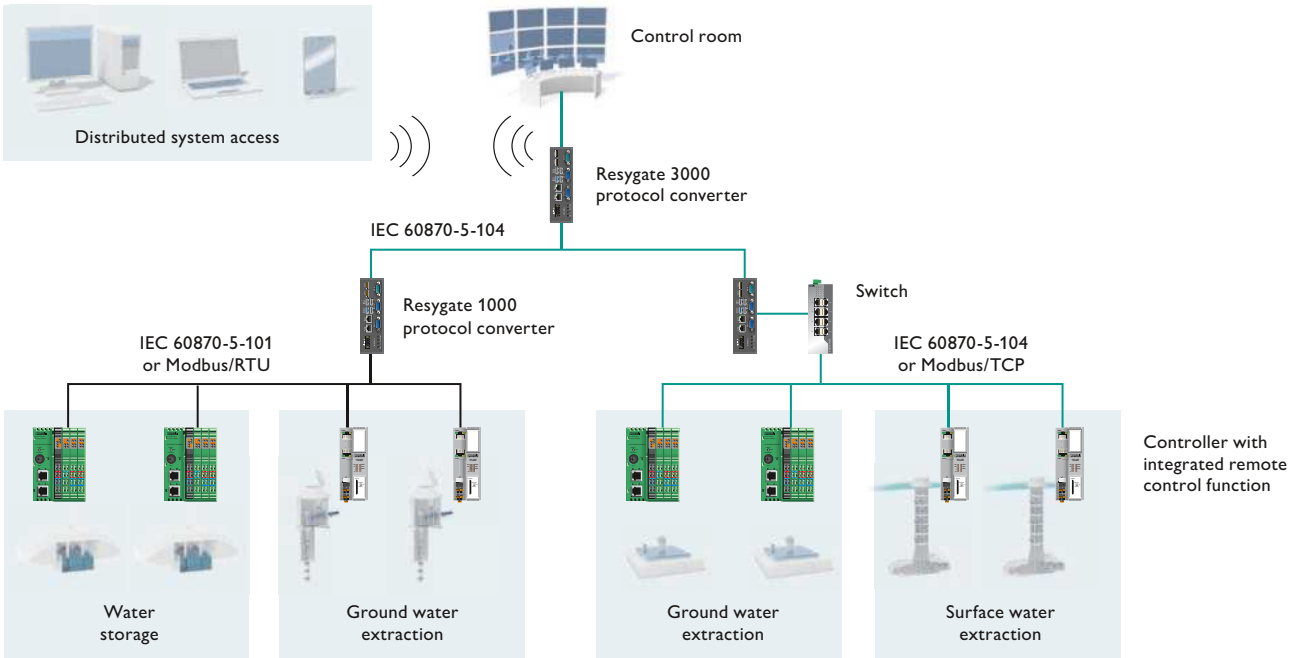
In order to control the procedures for turning surface water into drinking water, reliable data processing of measured values, such as turbidity, pH value, conductivity, and temperature is required. Innovative FO cabling, comprehensive surge protection concepts and redundant Ethernet networks ensure high system availability.

Protocol conversion for remote control technology

Thanks to Phoenix Contact remote control technology, you can monitor distributed stations reliably, such as bank filtration. The Resygate protocol converter decodes many common communication protocols into standard remote control protocols, substantially saving on costs for interfaces in the control system.

Cost-effective protocol conversion

Transmit bundled process data from various remote control stations to the control room, via standardized remote control communication, such as IEC 60870-5-104. The protocol converter Resygate bundles the data and transmits data securely to the control room. As such, all remote stations are constantly monitored.



Solutions for the drinking water supply

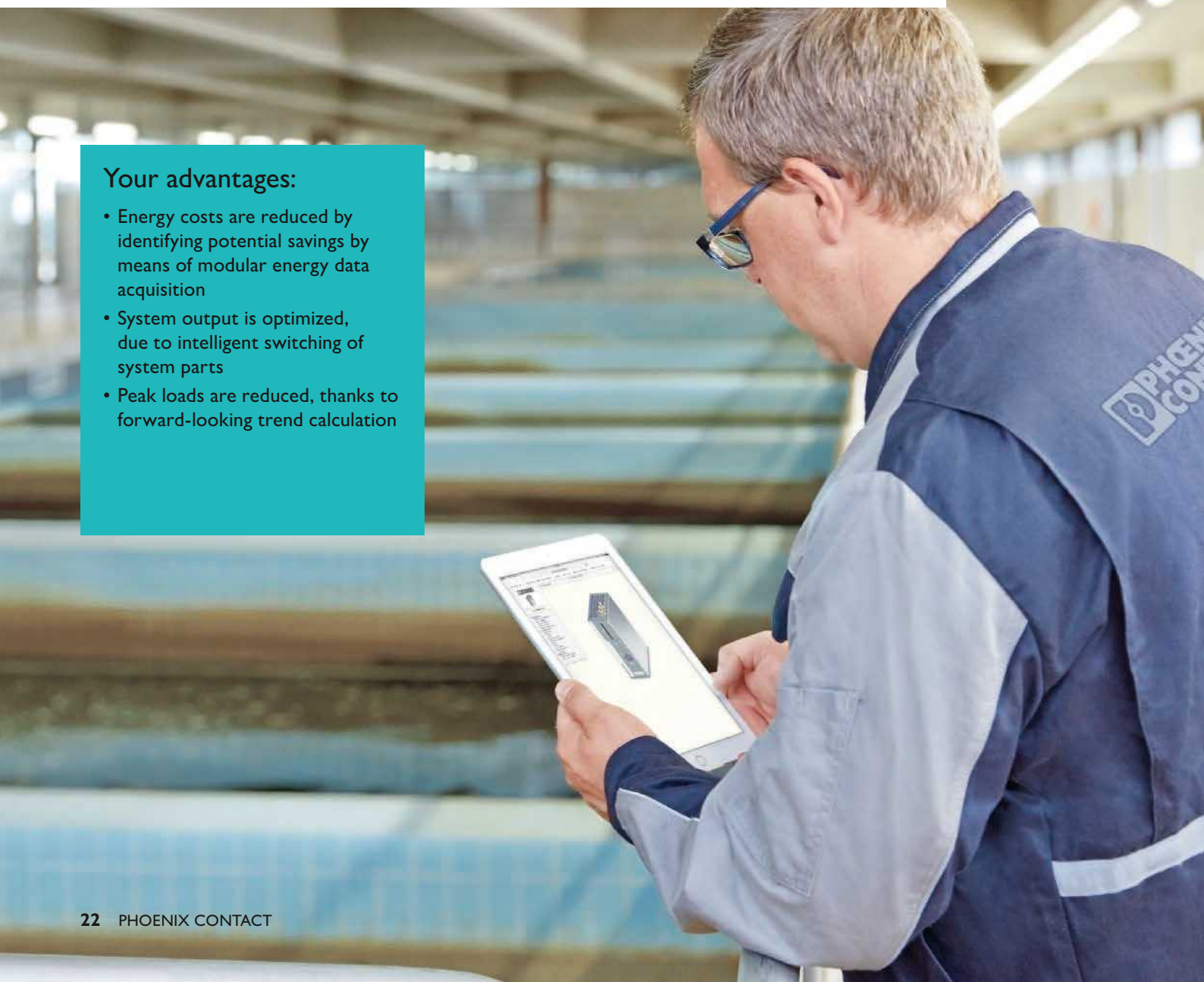
Removal of suspended matter

When purifying water, sand filters are used in order to filter out turbidities and to protect the subsequent activated carbon filter. The colloids and suspended particles contained in the water are bound by adding doses of flocculants and can then be filtered.

Thanks to the solutions from Phoenix Contact, you can control the dosing unit depending on the water-flow rate and acquire all relevant measured values, such as turbidity values.

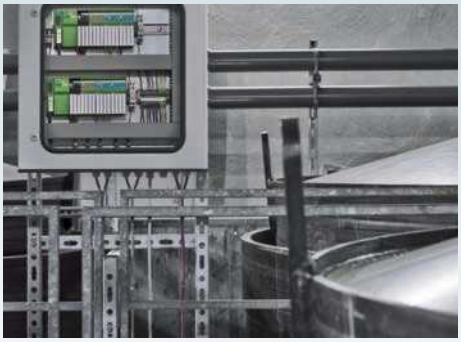
Your advantages:

- Energy costs are reduced by identifying potential savings by means of modular energy data acquisition
- System output is optimized, due to intelligent switching of system parts
- Peak loads are reduced, thanks to forward-looking trend calculation



Modular control of filtration stages

The first surface water processing stage takes place in a screen drum system. Class 300 modular control technology enables reliable control of filtration, based on the measured values acquired via a wide range of standard interfaces.



Modular energy data acquisition

In the agglomeration, the size of flocculation is controlled by applying energy. This is achieved via speed control. Monitoring the energy applied to the motors provides an opportunity for energy optimization. Acquire energy data with the modular Inline power measurement terminal.

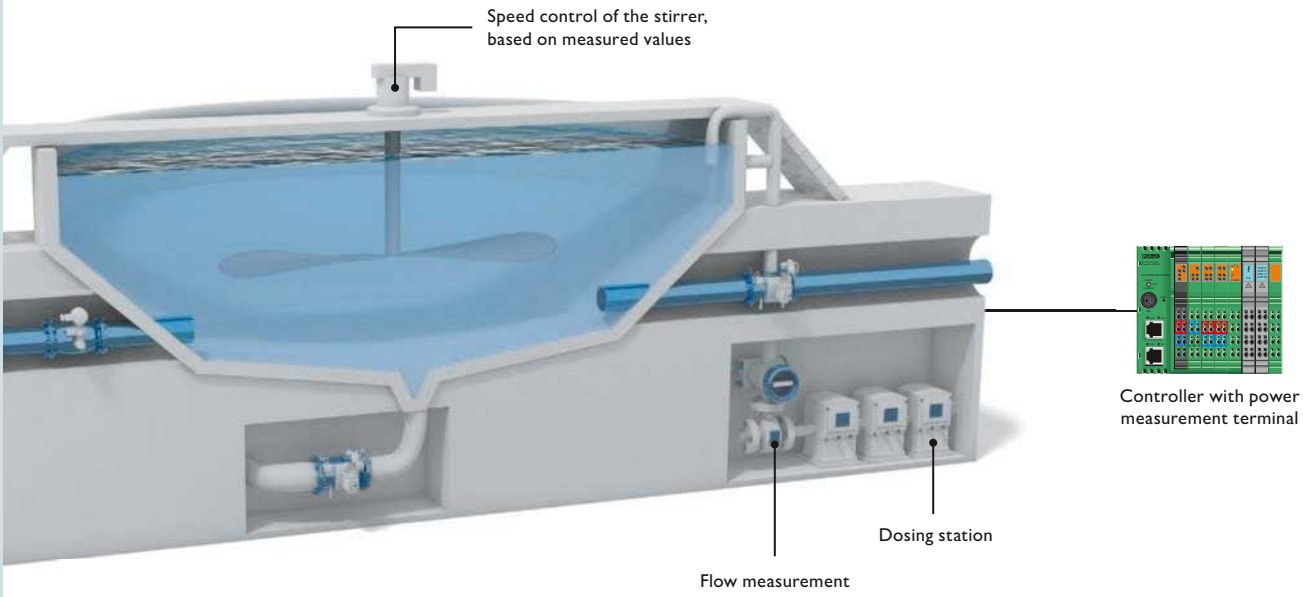
Flexible Ethernet networks

The open filtration stage operates according to the overflow principle, as the retention time of the water has a high influence on the purification performance.

Easily integrate the safe control of the valves and drive technology into your network via PROFINET.

Energy-optimized operation of agglomeration

Thanks to the energy-efficient control of the agglomeration, significant cost savings are achieved. Monitor the energy supply and control the speed of the stirrer, making the best possible use of energy. Energy data is recorded via the controller with a modular power measurement terminal and transmitted to the control room. The modular power measurement terminal measures AC currents up to 5 A, including neutral conductor current, and external conductor voltages up to 400 V AC.



Solutions for the drinking water supply

Oxidation

Oxidation is crucial to the drinking water system. Here, micropollutants are removed and the water is disinfected as bacteria are eliminated. A failsafe system is a must in this instance.

Phoenix Contact provides redundant systems from the field to the control level in order to control and monitor these sensitive processes. Many years of industry experience and effective, scalable solutions make Phoenix Contact the partner you want by your side.

Your advantages:

- Uninterrupted process in the event of failure or when a controller is replaced
- Fast startup and automatic configuration of all redundancy functions, thanks to AutoSync technology
- A contact partner for the automation of your water system, thanks to scalable turnkey solutions

Function block for drive technology

The control of the inflow and outflow valves of the reaction tank is managed via drive technology, e.g., from Auma.

Special function blocks from the Waterworx library enable easy and fast integration of the drives.

Modular, easy marshalling in the ozone system

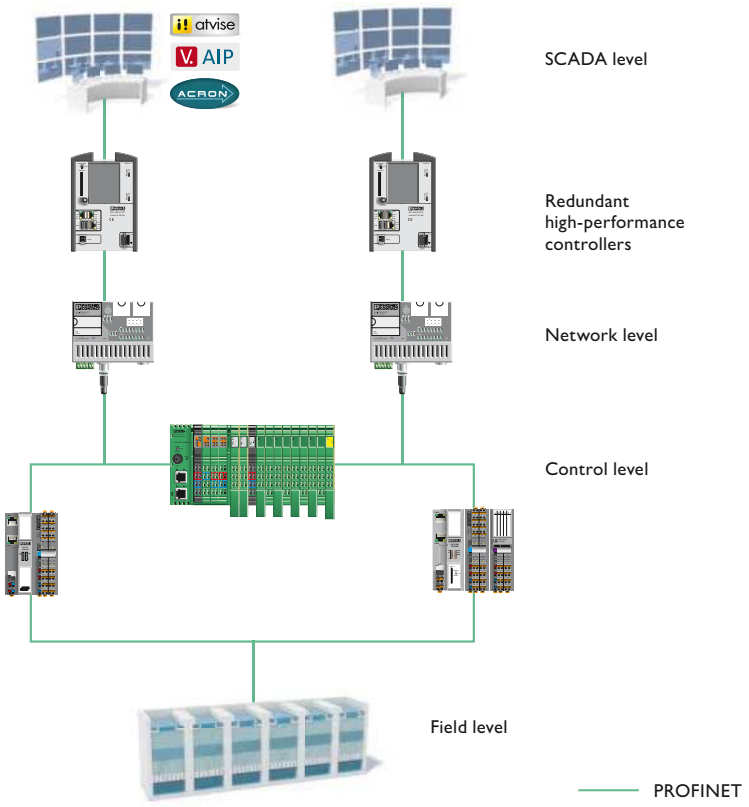
Phoenix Contact provides a large number of analog and digital inputs and outputs to control, for example, the concentration of ozone gas. Modular patchboards ensure a connection between the field levels and the controller and enable easy signal marshalling.

Redundant controller in filtration stage 2

A wide range of procedures in open quick sand filtration enable processing according to legal requirements. Complete redundancy concepts, from the RFC 460R high-performance controller, through to visualization with atvise®, contribute to a seamless, uninterruptible process.

Consistent redundancy, from the field level to the control room

When it comes to the filtration stage in particular, failsafe operation is crucial. In order to guarantee this, it is vital to establish a redundant system. Phoenix Contact provides redundant components, from the easy integration of field devices, to the control and network level, to the control system. This is how to create a safe infrastructure.



Solutions for the drinking water supply

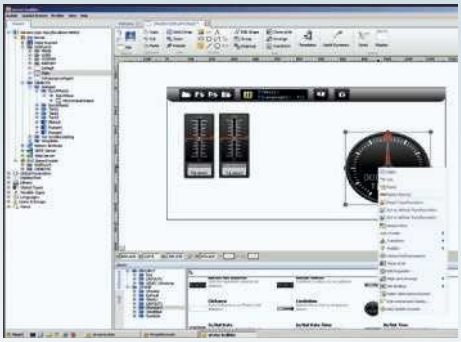
Disinfection, softening, sludge water treatment

The aim of drinking water disinfection is to reliably remove bacteria and viruses. Chlorination has been tried and tested in drinking water treatment as a disinfection procedure and prevents recontamination in the pipe network.

To ensure reliable, uninterrupted operation of your system, Phoenix Contact provides you with the products and solutions that correspond to the many legal requirements and high demands set in regards to water quality.

Your advantages:

- Always keep an eye on your system, thanks to on-site visualization with integrated remote diagnostics
- Reliable signal acquisition for decarbonization, thanks to uninterruptible operation, even in the event of a power failure
- Modular control solutions for reliable operation of chlorine dioxide processing plants



Integrated remote diagnostics during disinfection

Legal stipulations require the disinfection of drinking water, for example through the use of chlorine dioxide. Measured values, such as flow rate and residual chlorine, serve to control the chlorine dioxide processing plant in a precise way. The combination of modular control technology with integrated web visualization enables precise control, with on-site operation.

Easy electrical isolation

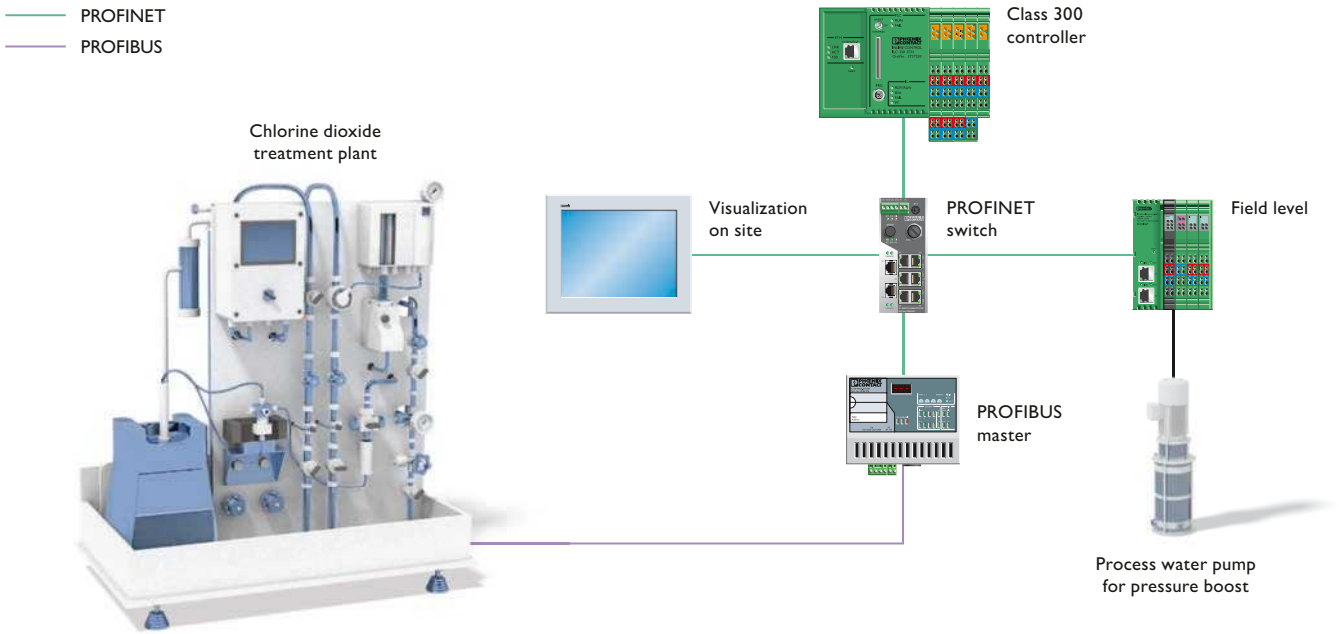
Various procedures are used during decarbonization to decrease the hardness of the water. To this end, electrical isolation must be implemented in all measurement, regulation, and control cabinets. Solutions from Phoenix Contact ensure uninterruptible operation, thanks to the acquisition of current signals during ongoing operation, without breaking the current loop.

Web-based visualization on site

During sludge water processing, the resulting backwash water is sedimented in the filtration stages. Panel PCs with the visualization software atvise® take over the on-site visualization, thereby supporting maintenance personnel in everyday servicing.

Solutions for chlorine dioxide processing plants

To ensure the correct dosing of chlorine dioxide, the processing plants require precise monitoring and volume regulation of the supply with process water at the injector. The modular control technology from Phoenix Contact fulfils these requirements, thanks to the intelligent PROFINET or PROFIBUS connection with the processing plant. Using on-site visualization, you can always keep an eye on your chlorine system.

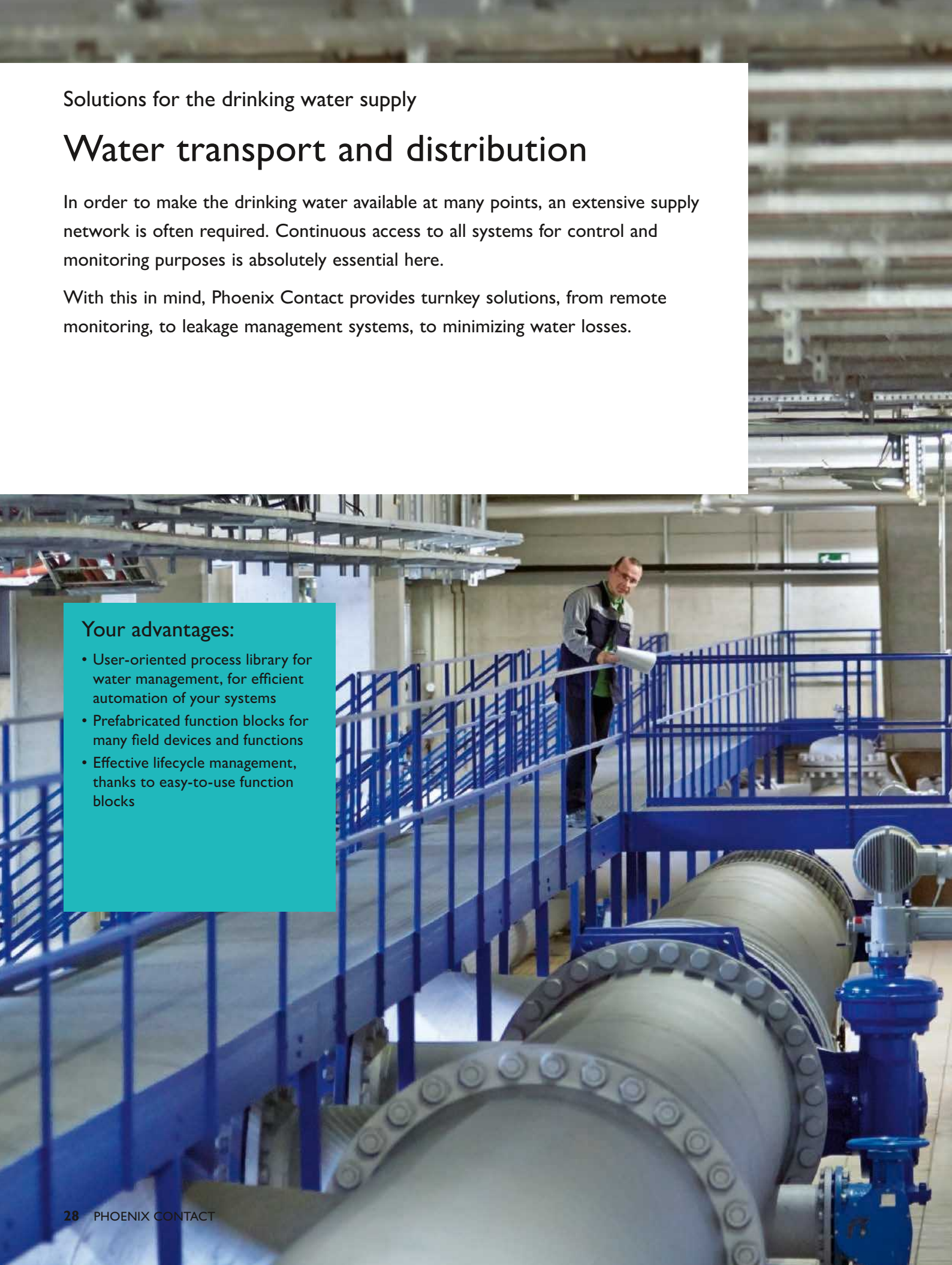


Solutions for the drinking water supply

Water transport and distribution

In order to make the drinking water available at many points, an extensive supply network is often required. Continuous access to all systems for control and monitoring purposes is absolutely essential here.

With this in mind, Phoenix Contact provides turnkey solutions, from remote monitoring, to leakage management systems, to minimizing water losses.



Your advantages:

- User-oriented process library for water management, for efficient automation of your systems
- Prefabricated function blocks for many field devices and functions
- Effective lifecycle management, thanks to easy-to-use function blocks

Uninterruptible power supply in the distribution network

While the water is on the way to consumers, various stations in the distribution network need to be monitored. A continuous supply of current is particularly important for decentralized system parts. We provide uninterruptible power supplies and batteries according to the application, with integrated IQ technology for monitoring the battery life duration, to the control system.

Wireless monitoring of reservoirs

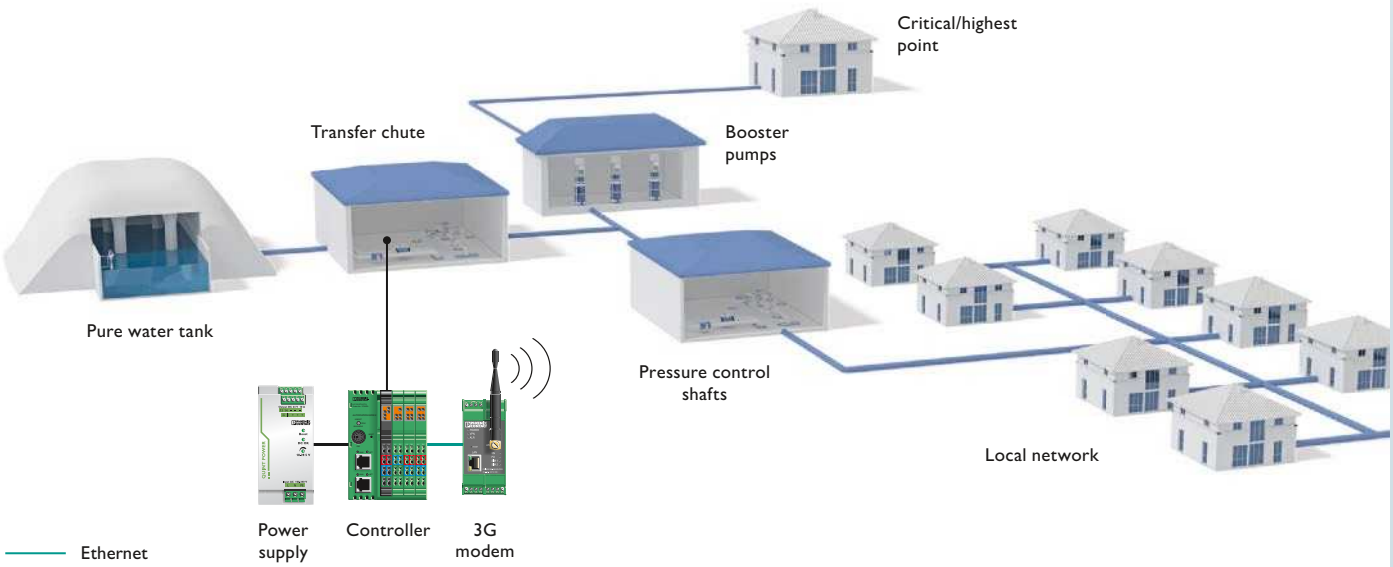
Elevated tanks and discharge tanks for drinking water are distributed throughout remote, inaccessible areas. Monitoring the decentralized areas is necessary in order to ensure the water supply. Thanks to solutions from Phoenix Contact, you can easily set up a connection directly to the control room using wireless technology.

Consumption-oriented pressure regulation to reduce water losses

The quantity of drinking water required from the network varies during the day, meaning that the flow rate and pipeline pressure are of great importance when considering leakage losses. Together with partners, Phoenix Contact has developed a solution to minimize losses in the pipeline. The solution is based on pressure management that does not depend on what is removed from the system.

Solutions for the water distribution network

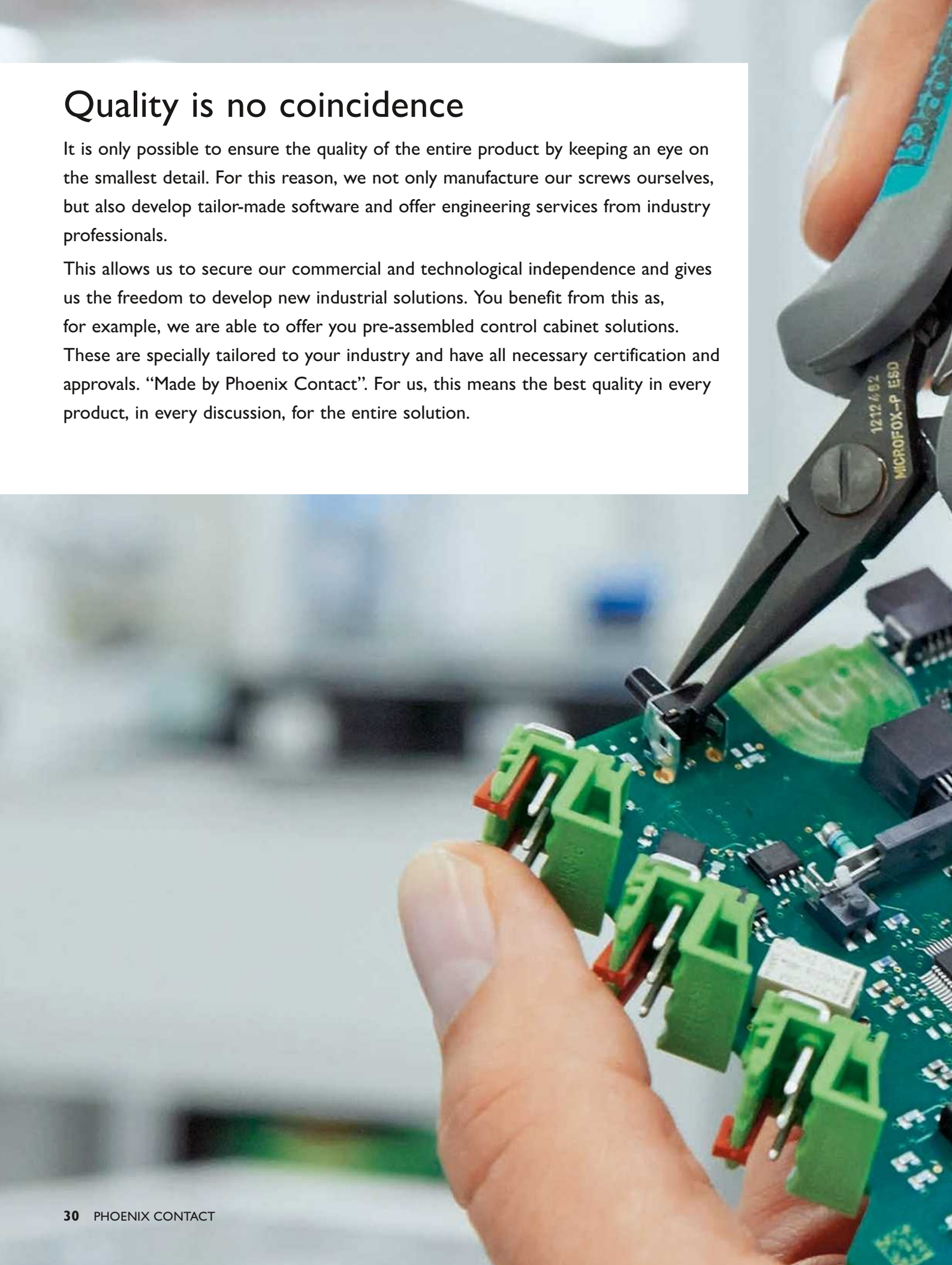
In a water distribution network, continuously monitoring and controlling remote stations is essential. Phoenix Contact offers special solutions for leakage and pipeline management, based on modular control technology. In addition to data transmission, various media such as SHDSL, wireless, and mobile technology are used. The solutions can be modularly extended and, thanks to parameterization instead of programming, can be easily put into operation.

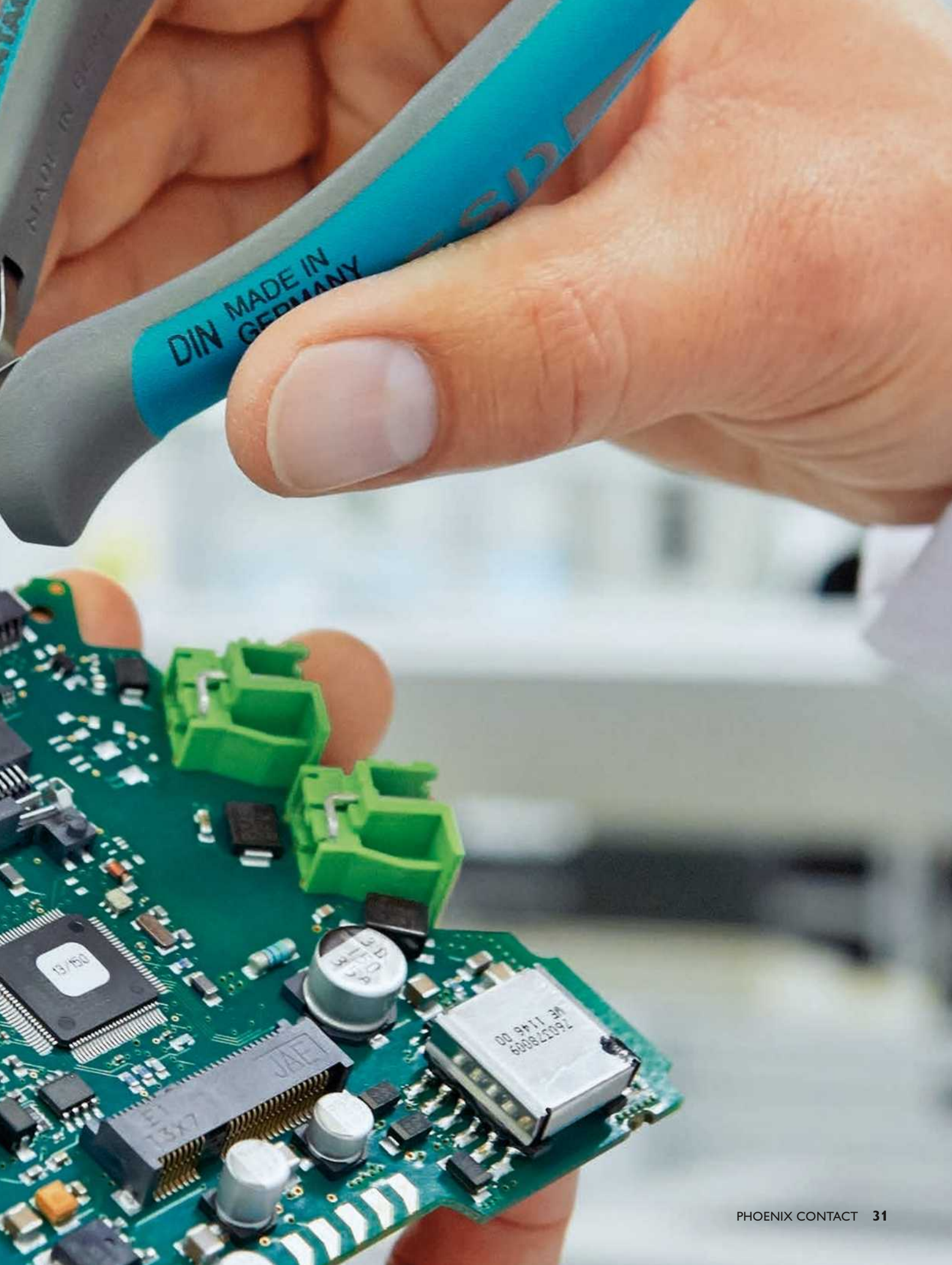


Quality is no coincidence

It is only possible to ensure the quality of the entire product by keeping an eye on the smallest detail. For this reason, we not only manufacture our screws ourselves, but also develop tailor-made software and offer engineering services from industry professionals.

This allows us to secure our commercial and technological independence and gives us the freedom to develop new industrial solutions. You benefit from this as, for example, we are able to offer you pre-assembled control cabinet solutions. These are specially tailored to your industry and have all necessary certification and approvals. “Made by Phoenix Contact”. For us, this means the best quality in every product, in every discussion, for the entire solution.




DIN MADE IN GERMANY

Quality is no coincidence

Engineering and control cabinet solutions

We set the highest standards for your industry solution: everything is tested and certified from the prewired and preprogrammed control cabinet solution to the engineering service. Our industry experts advise you during every phase of your project cycle and, if necessary, take over the engineering of your system.

All Phoenix Contact components are tested intensively in the independent and accredited Phoenix Testlab. Control cabinet solutions are conceived and engineered according to the required standards and directives. This means you can be sure that our finished solution products meet the highest requirements.

Your advantages:

- Expert consultation from industry professionals
- Comprehensive support throughout all the phases of your project
- Develop know-how with training courses for your employees

Engineering

Based on the typical phases of a wastewater or drinking water project, we provide support by working with you through each stage. Simply give us an outline of the application you would like to implement and we will provide you with a technical concept that includes suitable hardware and software:

- Configuration
- Programming
- Visualization
- Coaching

Control cabinet solutions

We develop control cabinet solutions together with our customers that, depending on the requirement, are ready to use or prewired so that you can easily complete the final installation.

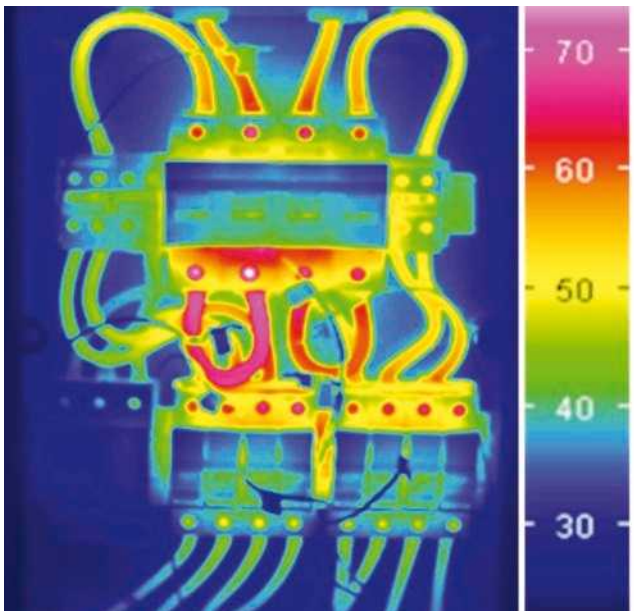
This paves the way for specific industry solutions from a partner network made up of established control cabinet manufacturers that meet the highest requirements.

At the same time, quality is ensured in every step of the development process. A process-oriented, integrated management system, based on international standards DIN EN ISO 9001 and 14001, ensures that legislation and standards such as EU directives 2002/96/EU (WEEE), 2002/95/EU (RoHS) and customer specifications are taken into account during product manufacturing.

Quality from planning to production

During preliminary development clarification, all divisions work closely with customers. After clarification and the construction phase, the prototype undergoes specific testing. The knowledge gained is integrated into product optimization.

As part of project processing, we support you during development of solutions: from initial planning and configuration to layout and construction up to evaluation and testing of the specified standards as well as making the documentation and EPLAN-based circuit diagrams available. After that, production planning and control follows and, if necessary, series production.



Quality is no coincidence

Services for Functional Safety

In addition to components for Functional Safety, we support you with individual services for safe operation in process engineering systems in Water and Wastewater Treatment. Whatever the product, our industry experts help you plan and implement the safety lifecycle according to EN 62061 or EN 13849.

When it comes to the integration of machines in process engineering systems, we support you through the implementation of the European Machinery Directive 2006/42/EC with analytical and engineering services as well as seminars.

Your advantages:

- Comprehensive support from industry professionals
- Flexible help during all project phases
- Time savings, thanks to outsourcing
- Building competence through employee qualification

Analysis

We check the status of your systems and machines and provide tailored recommendations on the following aspects:

- Machine inspection of the current safety status
- Operation of old machines
- Changes to or linking of existing or new machines
- Interface analysis of machines and process engineering system
- Intersection analysis on further guidelines, such as ATEX, EMC, low voltage

Engineering

In the case of requirements according to the Machinery Directive, we implement all required steps throughout the safety lifecycle process:

- Safety planning
- Risk analysis
- Specifying and implementing the required safety functions
- SIL/PL certification
- All verification and validation activities

Seminars

We provide you with the required expertise, both in theory and in practice, on the following topics:

- Machinery Directive: contents, requirements, implementation
- Risk assessment
- Compliance procedures
- Definition of safety functions
- Determining the safety characteristics of components
- Determining the required PL
- PL certification with SISTEMA

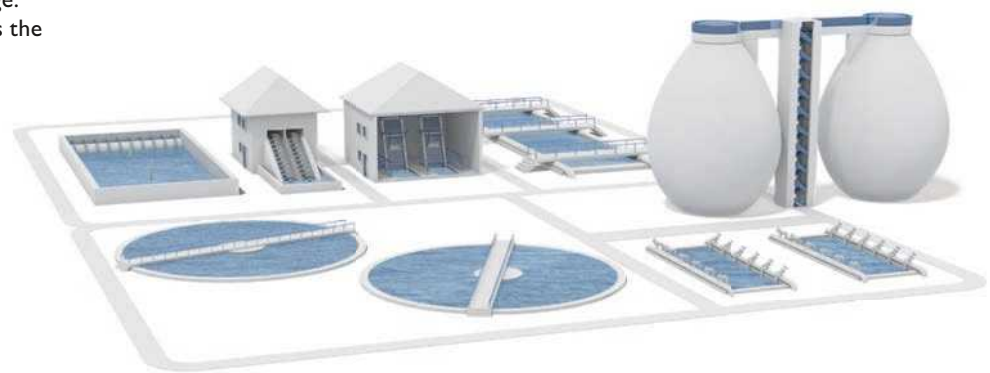
Integration of machines in process engineering systems

Often there are overlaps between the requirements from process engineering and machine safety: in process engineering systems, for example, machines such as centrifuges, screens, spiral pumps, and scraper bridges are used.

Scope of the Machinery Directive

Linking these machines can create machinery assemblies. Modifications to machines and systems are subject to the definition of the essential change. In such cases, an operator becomes the manufacturer and is responsible for the conformity assessment.

We support you in complying with the specific requirements of machine safety and safeguarding interfaces to the safety areas.



Quality is no coincidence

Service and support

Implement your water management projects even more quickly and efficiently. Irrespective of whether you operate, plan, produce, or maintain systems – Phoenix Contact's services provide professional support that is tailored to your requirements during all phases. This includes an excellent telephone and online service as well as industry professionals on site. Numerous seminars at Phoenix Contact headquarters or at your company premises are available for training your employees. We always provide expert consultation on everything surrounding your products and solutions after the sale.

Hotline:

- Expert consultation from industry professionals
- Comprehensive support throughout all the phases of your project
- Develop know-how with training courses for your employees

Services

Based on the typical project development of a wastewater treatment plant or waterworks, we provide support by working with you at every stage. We provide you with the required technical know-how, combined with comprehensive experience in water and wastewater treatment. Together, we determine the services required and support you in choosing the right hardware and software.

Training and workshops

Thanks to intensive contact with our customers and years of on-site experience, we have developed a qualification concept whereby we can specify employee qualifications in order to meet your individual requirements: we offer you the appropriate service depending on the project phase, target group, and prior knowledge.

After sales

Our service teams stand out, thanks to their focused expertise, years of practical experience, and high degree of flexibility.

Our service network is available to you during installation, startup, and operation even in the most remote regions of the world, for example via a free system hotline with 24 h product support. In the event of an emergency, we can provide you with replacement parts outside of office hours.

Phone: + 49 (0) 52 81 9 46 28 88

Local expertise

Phoenix Contact supports you worldwide with professional service and support with everything surrounding products, services, and solutions.

Depending on requirements, we ensure fast replacement of products or support you in the case of problems by switching into your system.

Our experts are familiar with the regional conditions and specific challenges of your industry. We are happy to support you all over the world with a finely-meshed network of automation experts. Contact us for more information.

Quality is no coincidence

Inspiring industry solutions, thanks to excellent products

Phoenix Contact provides innovative solutions for all water management processes, from wastewater purification to drinking water treatment. The basis for solutions is the wide range of connection and automation technology. Intelligently combined, these products become systems for a variety of functions such as control, remote monitoring, or measuring values. Inspiring industry solutions are created, thanks to industrial know-how, longstanding experience, and consideration of special requirements.

Excellent products

Innovative systems

Excellent products

Controllers

Modular small-scale controllers for remote monitoring, ranging from decentralized stations to high-performance controllers for redundant applications in water management.

Fieldbus components

Receive a comprehensive range of products consisting of components and systems for a variety of fieldbuses. From compliant connectors, to infrastructure components, to turnkey solutions for PROFIBUS, PROFINET or Modbus.

Measurement and control technology

We provide compact 6 mm signal conditioners for signal acquisitions, functional safety signal conditioners, and signal isolators for intrinsically safe circuits in the Ex area.

I/O systems

Wherever signals need to be recorded and output, our I/O systems are the right solution: modular or in-block design, from the control cabinet, to the field, to the Ex area, to Functional Safety.

Power supplies

We provide uninterruptible power supplies with IQ technology and redundancy modules for maximum availability of your processes in the field of water management.

Surge protection

Increase your system availability with intelligent surge protection for all applications, from the power supply to measurement, control, and communication technology.

Control technology ACRON, atvise®, AIP, Visu+

We provide specific products from web-based visualization and operational data storage, to 19-inch products for server cabinets for the entire control room.

Sector-specific libraries

Function block libraries for water management enable easy connection of standard field devices and programming of process automation.

Inspiring Industry Solutions

Passion for your Industry

Each industry places particular demands on system automation. In our dedicated industry teams, we focus on these challenges with technical know-how and passion, and together with our customers we develop tailor-made turnkey solutions. Excellent products are at the heart of our solutions. Cleverly combined to create innovative systems and supplemented by industry-specific features, they ultimately become industry solutions of proven Phoenix Contact quality.

Excellent products

Innovative systems

Inspiring Industry Solutions

phoenixcontact.com

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