Control technology and software

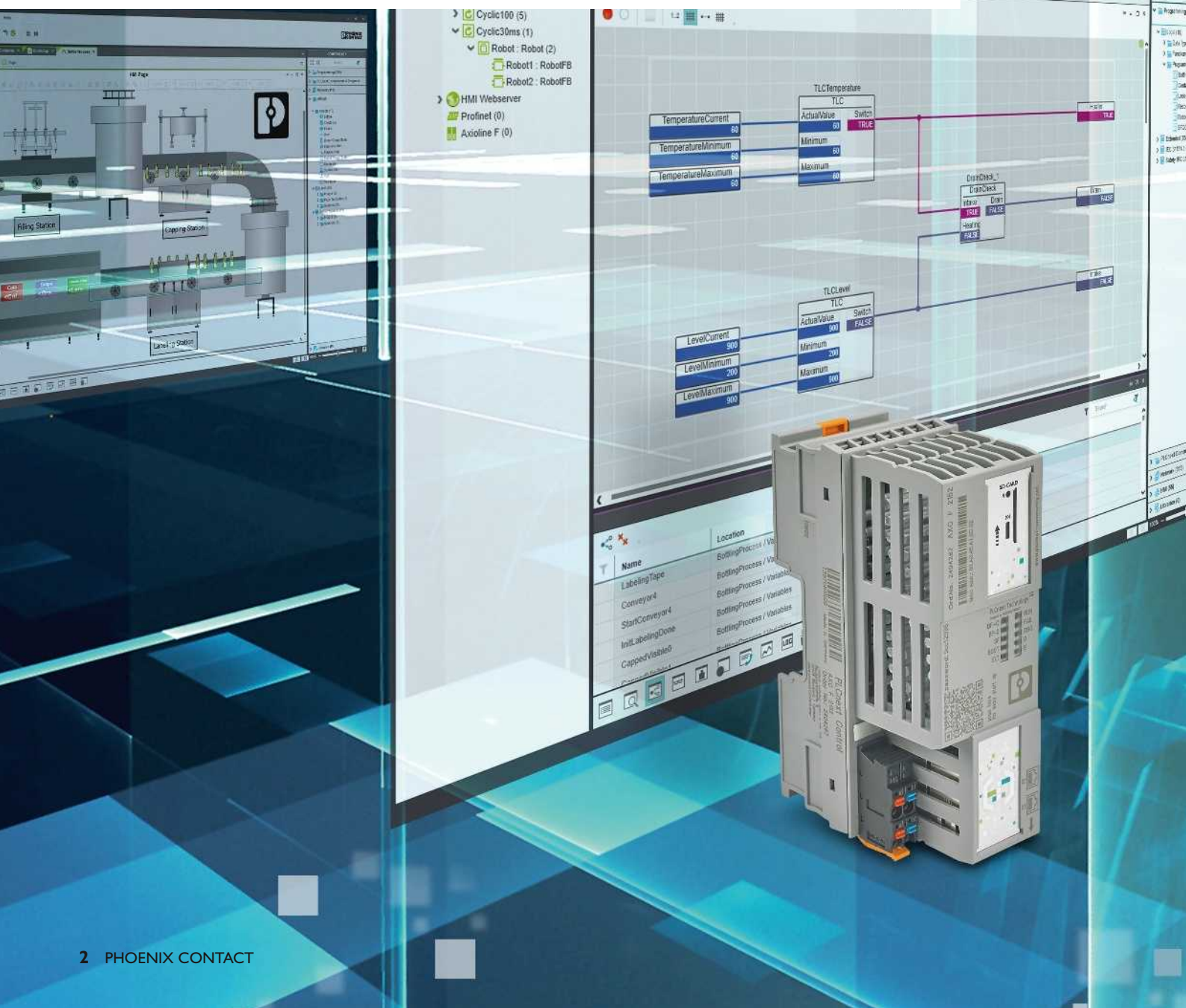
Intelligent automation

PHOENIX CONTACT
INSPIRING INNOVATIONS

Open to the future

The world of automation is changing. The digitalization, networking, and globalization of business and technical systems are generating new market requirements. Manufacturers of future-oriented automation systems must be ready to provide their customers with the ability to meet the standards of modern IoT applications. For this reason, Phoenix Contact has created PLCnext Technology – a new, unique ecosystem that enables developers to unleash their creativity when designing an automation solution.

Experience the wider world of Phoenix Contact automation technology and start seeing automation from an entirely new perspective.



Contents

Find out more with the web code

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

Web code: #1234 (example)

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

PLCnext Technology
The ecosystem for limitless automation

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

Learn more at:
phoenixcontact.com/plcnext

PLCnext Control

The programmable logic controllers in various performance classes including accessories for PLCnext Technology.

Further information starting on page 6

PLCnext Engineer

The software engineering tool for programming your PLCnext Control device.

Further information starting on page 8

PLCnext Store

The PLCnext Store provides software applications (apps) that enable you to expand the functions of your PLCnext Control devices directly and easily.

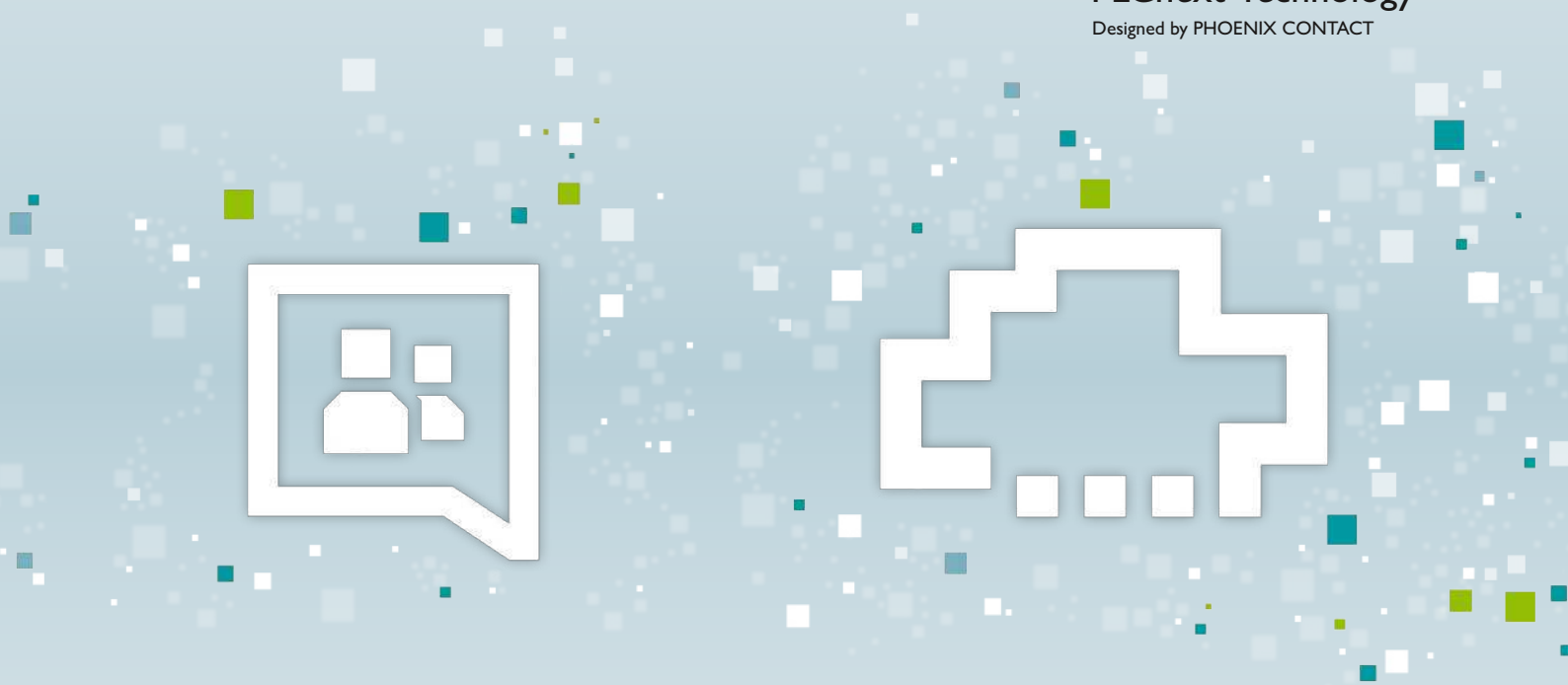
Further information starting on page 10

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

PLCnext Technology

Designed by PHOENIX CONTACT



PLCnext Community

The PLCnext Community provides information on all aspects of PLCnext Technology, including FAQs, a forum, YouTube tutorials, and a GitHub presence.

Further information starting on page 10

PROFICLOUD

The open, scalable IoT platform provides you with intelligent communication, networked control technology, smart cloud services, and comprehensive data analysis.

Further information starting on page 12

PLCnext Control devices
Open control platform

PLCnext Control devices are the first PLCs available for the open PLCnext Technology ecosystem. They 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.

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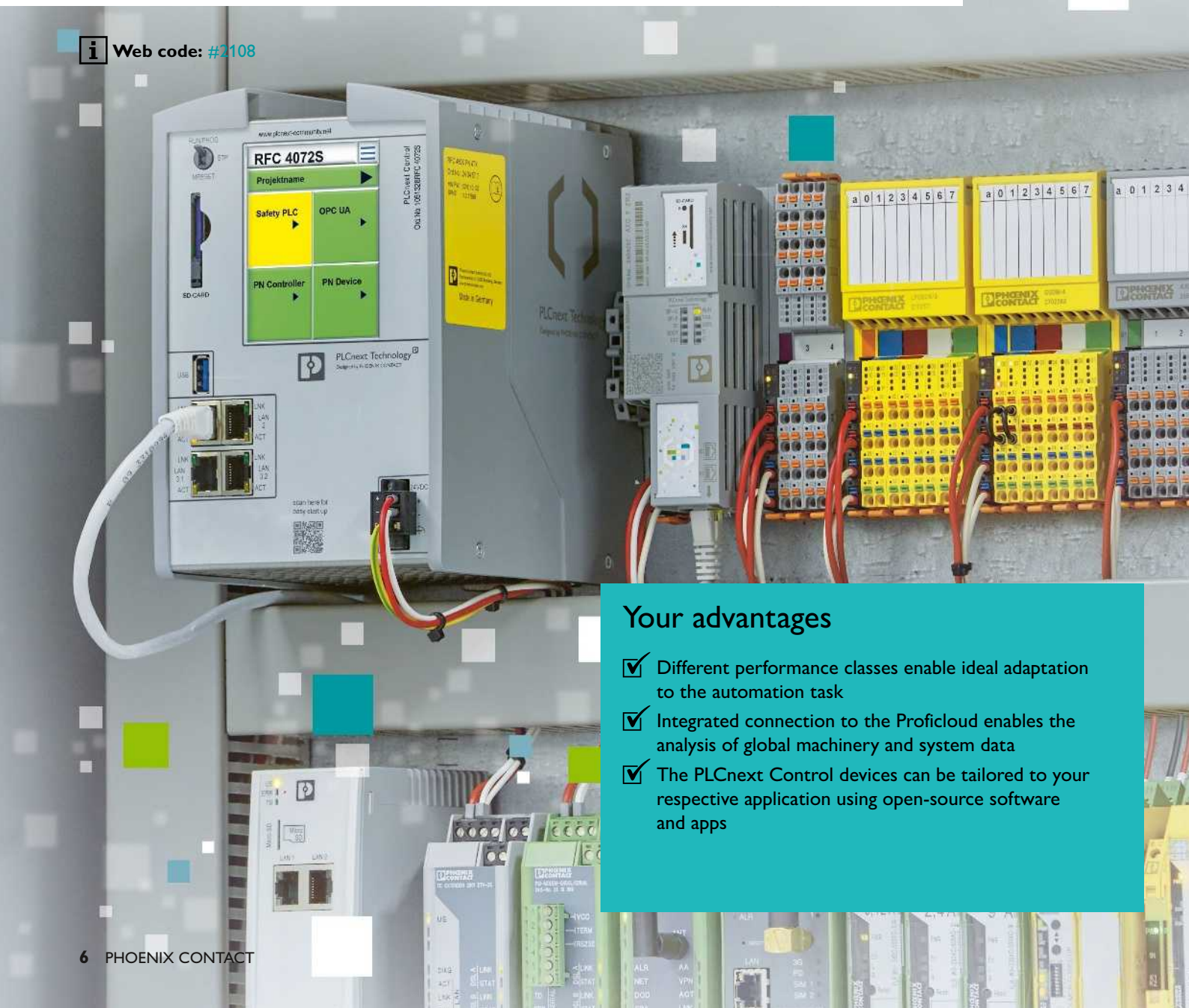

Your advantages

- Different performance classes enable ideal adaptation to the automation task
- Integrated connection to the Proficloud enables the analysis of global machinery and system data
- The PLCnext Control devices can be tailored to your respective application using open-source software and apps

Product overview and technical details

High-performance PLC

AXC F 2152 Order No. 2404267

- First controller with two processor cores: ARM Cortex A9 processor, 2 x 800 MHz
- 512 MB RAM
- 2 Ethernet interfaces
- Up to 63 Axioline F I/O modules alignable directly
- Trusted Platform Module (TPM) for security
- PROFINET, OPC UA
- Direct connection to the Proficloud
- Programming with PLCnext Engineer

High-performance safety PLC

RFC 4072 S Order No. 1051328

- PROFINET controller and device
- PROFIsafe profile V2.6.1 support
- Safety CPU: 1 x ARM® Cortex® A9, 800 MHz, 1 x ARM® Cortex™ A8, 600 MHz
- Standard CPU: Intel® Core™ 5-6300U (dual core, 2.4 GHz)
- System networking M2M with OPC UA
- Standard and safety programming with PLCnext Engineer

Starter kit

AXC F 2152 STARTERKIT Ord. No. 1046568

- AXC F 2152
- 2 Axioline F I/O modules for digital and analog signals
- Potentiometer (for analog signals)
- Switch module (for digital signals)
- Proficloud Credit
- Voltage switch and power supply unit
- CAT5 Ethernet cable

Ethernet control extension

AXC F XT ETH 1TX Order No. 2403115

- Individual expansion option for all PLCnext Control devices of the Axiocontrol series
- Left-alignable module
- Additional gigabit-enabled Ethernet interface: 10/100/1000 Mbps
- Auto negotiation
- Additional independent network interface
- PROFINET support

Adapter terminal for Inline I/Os

AXC F IL ADAPT Order No. 1020304

- Right-alignable Inline adapter terminal for AXC F 2152
- Up to 63 Inline local bus devices alignable
- Automatic transmission speed recognition
- Diagnostics and status indication

PLCnext Engineer
Engineering software in accordance with IEC 61131-3

PLCnext Engineer is the modular software platform for the new generation of PLCnext Control devices from Phoenix Contact. The software combines all of the basic functions needed for configuration, programming, visualization, and diagnostics. Additional functions and interfaces can be incorporated easily using function add-ins.

This innovative software features an attractive design, object-oriented programming, and optimized user interfaces.

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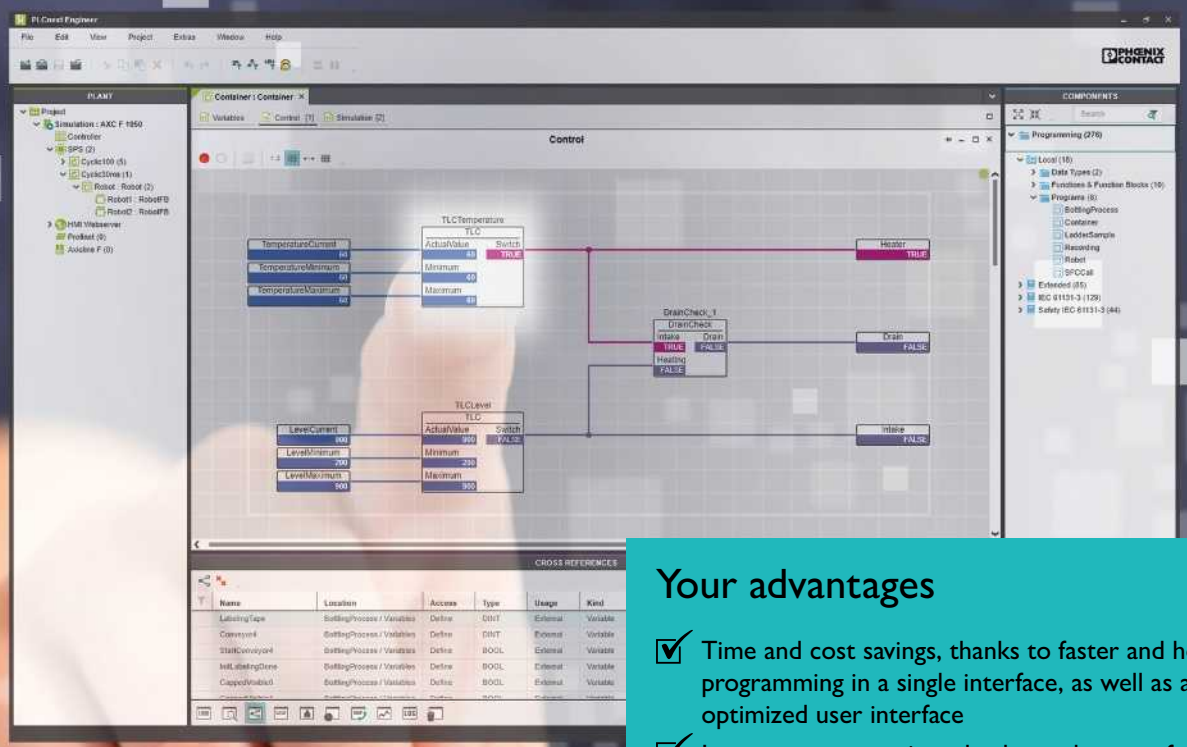
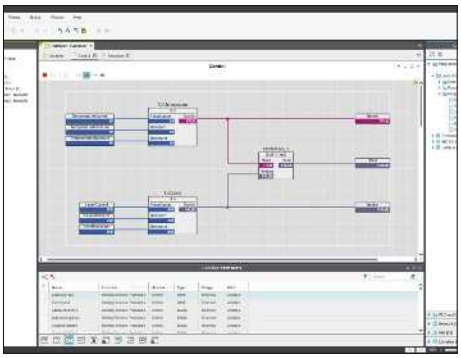


Your advantages

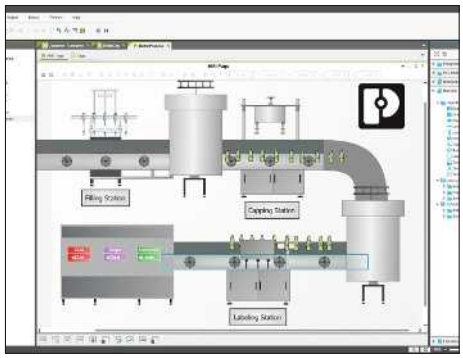
- Time and cost savings, thanks to faster and holistic programming in a single interface, as well as an optimized user interface
- Investment protection, thanks to the use of future-oriented technologies and open interfaces
- Flexible engineering, through the integration of individual add-in functions
- Simplification of the engineering process, thanks to reusability and object-oriented programming

Product overview and technical details



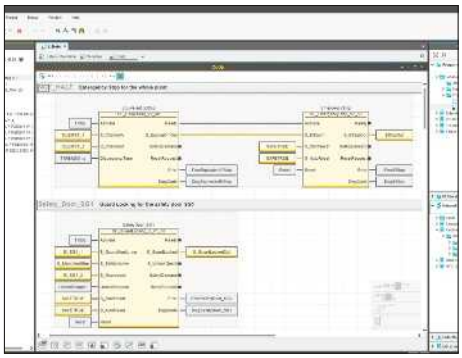
Programming in accordance with IEC 61131-3

The software supports programming in the structured text (ST), ladder diagram (LD), function block diagram (FBD), and sequential function chart (SFC) languages. In the case of graphical programming languages, the user can choose between network-oriented and free graphical programming. Languages can be mixed at will within program organization units.



Web-based visualization

PLCnext Engineer has been optimized for the creation of modern visualization solutions. Already familiar operating concepts from other editors make it easier to get started. With respect to the technology, the visualization integrated into PLCnext Engineer is based on open standards such as HTML5 and JavaScript. No web-based skills are required, the software offers numerous symbols and templates and can be expanded on a case-by-case basis.



Functional safety

The creation of safe programs in PLCnext Engineer has been developed and certified in accordance with IEC 61508. Thanks to user authentication, the user can employ standard editors in which he can mix function block diagrams and ladder diagrams as a “limited variability language” (LVL). The safe semantic code analysis that runs in the background assists the user in the positioning of safety-related and non-safety-related signals and blocks.

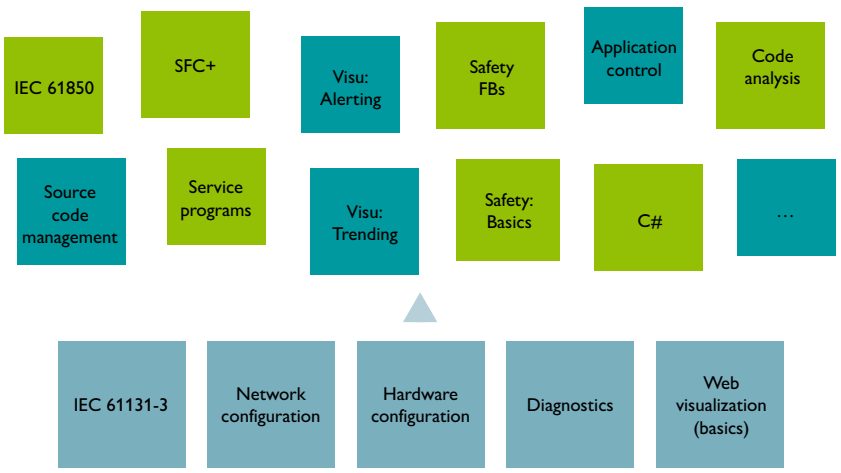
Modular software platform

PLCNEXT ENGINEER Order No. 1046008

- Programming for the new generation of Phoenix Contact controllers
- IEC 61131-3 programming
- End-to-end engineering: configuration, programming, visualization, and diagnostics
- Free download and licensed add-ins available at phoenixcontact.com

Open to individuality, succeed more rapidly

PLCnext Engineer is the free engineering platform that includes all basic functions for programming, visualization, diagnostics, and hardware configuration.
Add-in functions, such as safety and visualization solutions, can be easily integrated into the platform. The modular software design supports intuitive user guidance, thanks to its simple, structured interface: you only see and pay for the functions that you really need.



PLCnext Store
Software store for automation

The PLCnext Store provides software apps that enable you to expand the functions of PLCnext Control directly and easily. The open nature of the store also allows third-party providers to sell the apps that they have developed. At the PLCnext Store, you will find the broadest range of apps for any application – from software libraries for accelerated programming through to fully programmed apps that can be used without any programming knowledge.

plcnextstore.com

Your advantages

- ☑ Accelerated application development, thanks to easy access to software apps for the PLCnext Control family
- ☑ Innovative solution approaches as well as expanded versatility and application options for your automation solution, thanks to the dynamically growing range of apps
- ☑ Creative ideas and new solutions for your application, including special software – even for niche markets

PLCnext Store and PLCnext Community

PLCnext Store – Install unexpected possibilities

Store user
Accelerate your application development process and use the solution apps. With the PLCnext Store, you can download finished solutions to your PLCnext Control device and, without a broad programming knowledge, create your applications quickly. This means that, thanks to the PLCnext Store, a PLCnext Control device can, for example, be transformed into a solar park PLC easily and without programming.
Phoenix Contact already provides numerous software libraries for PLCnext Engineer which are now available to you as apps in the PLCnext Store for easy downloading. These libraries include, for example, data logger functions and remote control protocols. You therefore receive optimum support in the efficient programming of your PLCnext Control device.

Contributor
Do you lack access to hardware distribution or the platform for your software solution? Become a contributor to the PLCnext Store and benefit from the unique ecosystem. Make your software solutions available to a huge range of potential customers. You will not only be improving your income, you will also be increasing your profile and visibility in an industrial environment that is relevant to you.

Visit our store at: plcnextstore.com

Become a part of the PLCnext community

Along with a future-oriented system of hardware, software, and cloud solutions, users of the ecosystem also benefit from a growing community involved in all aspects of PLCnext Technology. The exchange of ideas between our users is becoming increasingly important, and having access to specialists and a broad range of apps, code, and sample programs is a huge advantage for programmers.
The PLCnext Community provides information on all aspects of PLCnext Technology. Discover, for example, application examples, user manuals, detailed instructions, tutorials, training videos, and FAQs, as well as software and firmware downloads. Use GitHub, our forum, or the technical help on YouTube.

Become a part of the user community. Discuss your personal experiences with PLCnext Technology with other users. We look forward to your ideas and your feedback.

Join the community – become a part of PLCnext Technology.

Learn more at: phoenixcontact.com/plcnext

PROFICLOUD
Professional cloud solutions

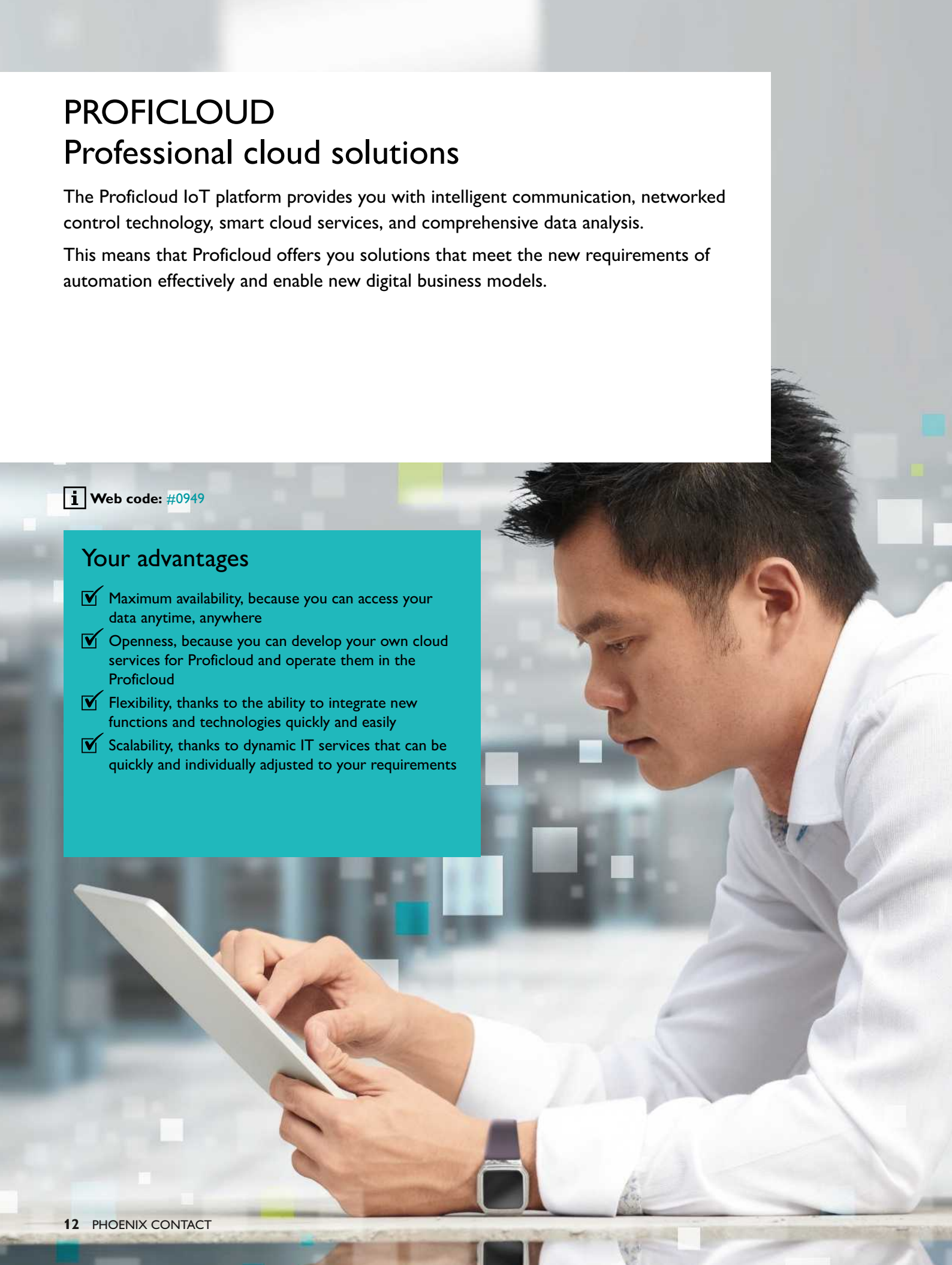
The Proficloud IoT platform provides you with intelligent communication, networked control technology, smart cloud services, and comprehensive data analysis.

This means that Proficloud offers you solutions that meet the new requirements of automation effectively and enable new digital business models.

Web code: #0949

Your advantages

- Maximum availability, because you can access your data anytime, anywhere
- Openness, because you can develop your own cloud services for Proficloud and operate them in the Proficloud
- Flexibility, thanks to the ability to integrate new functions and technologies quickly and easily
- Scalability, thanks to dynamic IT services that can be quickly and individually adjusted to your requirements



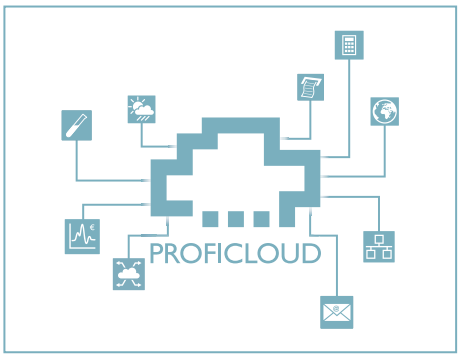
Future-proof automation with PROFICLOUD

Consistent security concept

A deeply integrated security concept provides you with maximum security. The Trusted Platform Module (TPM) for secure encryption management protects against unauthorized access to stored data. All data is transmitted with TLS 1.2 (Transport Layer Security) encryption and authentication.

Big data applications

With Proficloud, you can capture your machinery and system data from anywhere in the world and combine large amounts of data from different sources. Using modern data analysis as a foundation, you can make expert decisions, derive forecasts, and improve your operative process control.



Integration of services

Cloud services can be easily integrated into your automation solution. Extend your applications with services such as energy data management and predictive maintenance. You can do this using existing cloud services from our range, or create your own individual cloud services with our Software Development Kit.

Our cloud solutions

With the PROFINET and Time Series Data cloud solutions, Phoenix Contact provides you with cloud-based automation solutions that are perfectly tuned to your company's requirements and needs. You can thus benefit from rapid value creation and total cost control, thanks to pay-per-use billing.

With the PROFINET cloud solution, you can make your existing PROFINET network cloud-capable and extend it with cloud services. Benefit from the advantages, for example, with remote applications and when using services such as monitoring, reporting, and billing.

The Time Series Data cloud solution enables you to capture, evaluate, and visualize the process data from your machines and systems. This forms the basis for predictive maintenance and other big data applications. Thanks to web-based dashboards, you have access to your data anywhere and at any time.

Register today: proficloud.net

PLCs for IEC 61131-3
A controller for every application

Would you like to program in accordance with IEC 61131-3? Phoenix Contact provides trend-setting and innovative controllers in numerous performance classes.
Use our PLCs, for example, in machine building and systems manufacturing, renewable energy, or automotive applications. Utilize our PLC systems with the matching I/Os or select a high-performance controller for maximum performance. All devices can be used easily with the PC Worx engineering software every step of the way.

Proven flexibility

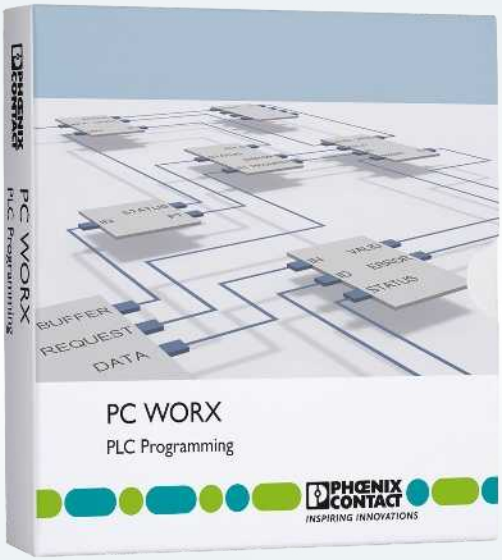
Whether for simple or demanding applications, Inline controllers provide flexibility in your automation work.

Further information starting on page 16

Fast, robust, easy

Axiocontrol meets high demands in terms of performance and robustness.

Further information starting on page 18



Maximum performance

High-performance controllers are ideal for solving complex automation challenges. The range also includes a safety version and a controller for PROFINET redundancy.

Further information starting on page 20

PLC programming

From clear tasks with basic PLCs through to complex system automation with high-performance PLCs.

Further information starting on page 22

Inline controller
Flexible and economic automation

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 and actively as a Modbus client. The PLC system can be integrated into existing PROFINET networks easily, thanks to PROFINET device functionality.

Web code: #1152

Your advantages

- High processing speed, thanks to the high-performance Altera NIOS II processor
- Maximum flexibility in I/O connectivity, thanks to integrated fieldbus masters and Modbus/TCP
- Expandable with the addition of functions on an SD card
- Versatile use, as all common Ethernet protocols are supported

PROFINET
Modbus
INTERBUS

Product overview and technical details

Basic PLC

ILC 131 ETH Order No. 2700973

- 192 kB program memory and 192 kB mass storage
- 8 kB non-volatile mass storage
- 1 INTERBUS interface and 1 Ethernet interface
- 8 direct inputs and 4 direct outputs
- I/O points: 2 kb to 10 kb
- Integrated web/FTP server
- OPC functionality
- Programming with PC Worx

Standard PLC

ILC 151 ETH Order No. 2700974

- 256 kB program memory and 256 kB mass storage
- 8 kB non-volatile mass storage
- 1 INTERBUS interface and 1 Ethernet interface
- 8 direct inputs and 4 direct outputs
- I/O points: 4 kb to 16 kb
- Integrated web/FTP server
- OPC functionality
- Programming with PC Worx

PLC with 2 Ethernet ports

ILC 171 ETH 2TX Order No. 2700975

- 512 kB program memory and 512 kB mass storage
- 48 kB non-volatile mass storage
- 1 INTERBUS interface and 2 Ethernet interfaces
- 8 direct inputs and 4 direct outputs
- I/O points: 4 kb to 36 kb
- Integrated web/FTP server
- OPC functionality
- Programming with PC Worx

PLC with integrated FPU

ILC 191 ETH 2TX Order No. 2700976

- Integrated FPU for fast floating-point arithmetic
- 1 MB program memory and 1 MB mass storage
- 48 kB non-volatile mass storage
- 1 INTERBUS interface and 2 Ethernet interfaces
- 8 direct inputs and 4 direct outputs
- I/O points: 4 kb to 36 kb
- Integrated web/FTP server
- OPC functionality
- Programming with PC Worx

PLC with modem

ILC 151 GSM/GPRS Order No. 2700977

- Integrated GSM/GPRS modem
- 512 kB program memory and 512 kB mass storage
- 48 kB non-volatile mass storage
- 1 INTERBUS interface and 1 Ethernet interface
- 16 direct inputs and 4 direct outputs
- I/O points: 4 kb to 16 kb
- Integrated web/FTP server
- OPC functionality
- Programming with PC Worx

Specially for machine building

ILC 191 ME/AN Order No. 2700074

- 8 digital inputs and 4 digital outputs
- 2 analog inputs and 2 analog outputs
- RS-232 to PS/2
- RS-485/RS-422
- 2-channel PWM function (5 V)
- 10 V reference voltage source
- Programming with PC Worx

Axiocontrol
Fast, robust, and user-friendly

Axiocontrol controllers are designed for maximum performance, easy handling, and use in harsh industrial environments. A particularly robust housing and excellent EMC properties provide the basis for this.

Together with the Axioline F I/O system from Phoenix Contact, Axiocontrol offers maximum speed, thanks to a direct bus connection.

Web code: #1147

Your advantages

- Reliable, thanks to robust housing and a high level of EMC protection
- Increased safety, thanks to an integrated uninterruptible power supply
- Save wiring time with Push-in connection technology
- Fast access, e.g., for diagnostics, thanks to a USB connection
- More parameterization memory, thanks to optional SD card

PROFINET

Modbus

Product overview and technical details

Standard PLC

AXC 1050 Order No. 2700988
AXC 1050 XC Order No. 2701295

- Altera NIOS II processor
- 1 MB program memory
- 2 MB mass storage
- 48 kB non-volatile mass storage
- PROFINET controller
- 2 Ethernet interfaces and 1 Axioline F interface
- Extended temperature range with the XC version: -40°C … +70°C
- Programming with PC Worx

Cloud controller

AXC F CLOUD-PRO Order No. 2402985

- Altera NIOS II processor
- 1 MB program memory
- 2 MB mass storage
- 48 kB non-volatile mass storage
- 2 Ethernet interfaces and 1 Axioline F interface
- PROFINET controller
- TLS 1.2 encryption
- Programming with PC Worx

PLC with enhanced performance

AXC F 3050 Order No. 2700989

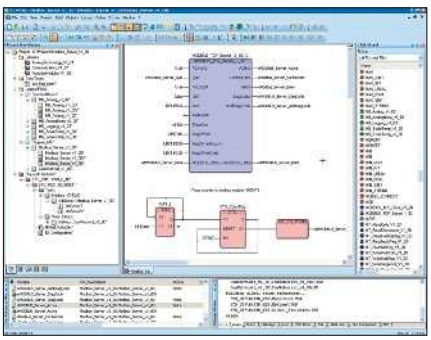
- Intel® Atom™ E660
- 4 MB program memory
- 8 MB mass storage
- 128 kB non-volatile mass storage
- 3 separate Ethernet interfaces and 1 Axioline F interface
- PROFINET controller
- Maritime approvals
- Programming with PC Worx

Function blocks: Quick and easy controller expansion

Controllers from Phoenix Contact can be adapted to any requirement quickly and easily using SD cards and function blocks. This means that parameterization memories, licenses for function block libraries, and completely tested applications can be installed at a later time, without the need for additional hardware. Industry-specific function blocks are tailored to the individual requirements of a particular industry and offer considerable advantages in engineering. Furthermore, you benefit from uncomplicated device replacement by transferring the device data via SD card.

Integrate numerous functions into your system without programming effort, for example:

- IT functionality
- Remote control functions
- SQL connection
- Control technology
- Industry-specific solutions



All available function blocks can be found by entering the following web code into the search field on our website.

Web code: #1805

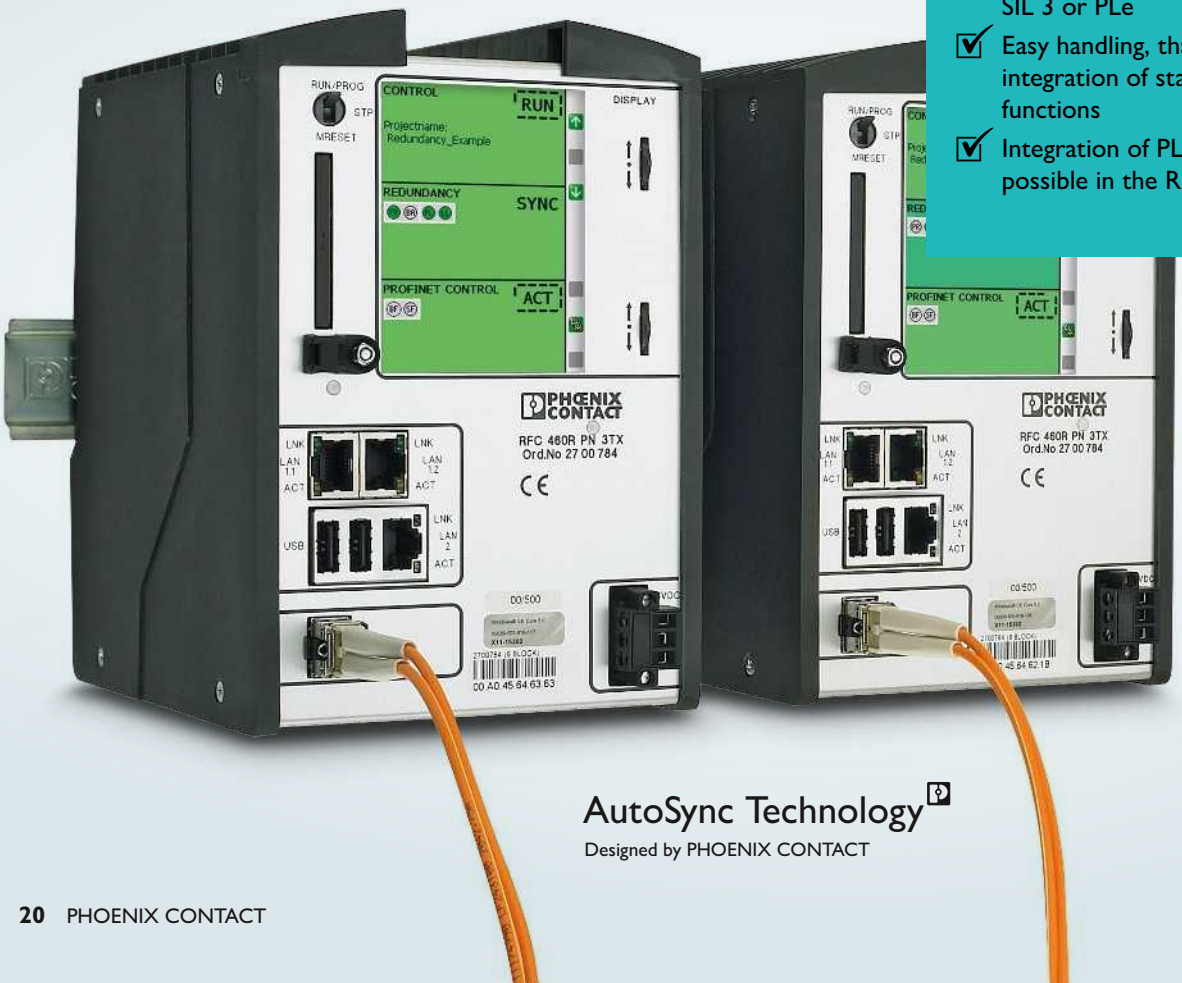
Redundant and safe PLCs with maximum performance

With the Remote Field Controller (RFC) high-performance controllers you can realize, for example, automation applications that have special safety or availability requirements. For applications requiring the highest safety level, play it safe with our safety controllers up to SIL 3. Redundant control systems help you reduce downtimes, work cost-effectively, and also avoid potential dangers, e.g., in tunnels or at airports. RFC controllers are based on PROFINET and establish system redundancy automatically, thanks to AutoSync Technology.

Web code: #2080

Your advantages

- Maximum system availability, thanks to redundancy
- Realization of the highest safety requirements in accordance with SIL 3 or PLe
- Easy handling, thanks to the integration of standard and safety functions
- Integration of PLCnext Technology possible in the RFC 4072S



AutoSync Technology

Designed by PHOENIX CONTACT

Product overview and technical details

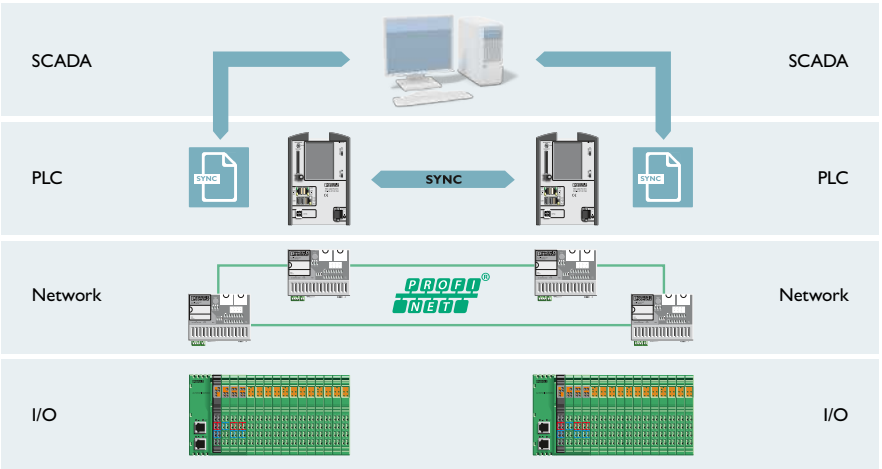
Redundant PROFINET PLC

RFC 460R PN 3TX Order No. 2700784

- High availability, thanks to integrated PROFINET-based redundancy function
- Intel® Celeron® M ULV 423 processor
- 8 MB program memory
- 16 MB mass storage
- 120 kB non-volatile mass storage
- 2 independent network interfaces
- I/O points: max. 512 kb
- Programming with PC Worx

Redundant control system for failsafe performance

A redundant control system consists of various levels. The most important level is the controller level, which has access to the process. Here, two compact controllers are synchronized in such a way that one of them always controls the process.
The OPC server ensures that the control level is always provided with data from the controller that is executing the process. The I/O components are connected by PROFINET for standardized usage of network redundancy protocols. In almost all cases, these require a ring topology.



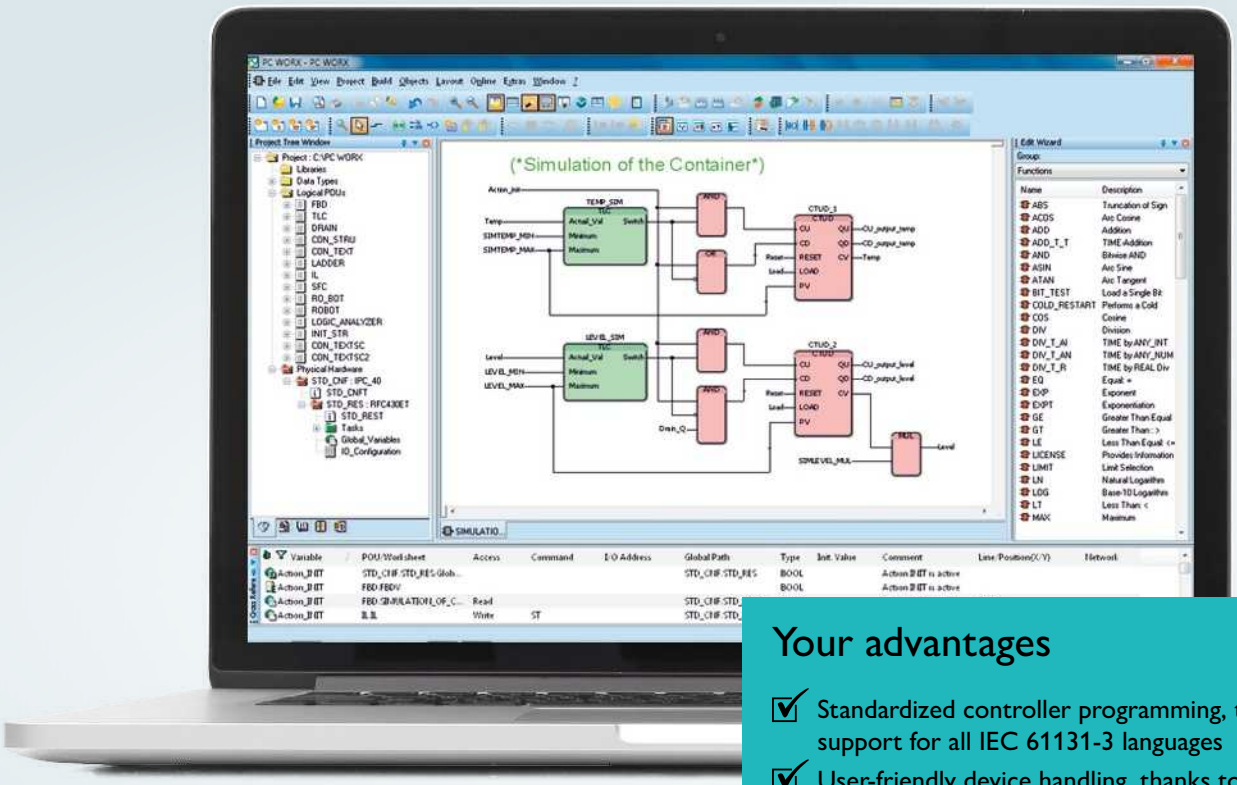
Making windmills safe

One specific field of application for a safety controller is, for example, the adjustment of the rotor blades of a wind turbine generator (pitch control). As part of the pitch control system, the current rotor blade position can be detected and, for example, transmitted to an RFC 4072S. The set point of the rotor blade position is calculated based, among other things, on the failsafe detection of the prevailing wind speed via an anemometer, which is then processed in the safety-oriented program of the RFC 4072S. If the wind speed exceeds a critical value in a short period of time due to a gust of wind, the wind turbine generator controller starts to turn the rotor blade out of the wind.

Tailored programming of automation systems

From clear tasks with small-scale controllers to complex system automation with high-performance controllers: you will find the right programming software for your application here. All Phoenix Contact controllers can be programmed throughout with PC Worx software. It combines programming in accordance with IEC 61131-3, fieldbus configuration, and system diagnostics. For a fast introduction to automation with small-scale controllers, we also offer PC WORX EXPRESS programming software free of charge.

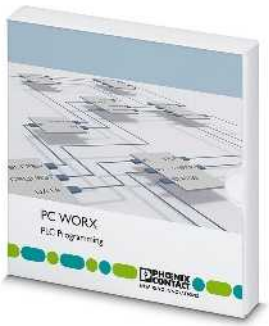
Web code: #2107



Your advantages

- Standardized controller programming, thanks to support for all IEC 61131-3 languages
- User-friendly device handling, thanks to integrated PROFINET, PROFIBUS, INTERBUS, and Modbus/TCP configuration and addressing
- Easy source code editing, thanks to autocomplete with IntelliSense
- Reduced startup times, thanks to comprehensive debug mechanisms

Product overview and technical details



PLC programming

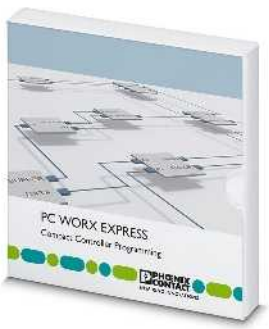
PC WORX DEMO Order No. 2985725
PC WORX BASIC LIC Order No. 2985275
PC WORX PRO LIC Order No. 2985385

- Programming of Phoenix Contact controllers
- Network configuration and diagnostics
- Numerous programming languages supported: IL, FBD, LD, ST, SFC, FFLD

Safety programming

SAFETYPROG BASIC Order No. 2700443
SAFETYPROG ADVANCED Order No. 2700441
SAFETYPROG PRO Order No. 2700442

- Safe programming system for developing applications for safety controllers
- Based on standard IEC 61131-3 and meets the safety requirements defined in IEC 61508



Programming small-scale controllers

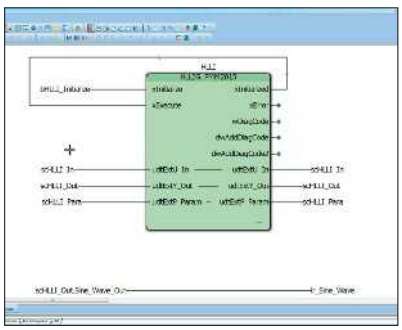
PC WORX EXPRESS Order No. 2988670

- Programming for class 100 and AXC 1050 modular small-scale controllers
- Automation system configuration
- INTERBUS module parameterization
- Programming languages supported: FBD, LD, ST
- 128 kB input/output data (mix)
- Can be downloaded free of charge

Diagnostic software

DIAG+ Order No. 2730307

- Comprehensive PROFINET diagnostic functions
- Fast error localization
- Monitoring of fiber optic transmission quality
- Reading of controller diagnostic archives
- Clear 2D illustration of PROFINET networks
- Tips for error removal



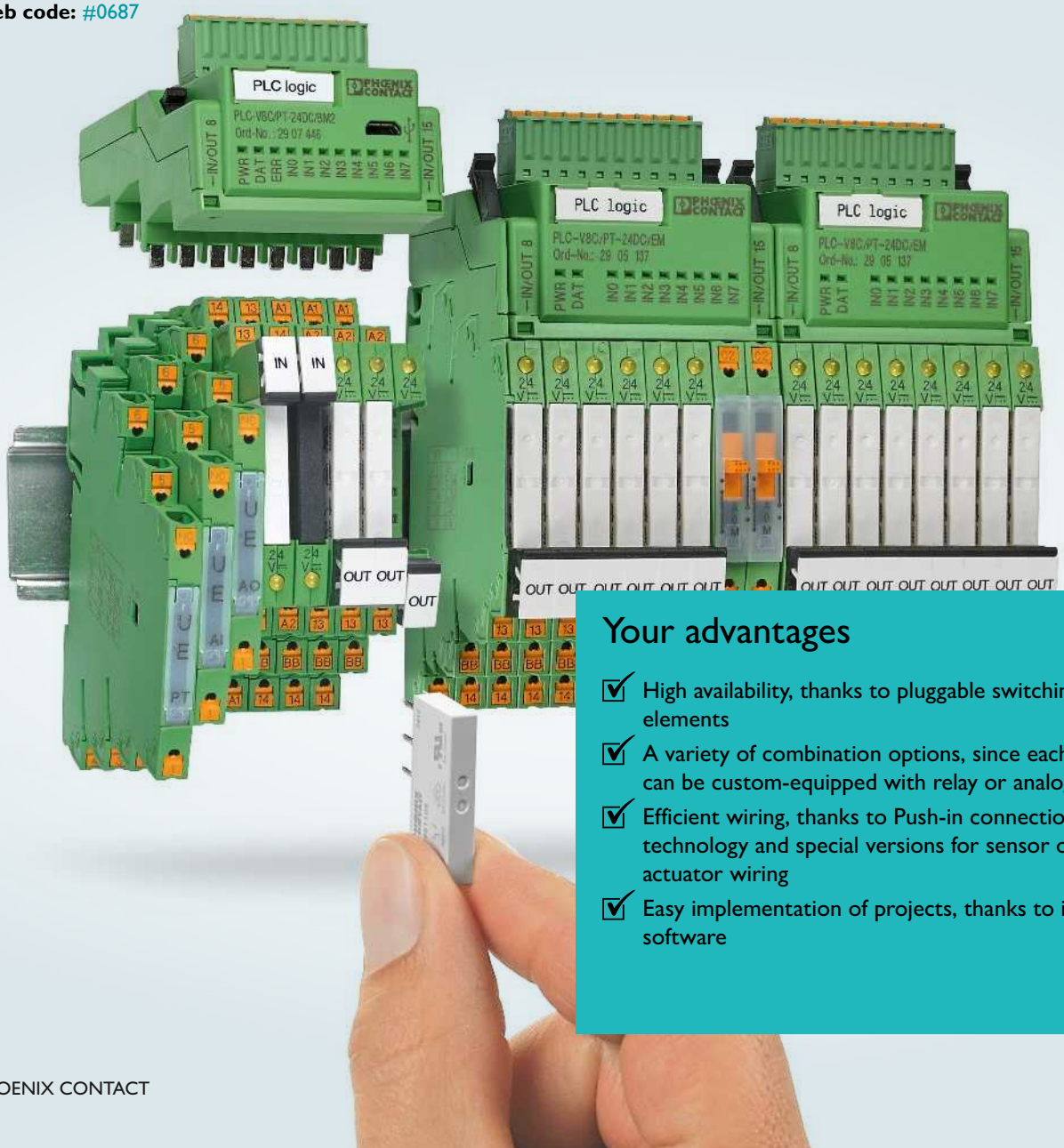
Intuitive editors

The programming procedure in PC Worx is simplified by numerous editors. Syntax highlighting improves the readability of commands and variables by displaying keywords, for example, in different colors. IntelliSense automatically completes variable names, structure elements, and function block elements.

Programmable logic relay system
Extremely compact control and switching

On the logic module market, the PLC logic relay system is the first to combine logic, interface, and field connection levels in a single solution. This means that you can switch and control I/O signals using a single compact system. You can combine the new PLC logic module with the corresponding relay and analog modules as required.

Web code: #0687



Your advantages

- High availability, thanks to pluggable switching elements
- A variety of combination options, since each channel can be custom-equipped with relay or analog modules
- Efficient wiring, thanks to Push-in connection technology and special versions for sensor or actuator wiring
- Easy implementation of projects, thanks to intuitive software

Product overview and technical details

Stand-alone module

PLC-V8C/SC-24DC/SAM2 Ord. No. 2907445
PLC-V8C/PT-24DC/SAM2 Ord. No. 2907443

- Screw or Push-in connection technology
- 16 I/Os, not extendable
- PC connection via micro USB socket
- Integrated real-time clock
- Accommodates external IFS-CONFSTICK memory module

Basic module

PLC-V8C/SC-24DC/BM2 Order No. 2907447
PLC-V8C/PT-24DC/BM2 Order No. 2907446

- Screw or Push-in connection technology
- 16 I/Os, can be extended up to a maximum of 48 I/Os
- PC connection via micro USB socket
- Integrated real-time clock
- Accommodates external IFS-CONFSTICK memory module
- Integration into common bus systems

Extension module

PLC-V8C/SC-24DC/EM Order No. 2903095
PLC-V8C/PT-24DC/EM Order No. 2905137

- Screw or Push-in connection technology
- 16 I/Os, for extending the basic module
- Connection of a maximum of two extension modules per basic module

Basic touch panel

BTP 2043W Order No. 1050387
BTP 2070W Order No. 1046666
BTP 2102W Order No. 1046667

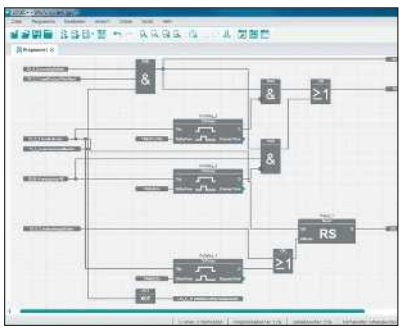
All PLC logic module process data can be visualized using the HMI devices of the BTP 2000 product family. The user interface can be designed easily using the Visu+ Express visualization software, which is available free of charge.

PHOENIX CONTACT
PLC logic

Programming logic modules

LOGIC+

- Intuitive programming for PLC logic
- Function block diagram or ladder diagram
- Numerous integrated function blocks
- Specific function blocks are available to download
- Hardware view in the program
- Can be downloaded free of charge



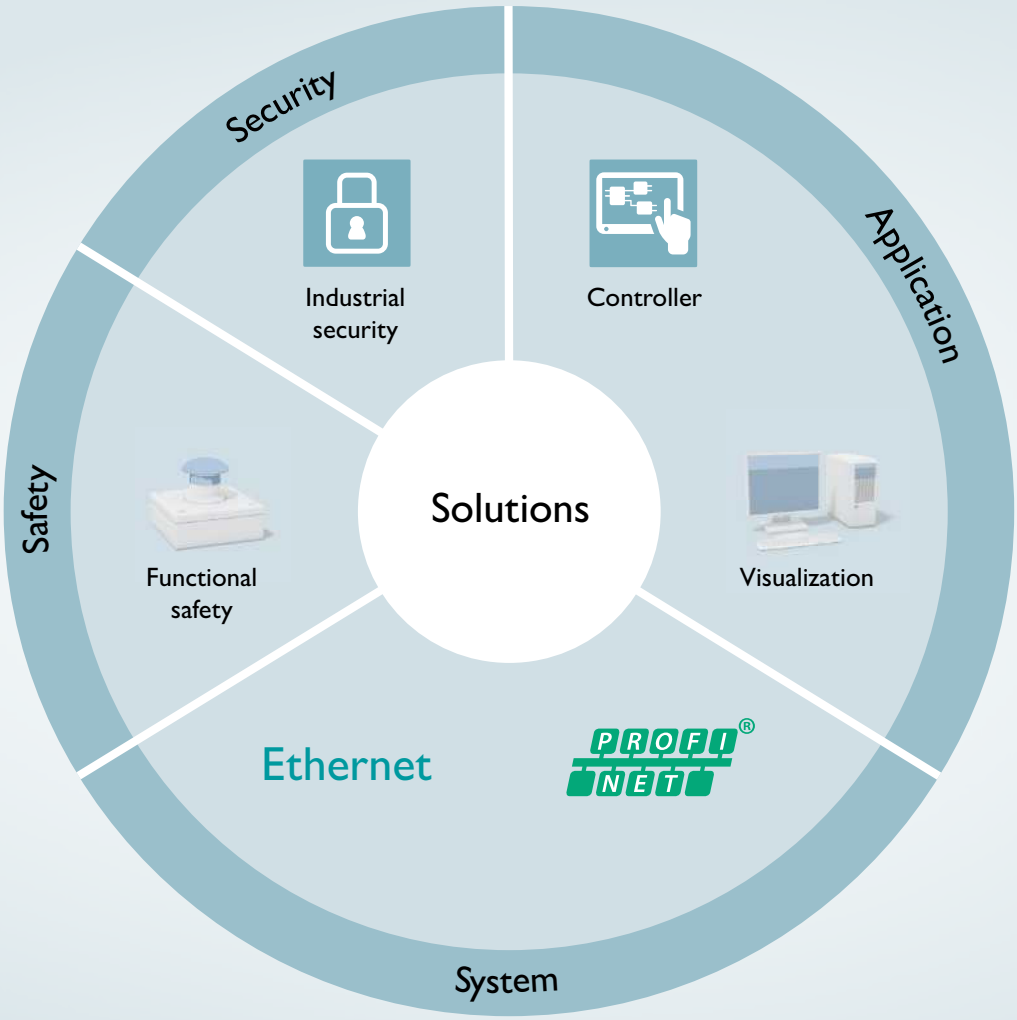
PLC logic app

Use the PLC logic app to adjust parameters easily and take advantage of the flexible operation and display. You only need one display device to monitor and operate several machines via a wireless connection.
Read the status of inputs and outputs, apply changes, or respond quickly to malfunctions.

Service and support

Whatever the task ahead, the objective you want to achieve through a technological solution, or the products you would like to use: our specialists are always on hand no matter where you are. With our flexible service concept, we will support you with regards to all automation technology queries, from applications and systems right through to the topics of industrial security and safety. Our experts have comprehensive industry and technical expertise.

This, in combination with Phoenix Contact's wide range of products, means we always have the right solution for you.



Our services for your success

Consulting

We would be happy to advise you on the best way to plan and optimize your machine or system, sharing our expertise as a system and automation specialist.

Application and system
We will combine controller, visualization, and PROFINET, tailoring them ideally to your application.

Industrial security
Whether failsafe networks, concepts for secure remote maintenance, or high-performance wireless networks, we will find the right solution for you.

Safety
We will provide you with advice regarding all steps of the Machinery Directive and guide you through the entire process of acceptance.

Training and workshops

Thanks to our comprehensive training packages and the expertise of our trainers, you are always kept right up to date. We will gladly tailor individual workshops to your needs.

Application and system
Whether planning, implementation, or diagnostics – we have the right training package for you to answer every question about our controller and visualization technology.

Industrial security
Through instruction and practical training, we get you and your employees fit for failsafe networks.

Safety
We will train you in all aspects of the EN ISO 13849-1 Machinery Directive, SISTEMA, the safety lifecycle, IEC 61511, and PROFIsafe; also as an in-house workshop, if you wish.

Engineering

Benefit from our experience and our network of project engineers and system partners in all phases of your project.

Application and system
We will support you throughout the implementation of your application or partial application with Phoenix Contact.

Industrial security
We will provide support during the configuration and startup of your network and show you where optimizations can be made.

Safety
We will provide support throughout the entire process, from assessing the safety integrity and programming the safe controller to verification and validation. We will create our technical documentation based on current standards and directive requirements.

Contact us for more information

Whether by phone, via remote access, or on site – Phoenix Contact is there for you.

Application, systems, and industrial security
24-hour hotline: + 49 5281 946-2888
automation-service@phoenixcontact.com

Safety
24-hour hotline: + 49 5281 946-2777
safety-service@phoenixcontact.com

Selection tables and technical data

Inline controllers						
						
General data						
Type	ILC 131 ETH	ILC 151 ETH	ILC 151 GSM/GPRS	ILC 171 ETH 2TX	ILC 191 ETH 2TX	ILC 191 ETH ME/AN
Order No.	2700973	2700974	2700977	2700975	2700976	2700074
Processor	Altera Nios II	Altera Nios II		Altera Nios II	Altera Nios II	
Clock frequency	64 MHz	64 MHz		64 MHz	64 MHz	
Program memory	192 kB	256 kB	512 kB	512 kB	1 MB	
Mass storage	192 kB	256 kB	512 kB	512 kB	1 MB	
Non-volatile mass storage	8 kB	8 kB	48 kB	48 kB	48 kB	
I/O points	2 … 10 kb	4 … 16 kb		4 … 36 kb	4 … 36 kb	
Programming tool	PC Worx / PC Worx Express					
Temperature range	-25°C … +55°C	-25°C … +55°C		-25°C … +55°C	-25°C … +55°C	
INTERBUS						
Local bus device	63	63		63	63	
Total devices	63	128		128	128	
PROFINET						
Device (controller)	–	–		–	–	
Device	Yes	Yes		Yes	Yes	
Modbus/TCP						
Device (client)	4	8		16	16	
Server	Yes (from FW 4.42)	Yes (from FW 4.42)		Yes (from FW 4.42)	Yes (from FW 4.42)	
Direct inputs/outputs						
Digital inputs/outputs	8 / 4	8 / 4	16 / 4	8 / 4	8 / 4	
Analog inputs/outputs	–	–		–	–	2/2
Incremental encoder input	–	–		–	–	–
Fast counters	–	–		–	–	–
PWM/pulse/direction outputs	–	–		–	–	2
Interfaces						
Ethernet interface	1	1		2	2	
RS-232 interface	1	1	–	1	1	
RS-485 interface	–	–		–	–	1
USB host	–	–		–	–	–
Micro USB B	–	–		–	–	–
Parameterization memory						
Pluggable	SD (up to 2 GB)	SD (up to 2 GB)		SD (up to 2 GB)	SD (up to 2 GB)	
License key	Yes	Yes		Yes	Yes	

PLC logic programmable logic modules

		
General data		
Type	PLC-V8C/PT-24DC/SAM2	PLC-V8C/PT-24DC/BM2
Order No.	2907443	2907446
Processor	ARM Cortex-M3	
Clock frequency	96 MHz	
Program memory	256 kB	
Mass storage	12 kB	
Non-volatile mass storage	108 byte	
I/O points	16 kb	16 … 48 kb
Programming tool	Logic+	
Temperature range	-20°C … +50°C	
INTERBUS		
Local bus device	–	
Total devices	–	
PROFINET		
Device (controller)	–	
Device	Yes	
Modbus/TCP		
Device (client)	–	
Server	–	
Direct inputs/outputs		
Digital inputs/outputs	8 / 8	
Analog inputs/outputs	2 / 0	
Incremental encoder input	–	
Fast counters	–	
PWM/pulse/direction outputs	–	
Interfaces		
Ethernet interface	–	
RS-232 interface	–	
RS-485 interface	–	
USB host	–	
Micro USB B	1	
Parameterization memory		
Pluggable	Yes	
License key	Yes	

Axiocontrol

		
General data		
Type	AXC 1050	AXC 3050
Order No.	2700988	2700989
Processor	Altera Nios II	Intel® Atom™ E660
Clock frequency	100 MHz	1.30 GHz
Program memory	1 MB	4 MB
Mass storage	2 MB	8 MB
Non-volatile mass storage	48 kB	128 kB
I/O points	4 … 36 kb	4 … 36 kb
Programming tool	PC Worx / PC Worx Express	
Temperature range	-25°C … +60°C	
INTERBUS		
Local bus device	–	
Total devices	–	
PROFINET		
Device (controller)	16 (selectable)	256
Device	Yes	Yes
Modbus/TCP		
Device (client)	16	32
Server	–	–
Axio		
Local bus device	63	63
Direct inputs/outputs		
Digital inputs/outputs	–	–
Fast counters	–	–
PWM/pulse/direction outputs	–	–
Interfaces		
Ethernet interface	2	3
RS-232 interface	–	–
RS-485 interface	–	–
USB host	–	1
Micro USB B	1	1
Parameterization memory		
Pluggable	SD (up to 2 GB)	
License key	Yes	

PLCnext Control devices		
		
General data		
Type	AXC F 2152	RFC 4072S
Order No.	2404267	1051328
Processor	ARM Cortex A9, dual core	Intel i5 6300, dual core
Clock frequency	2 x 800 MHz	2 x 2.4 GHz
Program memory	8 MB	16 MB
Mass storage	16 MB	32 MB
Non-volatile mass storage	48 kB (NVRAM)	2 MB
I/O points	Max. 262 kb	Max. 512 kb
Programming tool	PLCnext Engineer	PLCnext Engineer
Temperature range	-25°C … +60°C	0°C … +40°C without fan 0°C … +60°C with fan
INTERBUS		
Local bus device	–	–
Total devices	–	–
PROFINET		
Device (controller)	64	256
Device	Yes	Yes
Modbus/TCP		
Device (client)	–	–
Server	–	–
Axio		
Local bus device	63	–
Direct inputs/outputs		
Digital inputs/outputs	–	–
Fast counters	–	–
PWM/pulse/direction outputs	–	–
Interfaces		
Ethernet interface	2	4
RS-232 interface	–	–
RS-485 interface	–	–
USB host	–	–
Micro USB B	1	1
Parameterization memory		
Pluggable	SD card (up to 8 GB)	–
License key	Yes	Yes

High-performance controllers	
	
General data	
Type	RFC 460R
Order No.	2700784
Processor	Intel Celeron MUL V 423
Clock frequency	800 MHz
Program memory	8 MB
Mass storage	16 MB
Non-volatile mass storage	120 kB (NVRAM)
I/O points	Max. 512 kb
Programming tool	PCWorx / PCWorx Express
Temperature range	0°C … +45°C without fan 0°C … +55°C with fan
INTERBUS	
Local bus device	–
Total devices	–
PROFINET	
Device (controller)	256
Device	Yes
Modbus/TCP	
Device (client)	–
Server	–
Axio	
Local bus device	–
Direct inputs/outputs	
Digital inputs/outputs	–
Fast counters	–
PWM/pulse/direction outputs	–
Interfaces	
Ethernet interface	3
RS-232 interface	–
RS-485 interface	–
USB host	–
Micro USB B	2
Parameterization memory	
Pluggable	CF card (up to 2 GB)
License key	Yes

Software

					
General data					
Type	PLCnext Engineer	PC Worx Basic LIC	PC Worx Express	Diag+	Safetyprog Basic
Order No.	1046008	2985275	2988670	2730307	2700443
Intended use	Engineering software for controllers	Engineering software for controllers	Engineering software for controllers	Diagnostics, startup, maintenance, DIN EN 61131-3-compliant, safety	Engineering software for functional safety
Functions					
Basic functions	• Programming an automation system in accordance with IEC 61131-3 • Configuring an automation system • Parameterization of hardware and networks • Network-oriented or free graphical programming • Web-based visualization based on open standards such as HTML5 and JavaScript	• Configuring an automation system, configuring INTERBUS and PROFINET devices, programming an automation system in accordance with IEC 61131-3, communication in accordance with IEC 61131-5 • Sequential function chart (SFC) • Instruction list (IL) • Structured text (ST) • Ladder diagram (LD) • Network configuration (function of Config+) • Network diagnostics (function of Diag+)	• Configuring an automation system, parameterizing INTERBUS modules, operating INTERBUS, programming an automation system in accordance with IEC 61131-3, communication in accordance with IEC 61131-5 • IEC 61131-3 includes the following programming languages: function block diagram (FBD), ladder diagram (LD), structured text (ST) • Network configuration (function of Config+) • Network diagnostics (function of Diag+)	• Importing the installed bus design • Detection/visualization of error states • INTERBUS FO path diagnostics • Exporting the controller diagnostics archives • Numerous other diagnostic functions	• Programming safety-related user applications • IEC 61131-3 function block diagram and ladder diagram • Limited variability language profile • PROFIsafe parameterization
Supported controllers	AXC F 2152, AXC F 1050, RFC 4072S	ILC controllers, AXC 1050, AXC 3050, RFC controllers, PC WORX RT	ILC 1xx, AXC 1050, PC WORX SRT	INTERBUS PROFINET controllers (only Phoenix Contact)	RFC 470S
Number of I/O points	–	2048 I/O bytes	128 I/O kB	Not relevant	Not relevant
Hardware requirements					
Hard disk space	Min. 2 GB	Min. 2 GB	Min. 2 GB	Min. 2 GB	Min. 2 GB
RAM	Min. 2 GB	Min. 2 GB	Min. 2 GB	Min. 2 GB	Min. 2 GB
CPU	Min. Intel® Core™ i5	Min. 2 GHz, x86 architecture			
Monitor resolution	HD (1920 x 1080)	SXGA (1280 x 1024)	SXGA (1280 x 1024)	SXGA (1280 x 1024)	SXGA (1280 x 1024)
Operator panels	Keyboard, mouse	Keyboard, mouse	Keyboard, mouse	Keyboard, mouse	Keyboard, mouse
Software requirements					
Operating systems	Windows® 10 (64-bit) as of Build 1511	Windows® 7 Professional SP1 (32-bit/64-bit), Windows® 7 Ultimate SP1 (32-bit/64-bit), Windows® 8.1 Professional (32-bit/64-bit), Windows® 8.1 Enterprise (32-bit/64-bit), Windows® 10 (32-bit/64-bit), as of Build 1511			
Supported languages	German, English	3			German, English

In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 16,500 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.

You will find our complete product range at:

phoenixcontact.com

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