Control technology and software

Intelligent automation
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.
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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.

PLCnext Engineer
The software engineering tool for programming your PLCnext Control device.

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 6
Further information starting on page 8
Further information starting on page 10
The PLCnext Community provides information on all aspects of PLCnext Technology, including FAQs, a forum, YouTube tutorials, and a GitHub presence.

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 10

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.

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 Axiocute 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.

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

Web code: #1709
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.

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.

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
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.

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.

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
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.

Fast, robust, easy
Axiocontrol meets high demands in terms of performance and robustness.

Further information starting on page 16
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.

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
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. 270074
- 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
Axiocntrol
Fast, robust, and user-friendly

Axiocntrol 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, Axiocntrol 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
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.

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
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.

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

Web code: #2107
Product overview and technical details

**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

**PLC programming**

**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

**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

**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.

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.

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
## Inline controllers

### General data

<table>
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<tr>
<th>Type</th>
<th>ILC 131 ETH</th>
<th>ILC 151 ETH</th>
<th>ILC 151 GSM/GPRS</th>
<th>ILC 171 ETH 2TX</th>
<th>ILC 191 ETH 2TX</th>
<th>ILC 191 ETH ME/AN</th>
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<td>2700977</td>
<td>2700975</td>
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<td>Altera Nios II</td>
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<td>1 MB</td>
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<td>PC Worx / PC Worx Express</td>
<td>PC Worx / PC Worx Express</td>
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<td>Temperature range</td>
<td>-25°C … +55°C</td>
<td>-25°C … +55°C</td>
<td>-25°C … +55°C</td>
<td>-25°C … +55°C</td>
<td>-25°C … +55°C</td>
<td>-25°C … +55°C</td>
</tr>
</tbody>
</table>

### INTERBUS

| Local bus device      | 63 | 63 | 63 | 63 | 63 | 63 |
| Total devices         | 63 | 128 | 128 | 128 | 128 | 128 |

### PROFINET

| Device (controller)   | –  | –  | –  | –  | –  | –  |
| Device                | Yes | Yes | Yes | Yes | Yes | Yes |

### Modbus/TCP

| Device (client)       | 4  | 8  | 16 | 16 | 16 | 16 |
| Server                | Yes (from FW 4.42) | Yes (from FW 4.42) | 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 | 8 / 4 |
| Analog inputs/outputs  | –     | –     | –     | –     | –     | 2/2   |
| Incremental encoder input | –  | –     | –     | –     | –     | –     |
| Fast counters          | –     | –     | –     | –     | –     | –     |
| PWM/pulse/direction outputs | –  | –     | –     | –     | –     | 2     |

### Interfaces

| Ethernet interface    | 1    | 1    | 2    | 2    | 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) | SD (up to 2 GB) |
| License key           | Yes             | Yes             | Yes             | Yes             | Yes             |
## PLC logic programmable logic modules

<table>
<thead>
<tr>
<th>General data</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>PLC-V8C/PT-24DC/SAM2</td>
<td>PLC-V8C/PT-24DC/BM2</td>
</tr>
<tr>
<td>Order No.</td>
<td>2907443</td>
<td>2907446</td>
</tr>
<tr>
<td>Processor</td>
<td>ARM Cortex-M3</td>
<td></td>
</tr>
<tr>
<td>Clock frequency</td>
<td>96 MHz</td>
<td></td>
</tr>
<tr>
<td>Program memory</td>
<td>256 kB</td>
<td></td>
</tr>
<tr>
<td>Mass storage</td>
<td>12 kB</td>
<td></td>
</tr>
<tr>
<td>Non-volatile mass storage</td>
<td>108 byte</td>
<td></td>
</tr>
<tr>
<td>I/O points</td>
<td>16 kb</td>
<td>16 … 48 kb</td>
</tr>
<tr>
<td>Programming tool</td>
<td>Logic+</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>-20°C … +50°C</td>
<td></td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>General data</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>AXC 1050</td>
<td>AXC 3050</td>
</tr>
<tr>
<td>Order No.</td>
<td>2700988</td>
<td>2700989</td>
</tr>
<tr>
<td>Processor</td>
<td>Altera Nios II Intel® Atom™ E660</td>
<td></td>
</tr>
<tr>
<td>Clock frequency</td>
<td>100 MHz</td>
<td>1.30 GHz</td>
</tr>
<tr>
<td>Program memory</td>
<td>1 MB</td>
<td>4 MB</td>
</tr>
<tr>
<td>Mass storage</td>
<td>2 MB</td>
<td>8 MB</td>
</tr>
<tr>
<td>Non-volatile mass storage</td>
<td>48 kB</td>
<td>128 kB</td>
</tr>
<tr>
<td>I/O points</td>
<td>4 … 36 kb</td>
<td>4 … 36 kb</td>
</tr>
<tr>
<td>Programming tool</td>
<td>PC Worx / PC Worx Express</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>-25°C … +60°C</td>
<td></td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>General data</th>
<th>AXC F 2152</th>
<th>RFC 4072S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>AXC F 2152</td>
<td>RFC 4072S</td>
</tr>
<tr>
<td>Order No.</td>
<td>2404267</td>
<td>1051328</td>
</tr>
<tr>
<td>Processor</td>
<td>ARM Cortex A9, dual core</td>
<td>Intel i5 6300, dual core</td>
</tr>
<tr>
<td>Clock frequency</td>
<td>2 x 800 MHz</td>
<td>2 x 2.4 GHz</td>
</tr>
<tr>
<td>Program memory</td>
<td>8 MB</td>
<td>16 MB</td>
</tr>
<tr>
<td>Mass storage</td>
<td>16 MB</td>
<td>32 MB</td>
</tr>
<tr>
<td>Non-volatile mass storage</td>
<td>48 kB (NVRAM)</td>
<td>2 MB</td>
</tr>
<tr>
<td>I/O points</td>
<td>Max. 262 kb</td>
<td>Max. 512 kb</td>
</tr>
<tr>
<td>Programming tool</td>
<td>PLCnext Engineer</td>
<td>PLCnext Engineer</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-25°C … +60°C</td>
<td>0°C … +40°C without fan 0°C … +60°C with fan</td>
</tr>
</tbody>
</table>

### High-performance controllers

<table>
<thead>
<tr>
<th>General data</th>
<th>RFC 460R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>RFC 460R</td>
</tr>
<tr>
<td>Order No.</td>
<td>2700784</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel Celeron MUL V 423</td>
</tr>
<tr>
<td>Clock frequency</td>
<td>800 MHz</td>
</tr>
<tr>
<td>Program memory</td>
<td>8 MB</td>
</tr>
<tr>
<td>Mass storage</td>
<td>16 MB</td>
</tr>
<tr>
<td>Non-volatile mass storage</td>
<td>120 kB (NVRAM)</td>
</tr>
<tr>
<td>I/O points</td>
<td>Max. 512 kb</td>
</tr>
<tr>
<td>Programming tool</td>
<td>PCWorx / PCWorx Express</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0°C … +45°C without fan 0°C … +55°C with fan</td>
</tr>
</tbody>
</table>

### INTERBUS

- **Local bus device**: –
- **Total devices**: –

### PROFINET

- **Device (controller)**: 64
- **Device**: Yes
- **Modbus/TCP**: –
- **Server**: –

### Axio

- **Local bus device**: 63
- **Device (controller)**: 63
- **Device**: Yes
- **Modbus/TCP**: –
- **Server**: –

### Direct inputs/outputs

- **Digital inputs/outputs**: –
- **Fast counters**: –
- **PWM/pulse/direction outputs**: –

### Interfaces

- **Ethernet interface**: 2
- **USB host**: –
- **Micro USB B**: 1

### Parameterization memory

- **Pluggable**: SD card (up to 8 GB)
- **License key**: Yes

### License key

- **Yes**
## Software

### General data

<table>
<thead>
<tr>
<th>Type</th>
<th>PLCnext Engineer</th>
<th>PC Worx Basic LIC</th>
<th>PC Worx Express</th>
<th>Diag+</th>
<th>Safetyprog Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No.</td>
<td>1046008</td>
<td>2985275</td>
<td>2988670</td>
<td>2730307</td>
<td>2700443</td>
</tr>
</tbody>
</table>

- **Intended use**
  - Engineering software for controllers
  - Engineering software for controllers
  - Engineering software for controllers
  - Engineering software for controllers
  - 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

#### Supported controllers
- AXC F 2152, AXC F 1050, RFC 4072S
- ILC controllers, AXC 1050, AXC 3050, RFC controllers, PC WORKX RT
- ILC 1xx, AXC 1050, PC WORKX 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

<table>
<thead>
<tr>
<th>Hard disk space</th>
<th>Min. 2 GB</th>
<th>Min. 2 GB</th>
<th>Min. 2 GB</th>
<th>Min. 2 GB</th>
<th>Min. 2 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>Min. 2 GB</td>
<td>Min. 2 GB</td>
<td>Min. 2 GB</td>
<td>Min. 2 GB</td>
<td>Min. 2 GB</td>
</tr>
<tr>
<td>CPU</td>
<td>Min. Intel® Core™ i5</td>
<td>Min. 2 GHz, x86 architecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor resolution</td>
<td>HD (1920 x 1080)</td>
<td>SXGA (1280 x 1024)</td>
<td>SXGA (1280 x 1024)</td>
<td>SXGA (1280 x 1024)</td>
<td>SXGA (1280 x 1024)</td>
</tr>
<tr>
<td>Operator panels</td>
<td>Keyboard, mouse</td>
<td>Keyboard, mouse</td>
<td>Keyboard, mouse</td>
<td>Keyboard, mouse</td>
<td>Keyboard, mouse</td>
</tr>
</tbody>
</table>

### 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 Professional (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

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