Welcome

PLCnext Store

nuevo mercado digital para desarrollar y utilizer apps en el PLCnext Control

Antonio Gordillo IMA Septiembre - Diciembre 2020

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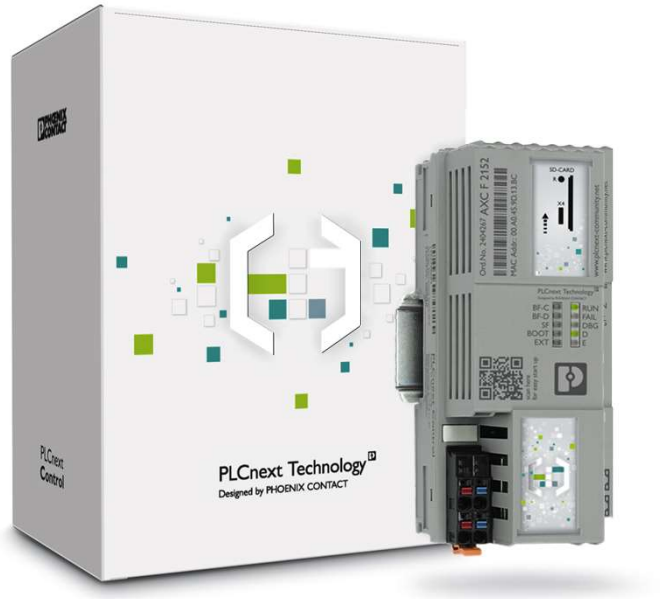

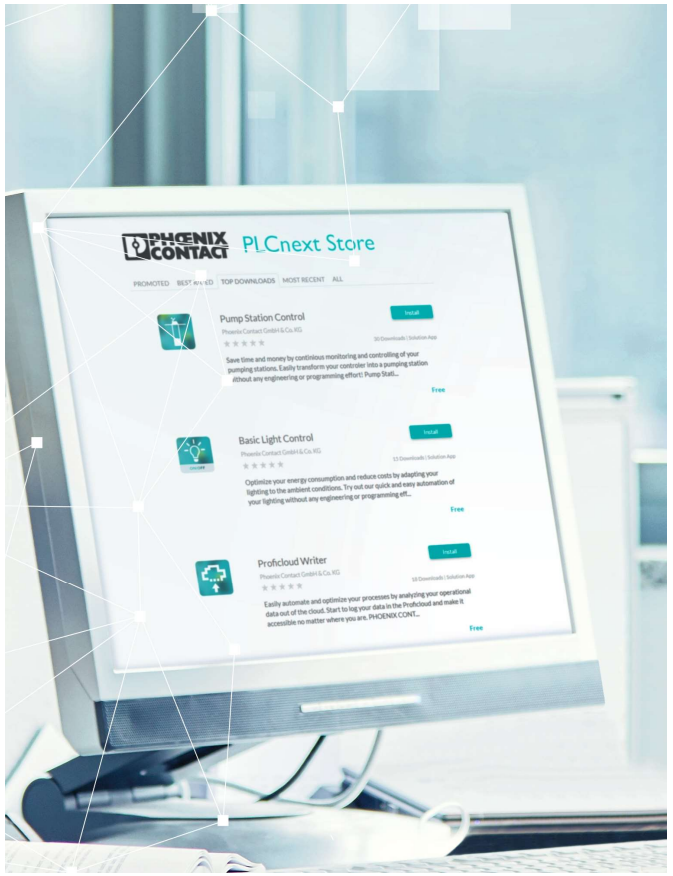

https://www.plcnextstore.com/#/

INSPIRING INNOVATIONS

PLCnext Technology

The reliability and robustness
of the classical PLC world

enhances

with the openness and flexibility
of Smart Devices.

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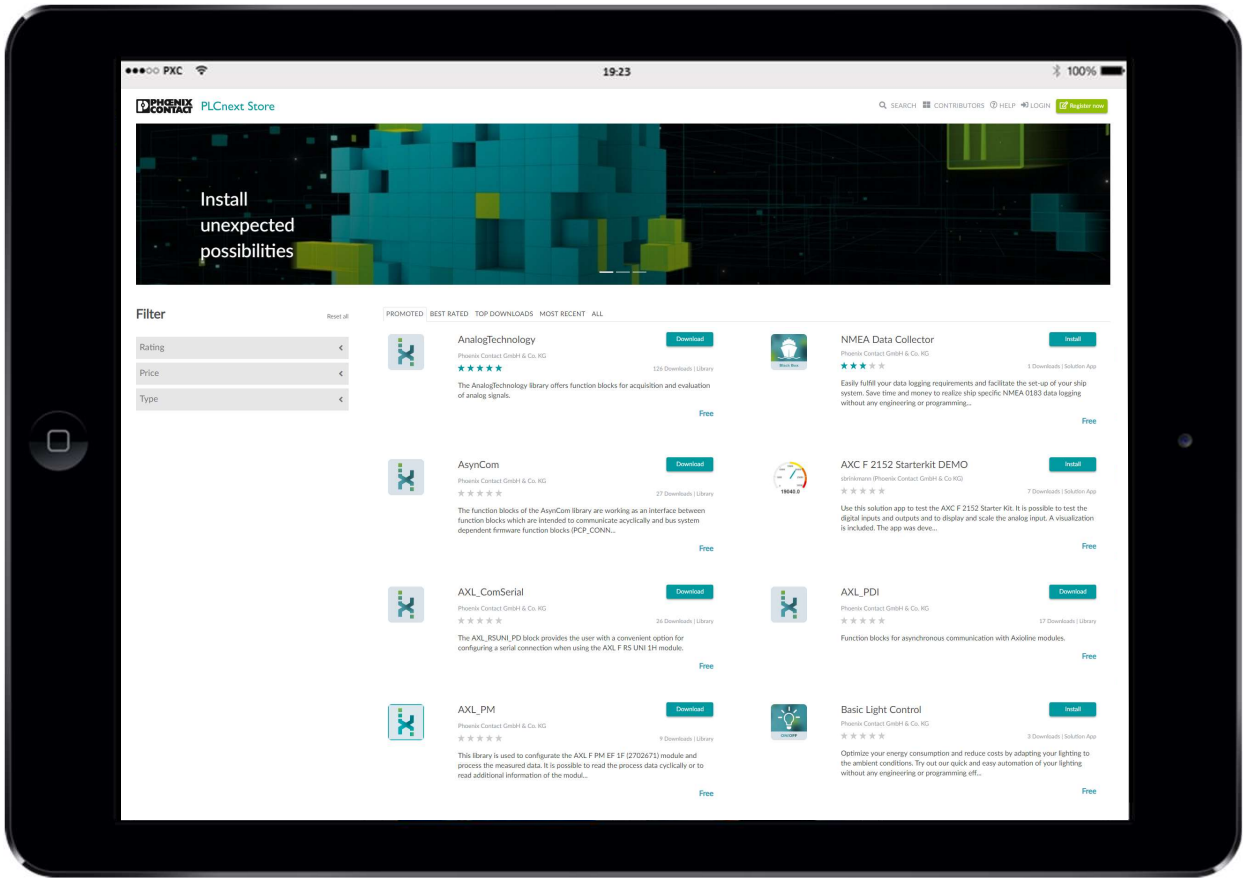

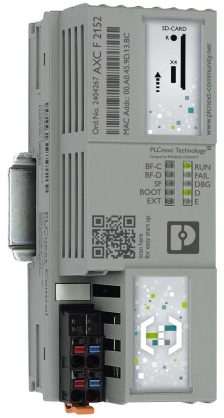

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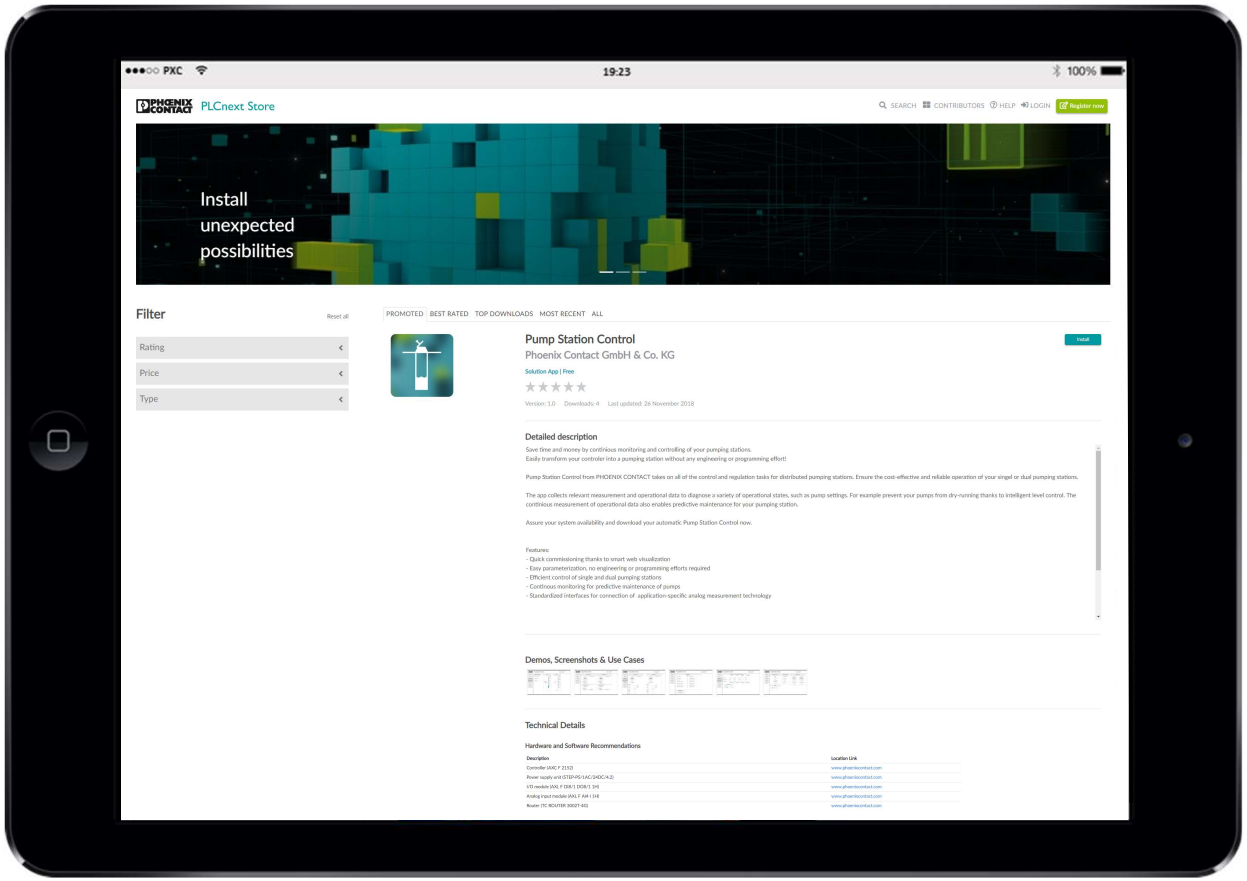
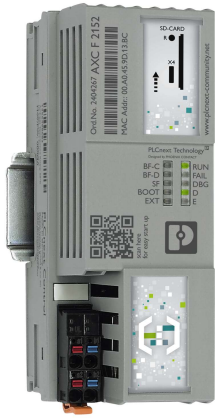


1. Register

2. Assign

3. Buy

4. Install



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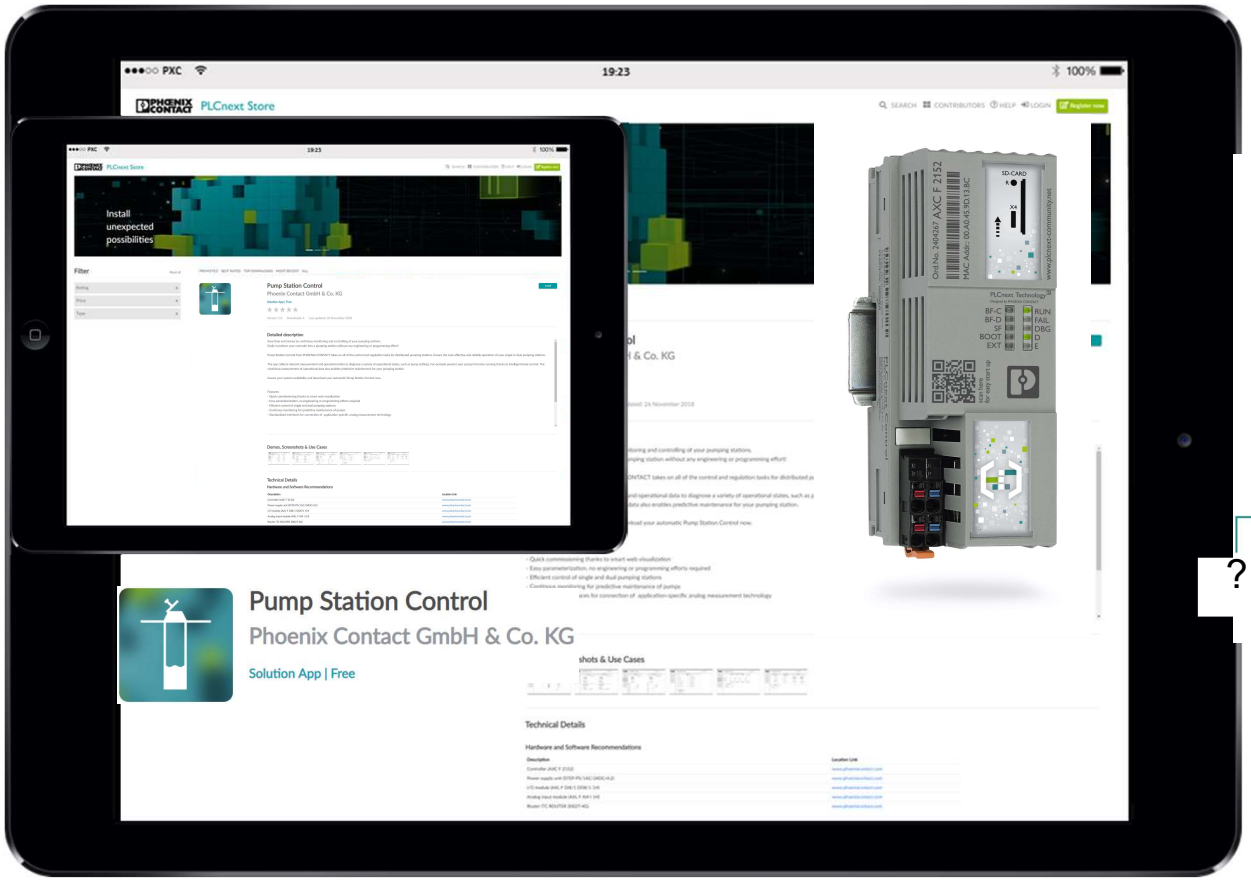

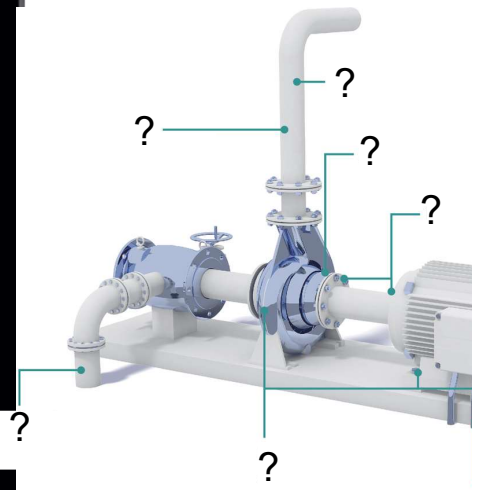

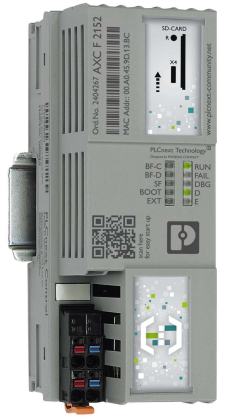

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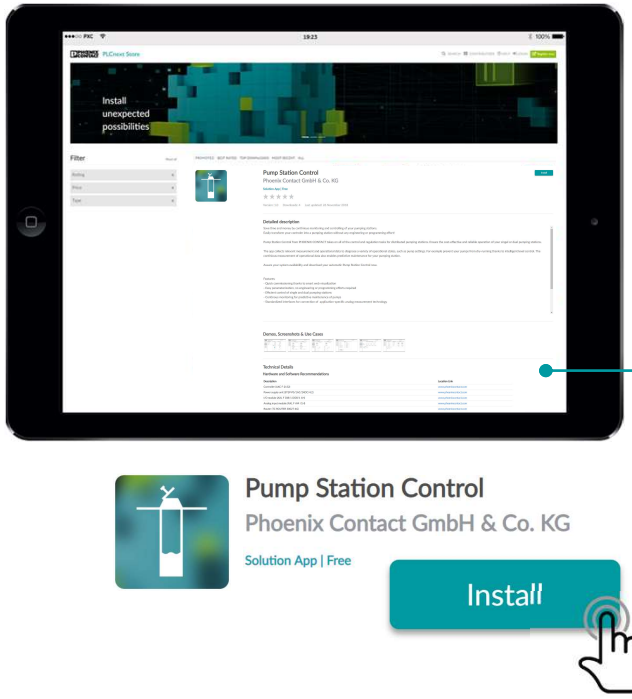

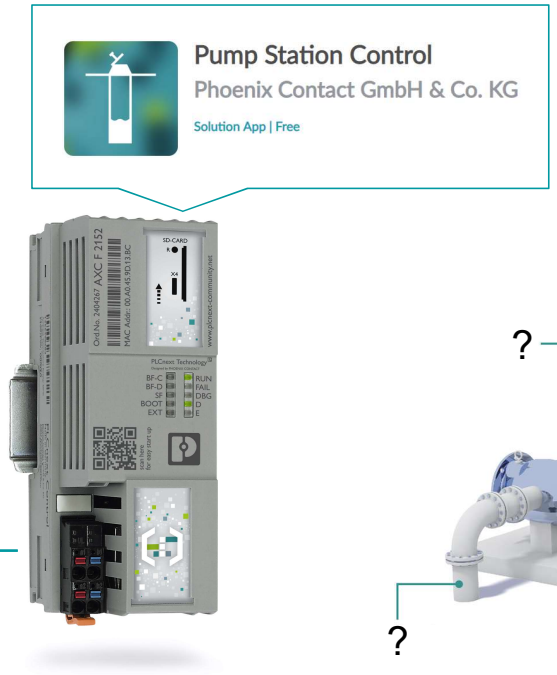

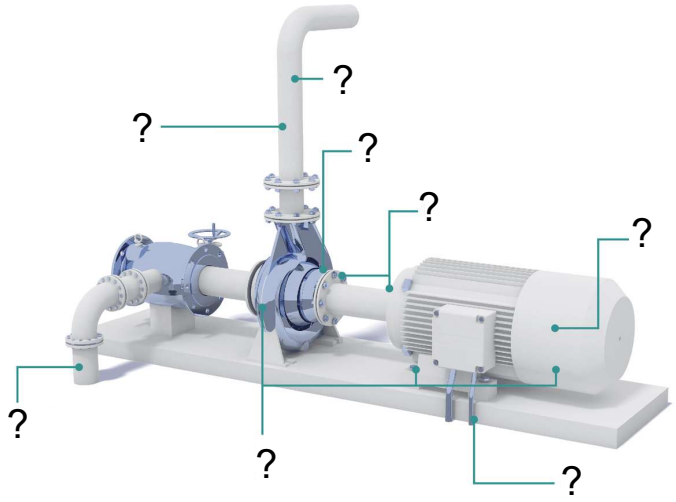

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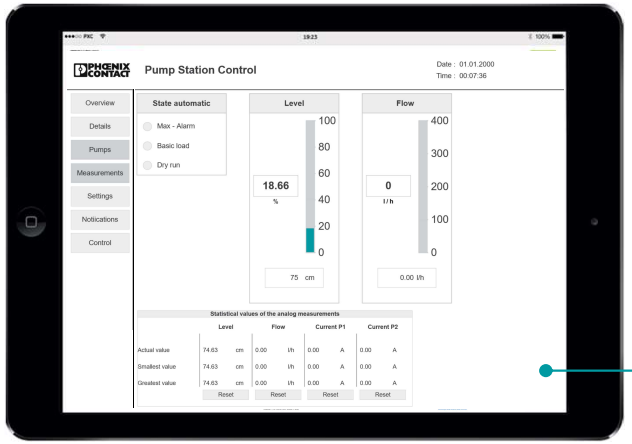

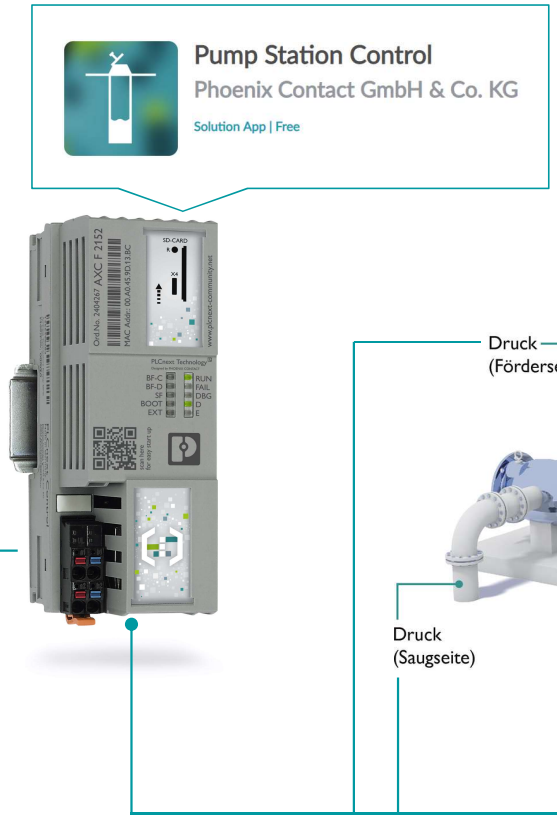

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PLCnext Store
install unexpected possibilities
PLCnext Technology
Designed by PHOENIX CONTACT
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enhanced
freedom
Flexible integration of
open source software and apps
PLCnext Technology
enhance your automation thinking

This is just the beginning
of the PLCnext Store and a new
world of open automation …
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Long Term Goal

“Establish an open, self-scaling ecosystem,
which offers optimum usability
and enables new business
and profitability models.”

“Ownership and network effects increase
Phoenix Contact´s perception
and positions us as an
innovative app and automation supplier
in the digital world.“

Automation ecosystem

- Open ecosystem for the distribution of Apps for PLCnext Control
- Flexible integration of Open Source software and Apps

World of Applications

- Extends the PLC and the Engineering with further functions
- App variety from different Vendors
- Apps suitable for your needs

Faster solution building

- Apps as ready to use solutions or functions
- Less programming, more parameterizing
- Plug&Work: customize your PLCnext Controller in minutes

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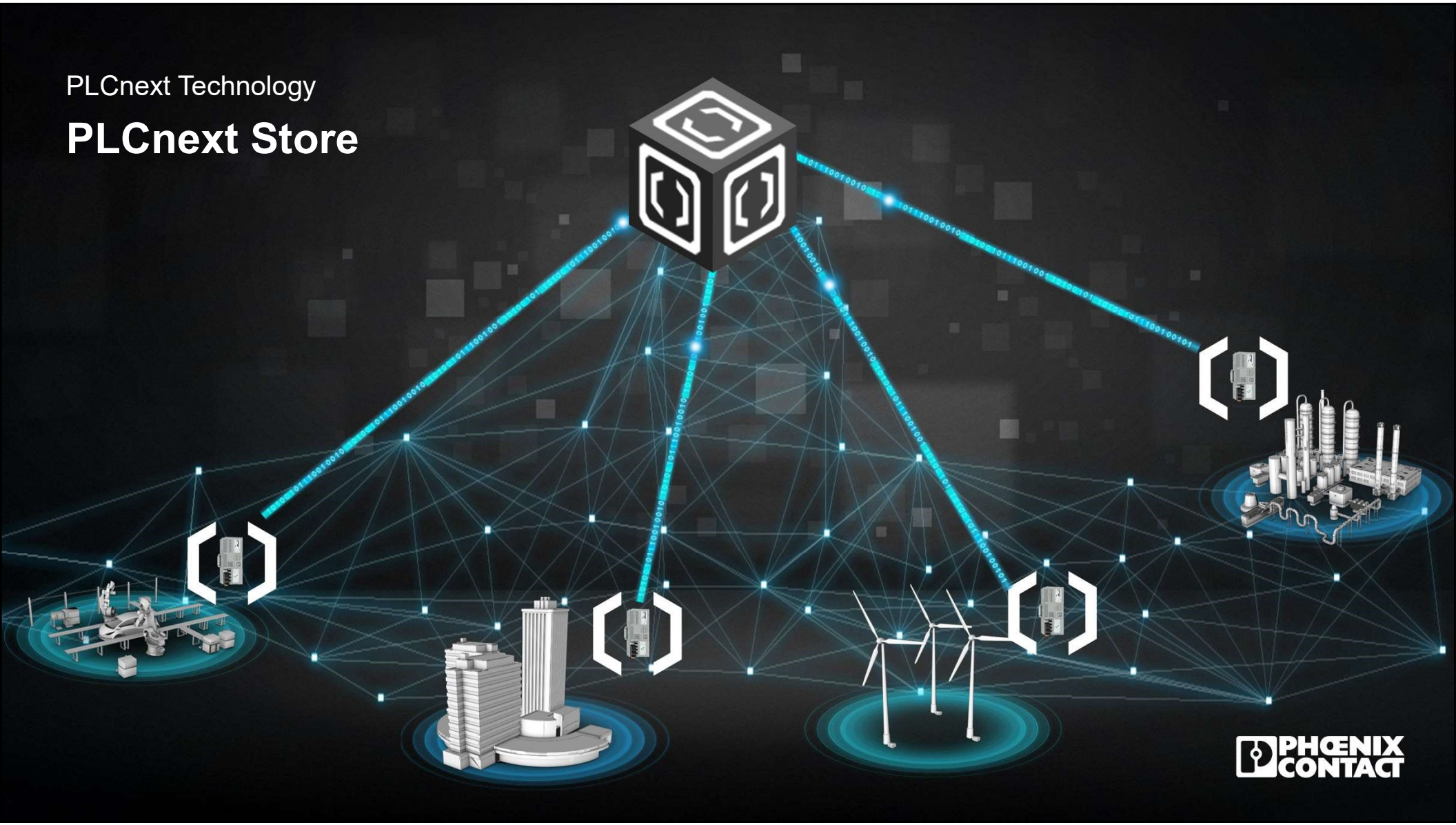

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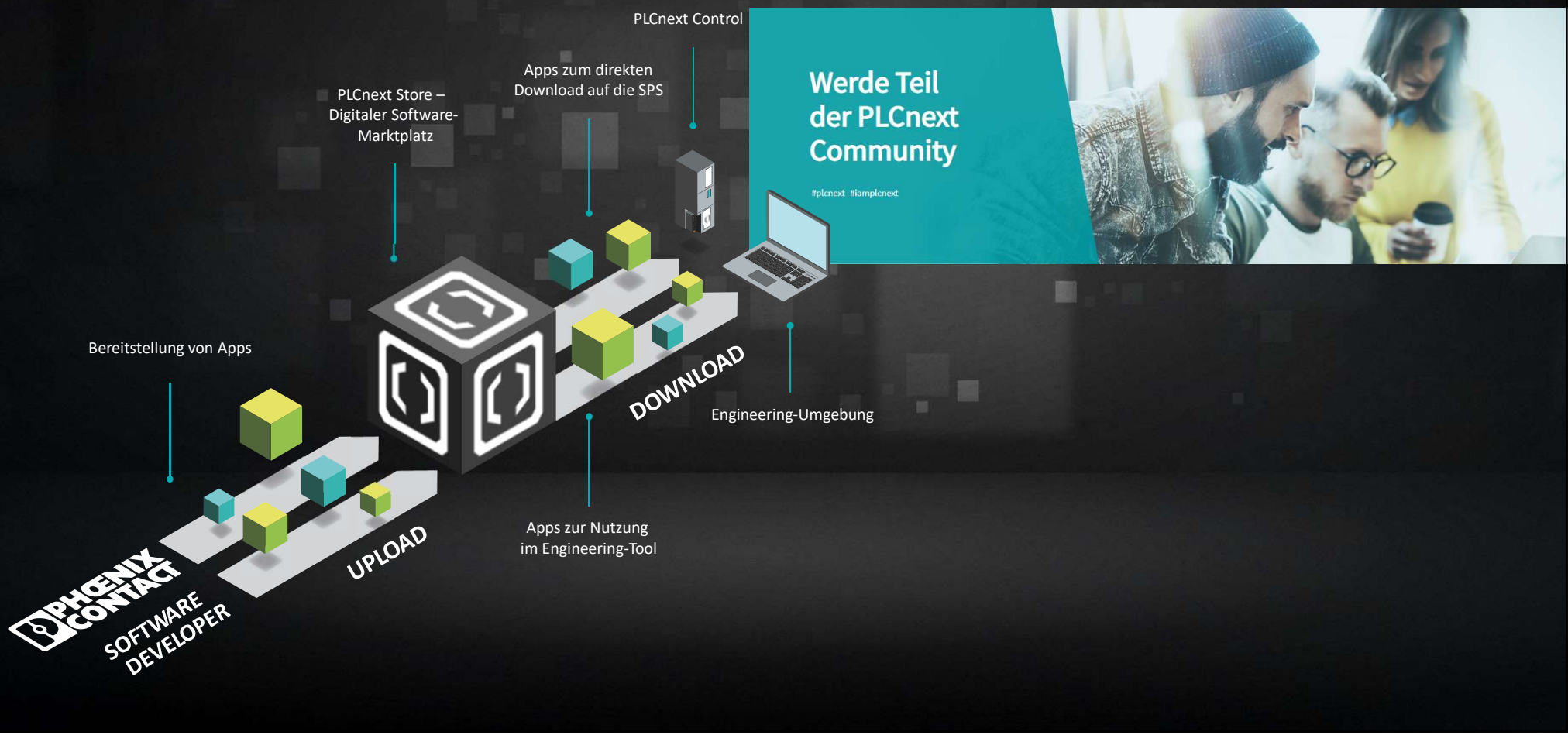

Comparison of different App-Content

4 App Types with different Apps available

	Solution App	PLCnext Engineer 61131 Libraries	Runtime	Function Extension
Deskription	Automation solution consisting of different components with Webpages for parametrization	Function as a Part of an PLC Program	Runtime or Framework for further Programing tools/ Languages	Combinable Apps to create a solution.
Users Skill Level				
Example	Tank an Well Control, Pump Station Control, Proficloud Writer	AnalogTechnology, CANbus, ComSerial, Modbus TCP, IOL_Basic	Codesys, Python, Java or IEC 61499, etc.	MQTT, Protocol 1, 2, 3 Linux Package, Cloud Connector
Description	Ready to use, without programming	PLCnext Engineer needed	Ready to use for programming	Engineering needed

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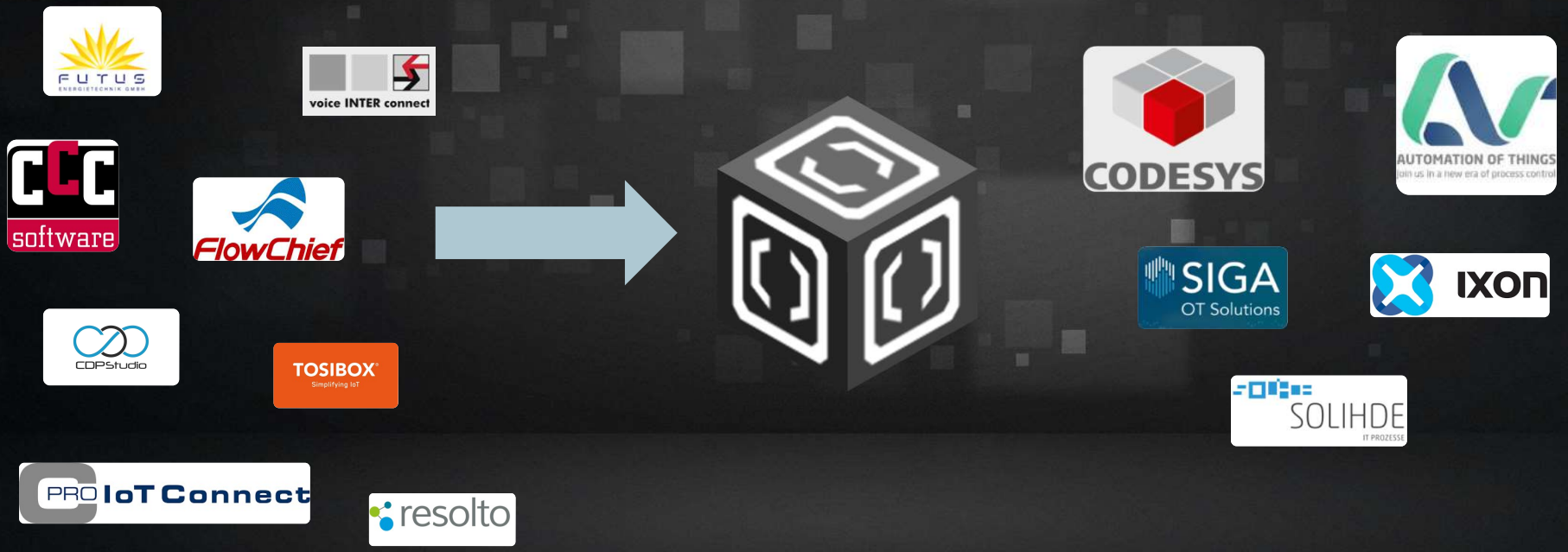
First Contributors in PLCnext Store



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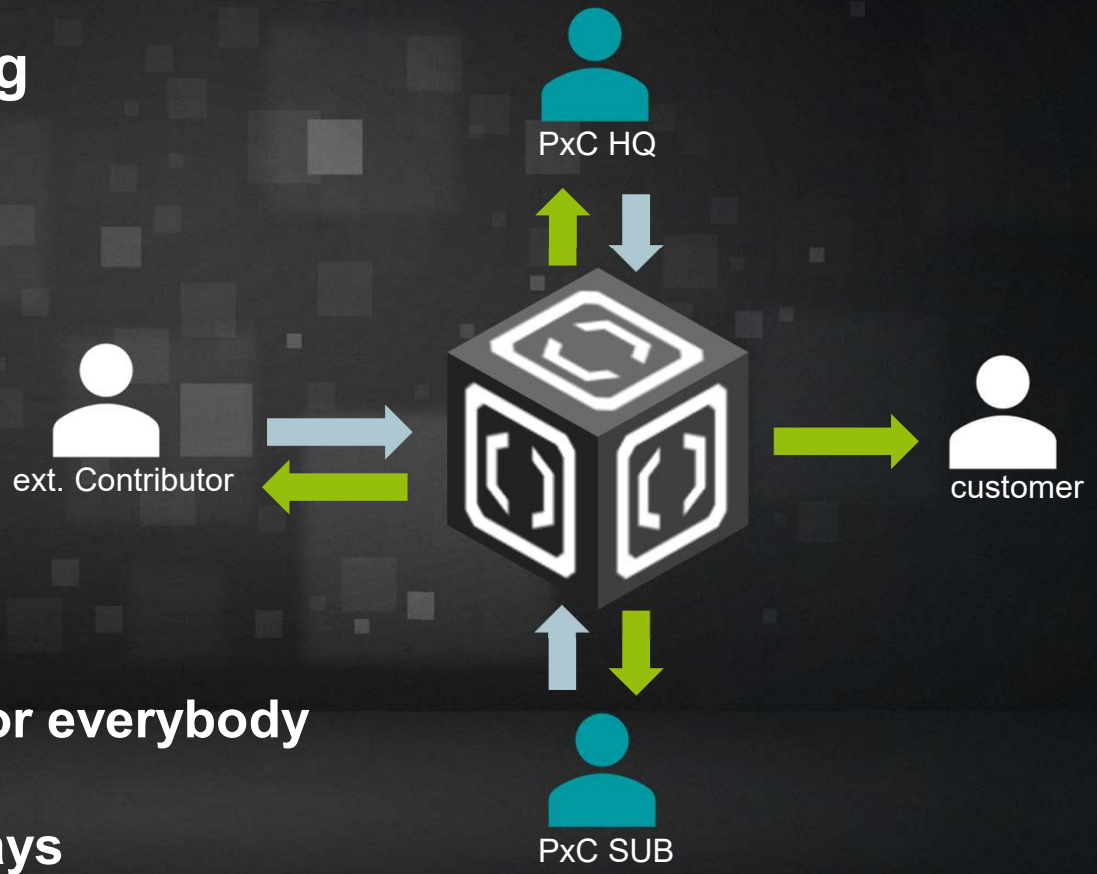
Contribution and Purchasing



free apps = free for everybody

chargeable apps = chargeable for everybody

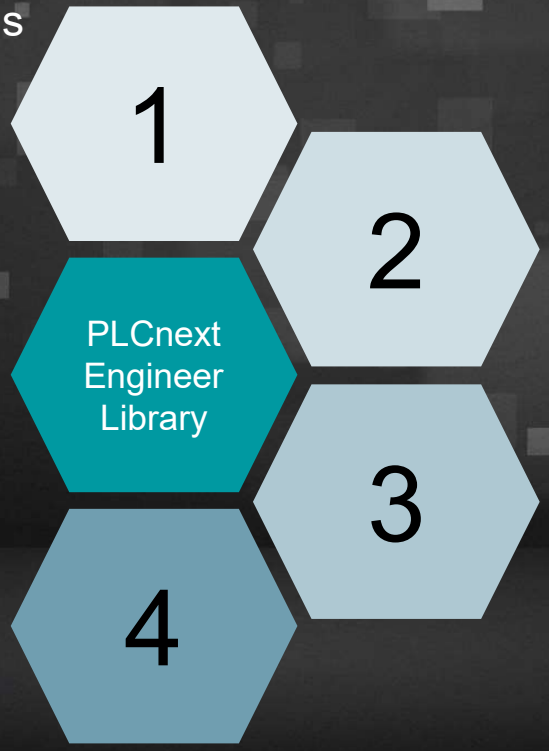
app creator gets the sales - always

PLCnext Store – Developer View

PLCnext Engineering (Library)

Option 1: IEC 61131 FU/FBs

Functions and Function Blocks purely written in IEC 61131 language



Option 2: C++ PROGRAM

PROGRAMS with GDS-Ports which can be instanciated and assigned to tasks.

Option 3: Simulink PROGRAM

Simulink Model programmed with PC WORX Target for Simulink

Option 4: C# FU/FBs

Functions and Function Blocks written in PLCnext Technology C#-Programming.

PLCnext Store – Developer View

PLCnext Function Extension/ Runtime

Option 1: PLCnext Engineer Project

A static PLCnext Engineer Project with e.g. an WebHMI-Configuration option.

Option 2: PLCnext Process/Runtime

A discrete process (exe) using PLCnext services e.g. to access Fieldbus I/O. (Codesys)

Option 3: Linux Daemon/Runtime

A discrete process (exe) not using any PLCnext services. (Python)

Option 4: PLCnext User Component

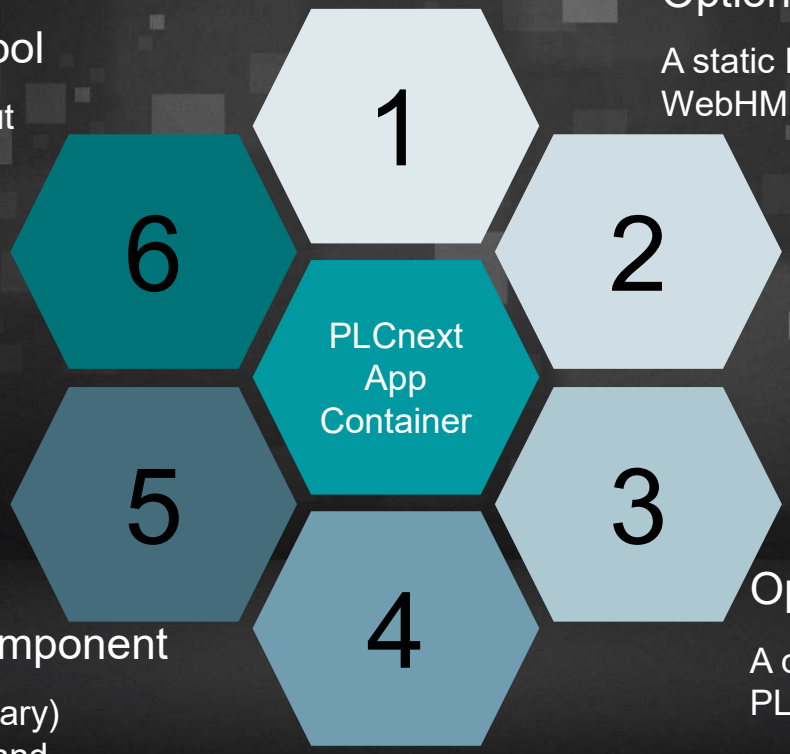
A PLCnext component (shared library) executed in the PLCnext process and extending it.

Option 5: Shared Library

A shared library as a dependent part of another extension, not using any PLCnext services.

Option 6: Command Line Tool

A command line tool with or without usage of PLCnext services.

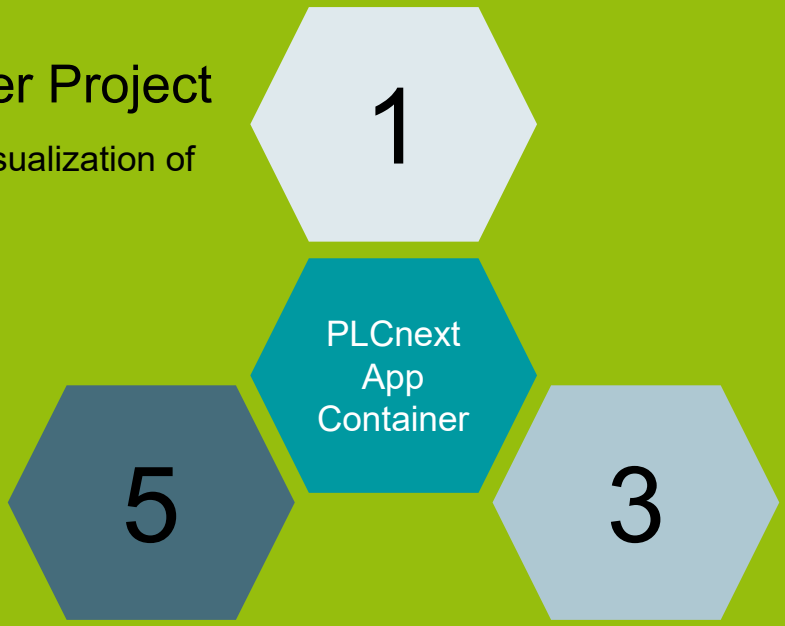


PLCnext Store – Developer View

Solution App on PLCnext Control

1: PLCnext Engineer Project

e.g. Logic, I/O-access and visualization of Pump Application



5: PLCnext Function Extension

e.g. MQTT Agent pushing values to a cloud system for predictive maintenance.

3: Linux Daemon

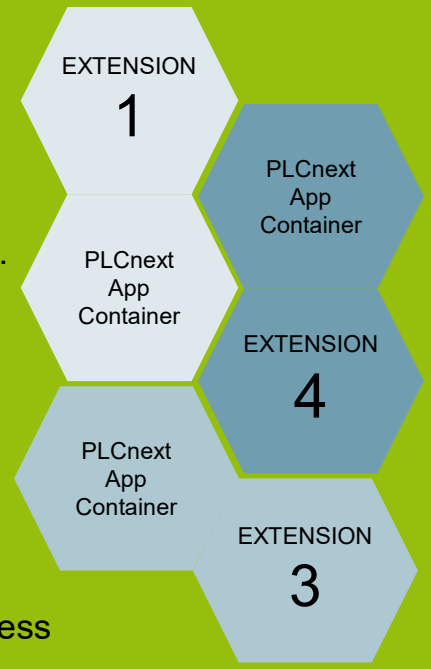
e.g. IXON Secure remote access maintenance tool.

PLCnext Store – Developer View

Combination of Apps on PLCnext Control

App 1:
PLCnext Engineer Project

e.g. Logic, I/O-access and visualization of Pump Application.



App 4: PLCnext Component

e.g. MQTT Agent pushing values to a cloud system for predictive maintenance.

App 3: Linux Daemon

e.g. IXON Secure remote access maintenance tool.

App-Manager

The PLCnext Store for providers

New sales channel – new revenue model

- Software vendors, system integrators or hardware vendors can make their solutions available to a new customer group via the store and sell their know-how as an app.
- New distribution channel for software providers
- Industrial hardware for software vendors
- System compatibility for hardware vendors
- Easy access to a global audience from different industries

Target customer PLCnext Store

Target customer (Solution App)

- User who wants to parametrize instead of programming
- Interested in a fast solution building
- Pre defined application
- Application that can be multiplied

Target customer (Engineering App)

- Looking for ready to use programming or firmware function
- Interested in a fast solution building
- Advantage of a modular system

Potential app contributor

- Start-Ups with innovative solution
- Partner as certified app developer
- Technology vendor who wants to port their software to PLCnext Technology
- Phoenix Contact with industry specific solutions
- Phoenix Contact with PLCnext Technology adapted components (like Java, Python, etc.)
- Other companies as contributor with their own solution or technologies as an app

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Der PLCnext Store as Plattform

Goals and expectations

- The Store serves as a central point of contact for software related to PLCnext Technology (shop window of possibilities).
- Customers use the store as a source for software related to PLCnext Technology
- PxC and 3rd party contributors use the store as a new distribution channel to sell apps.
- The store serves as a presentation area for contributors, a demo app is only a means to an end to present software for PLCnext Technology (Enabler for project business!).
- The Apps represent the solution competencies of the VMM's (Solution Apps), these Apps can be fee required, but are only a means to an end to enable project business.

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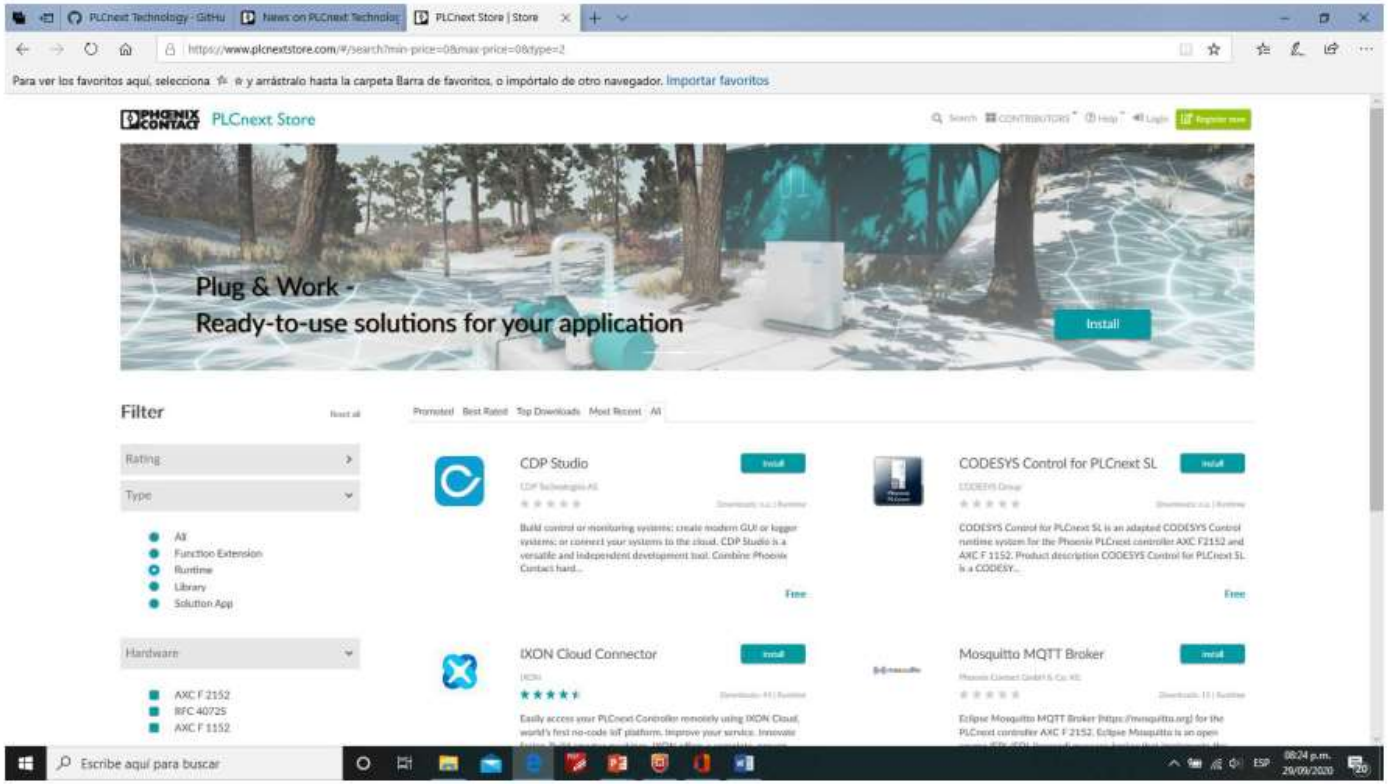

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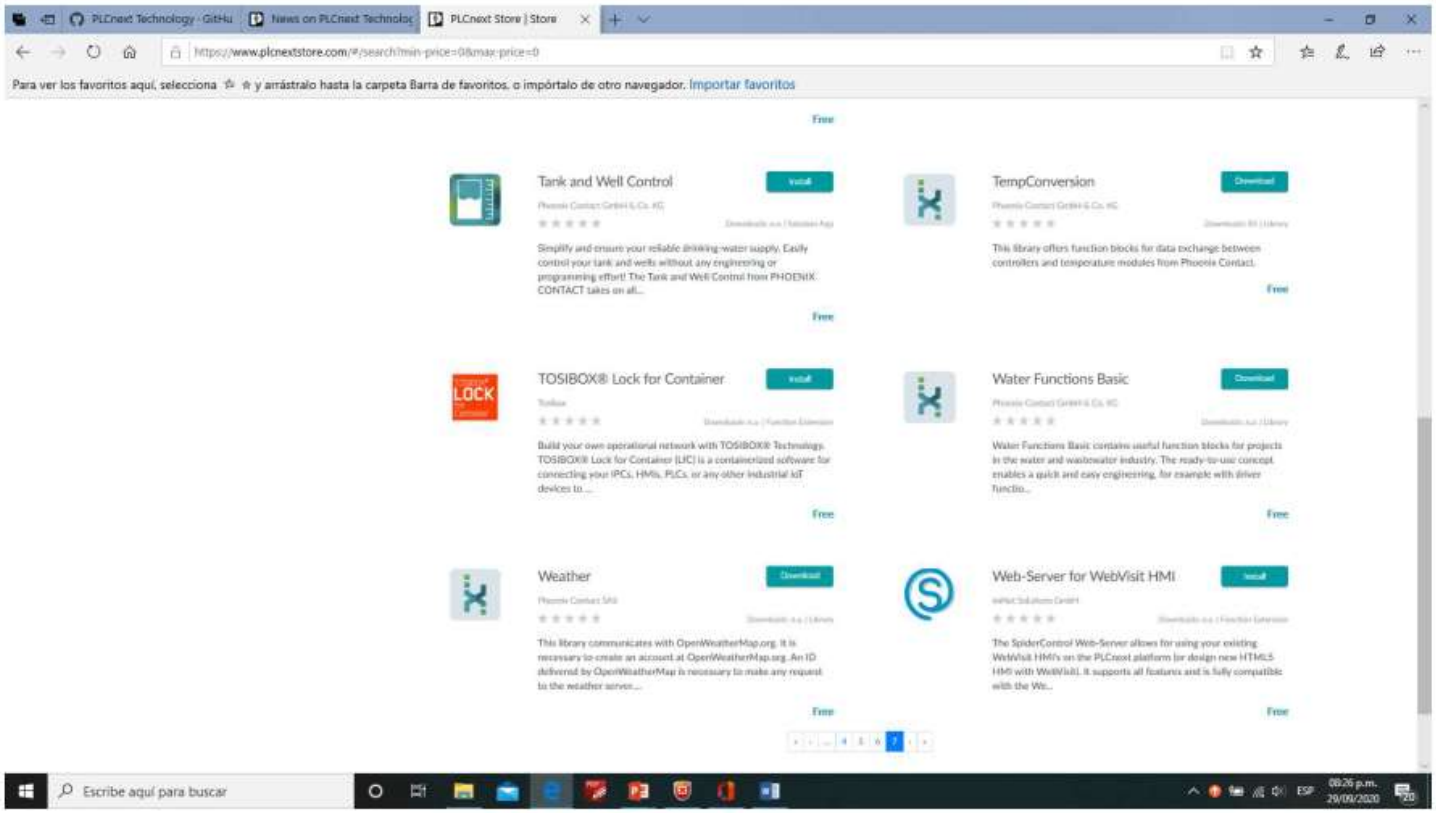

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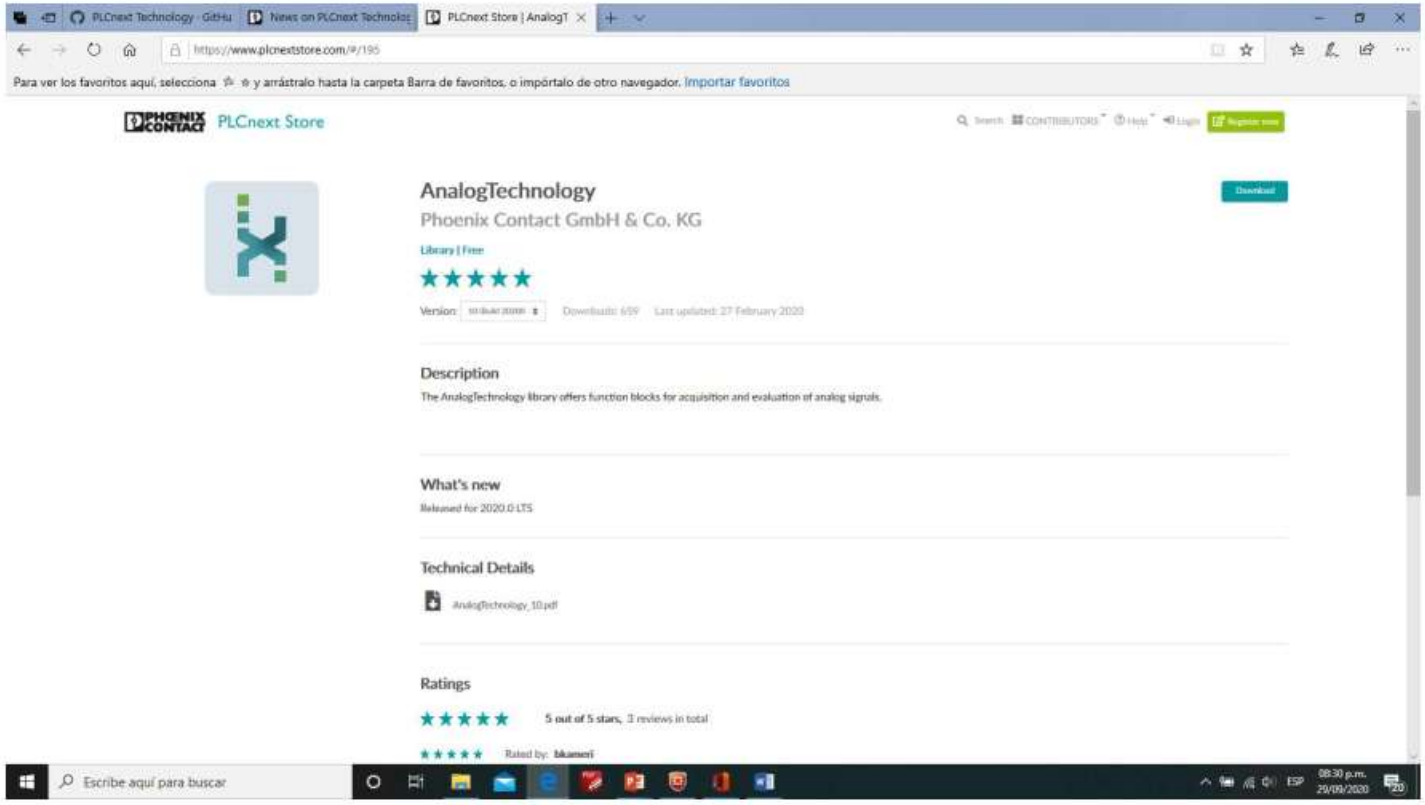

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Function block library

AnalogTechnology_10

for PLCnext Engineer

Documentation for
PHOENIX CONTACT function blocks
PHOENIX CONTACT GmbH Co. KG
Flachsmarktstrasse 8
D-32825 Blomberg, Germany

This documentation is available in English only.

3 Change notes

Library version	Library build	PLCnext Engineer version	Change notes	Supported PLCs
10	20200206	>= 2020.0 LTS	Released for 2020.0 LTS	AXC F 1152 (1151412) AXC F 2152 (2404267)
10	20191001	2019.0 LTS 2019.3 2019.6 2019.9	Adapted to 2019.9	AXC F 2152 (2404267)
9	20190920	2019.0 LTS 2019.3 2019.6	AnalogTechnology_9: • Restricted visible function block	AXC F 2152 (2404267)
9	20190828	2019.0 LTS 2019.3 2019.6	AnalogTechnology_9: • ANL_AO_NORM_3: Bug fix for iModuleType = 7	AXC F 2152 (2404267)

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4 Function blocks

Function block	Description	Version	Supported articles	License
ANL_AI_NORM	Standardization of analog input values for analog modules.	3	IBS RT 24 AIO 4/2-T (?) IBS RT 24 AI 8-T (2723194) IB IL AI 2/SF (2726285) IB ST 24 AI 4/SF-WT (2752534) IB ST 24 BAI 8/I (2721028) IB ST 24 BAI 8/U (2721015) IB ST ZF 24 AI 4/BP (2724737) IB ST ZF 24 AI 4/I (2721264) IB ST ZF 24 AI 4/SF (2750620) IB ST ZF 24 AI 4/SF4 (2750594) IB ST ZF 24 BAI 2/BP (2724957) IB ST ZF 24 BAI 2/SF (2723958) AXL F AI2 AO2 1H (2702072) AXL F AI2 AO2 XC 1H (1035429) AXL F AI4 I 1H (2688491) AXL F AI4 I XC 1H (2702007) AXL F AI4 U 1H (2688501) AXL F AI4 U XC 1H (2702008) AXL F AI8 1F (2688064) AXL F AI8 XC 1F (2701232) AXL F AI8 W 1F (2702525)	none

5 ANL_AI_NORM

The ANL_AI_NORM fubction block cyclically converts the analog values of the Phoenix Contact analog modules in a measuring range preset by the user (rLoLim to rHiLim).

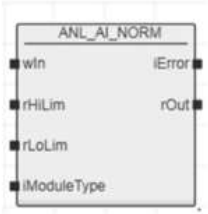
Caution: The function block does not support 16-bit representation of hardware error messages (iModuleType = 3, 6, 7).

The function block is not responsible for hardware error messages (module) or for parameterizing the module.

Example

- Measuring range : 0 V to 10 V (unipolar)
- Parameterized rLoLim : 2000
- Parameterized rHiLim : 4000
- Applied analog value at
  - wIn ->Output at rOUT
  - 0 V -> 2000
  - 5 V -> 3000
  - 10 V -> 4000

5.1 Function block call



5.2 Input parameters

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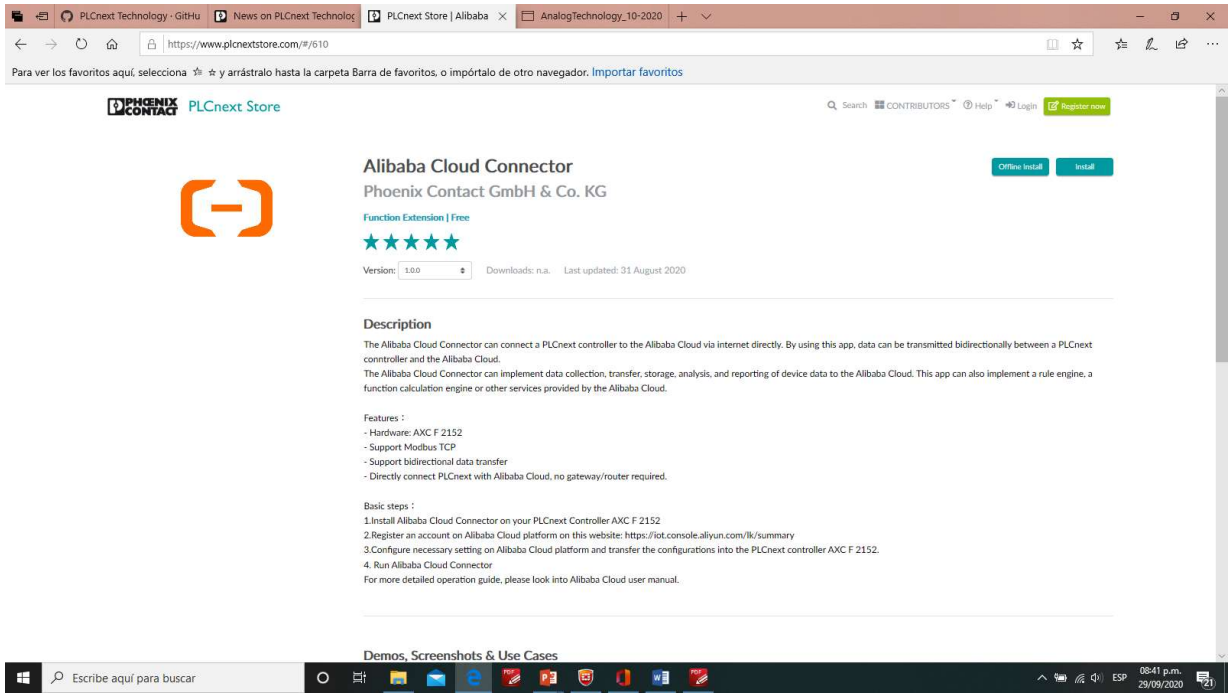

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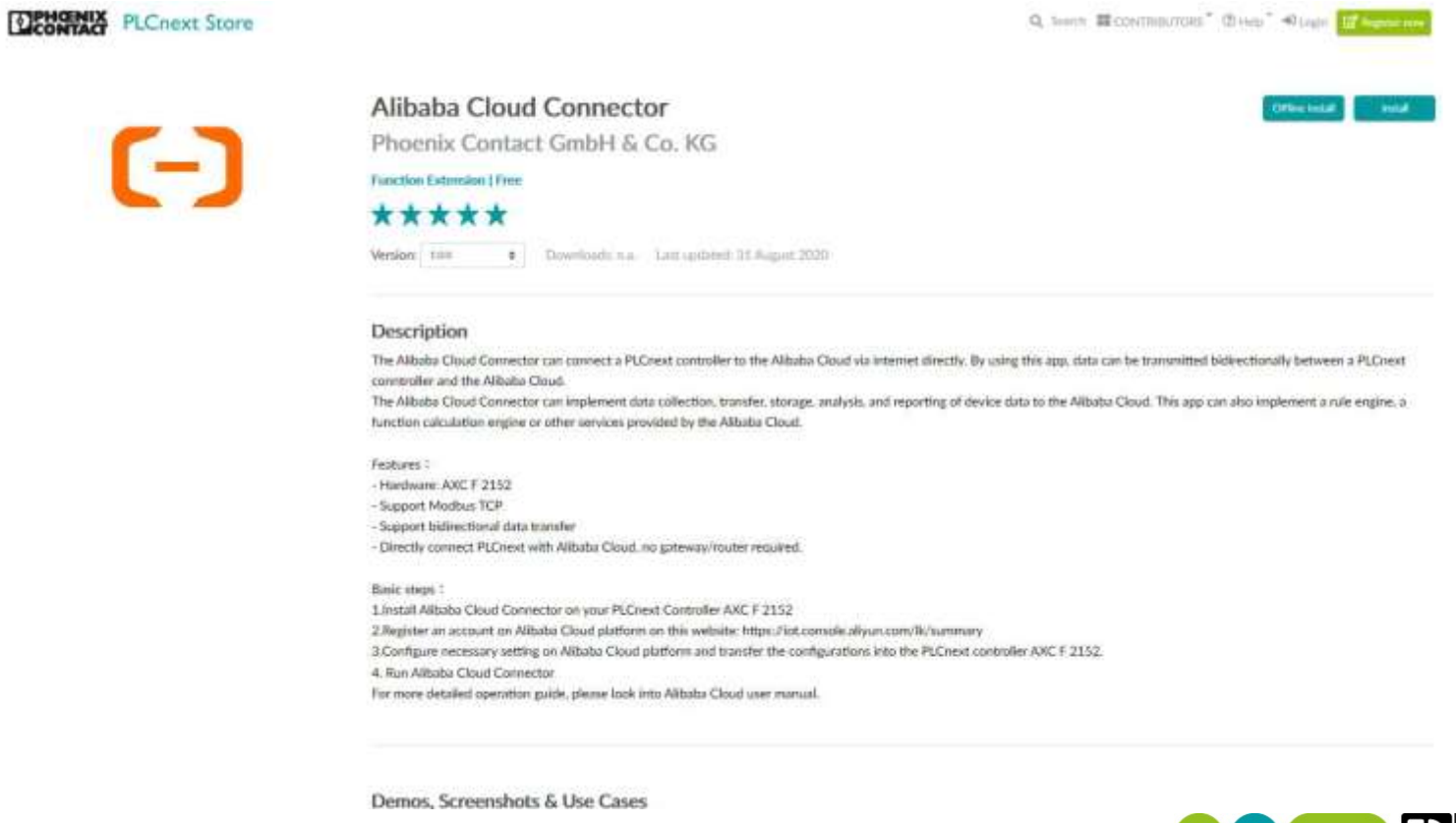

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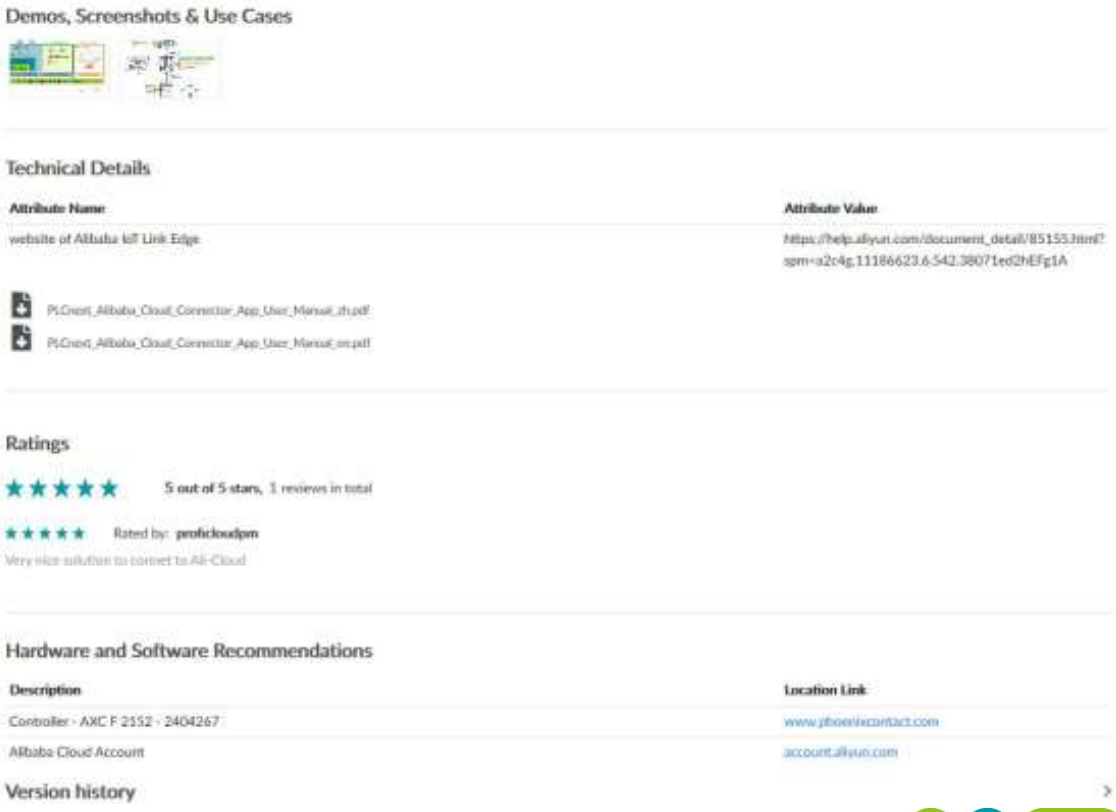

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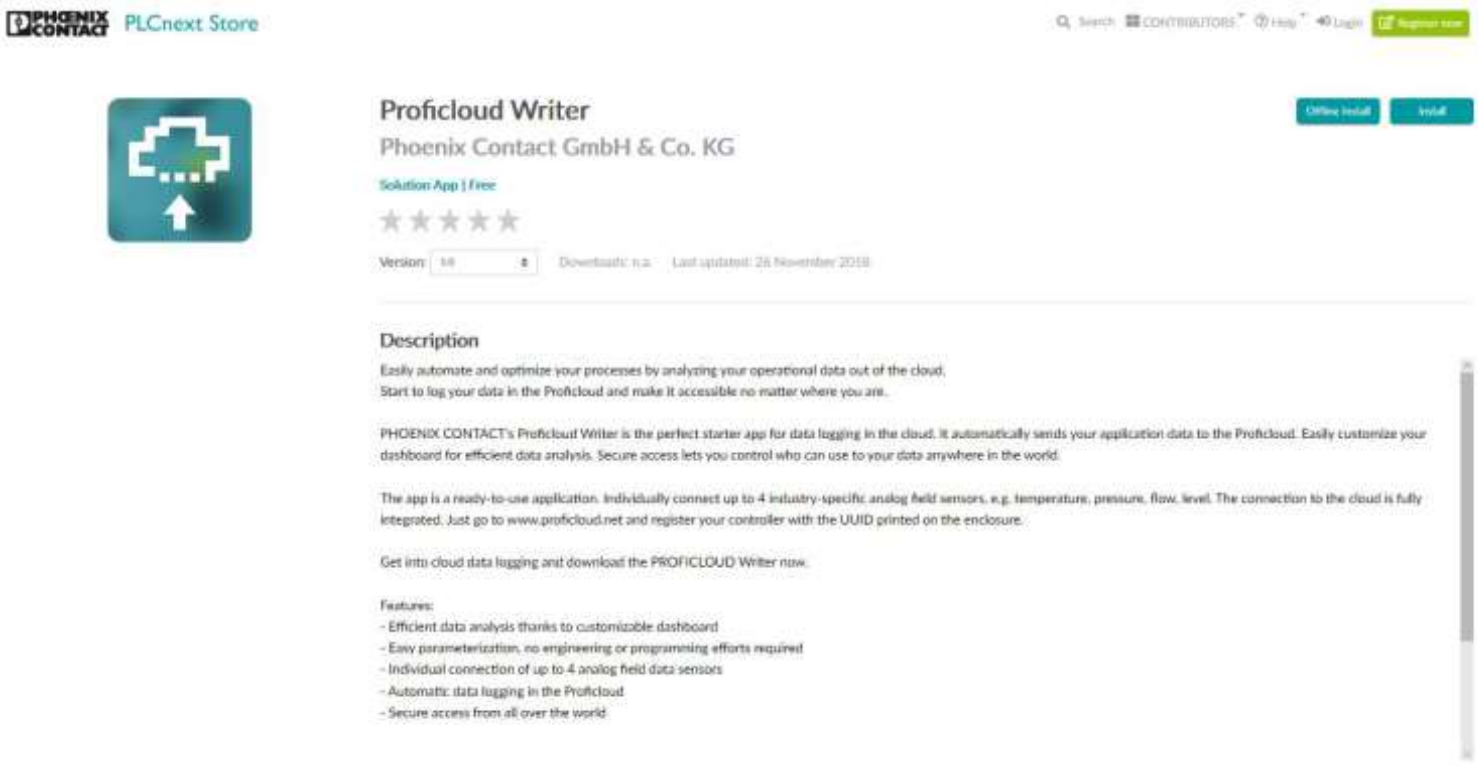

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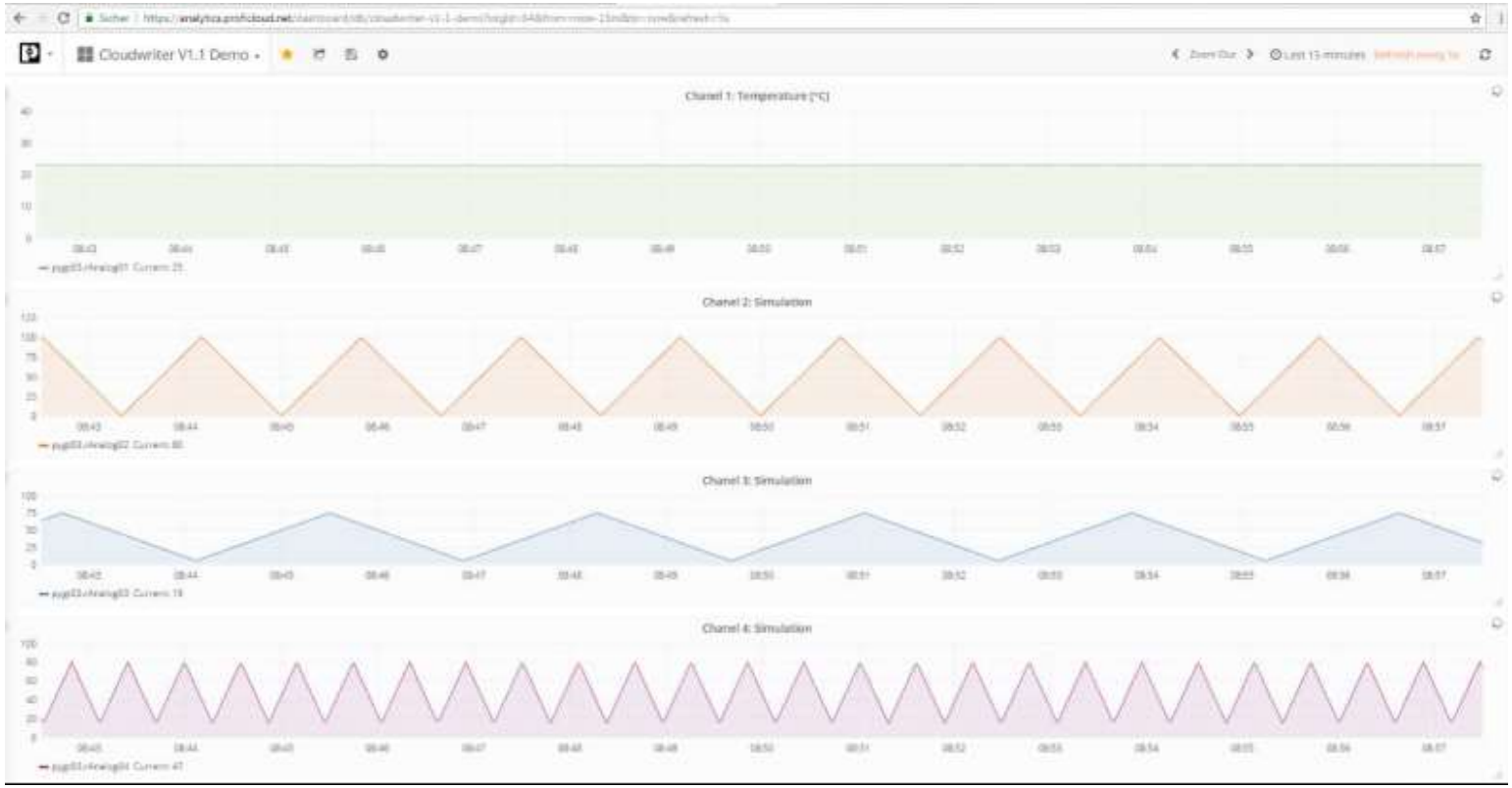

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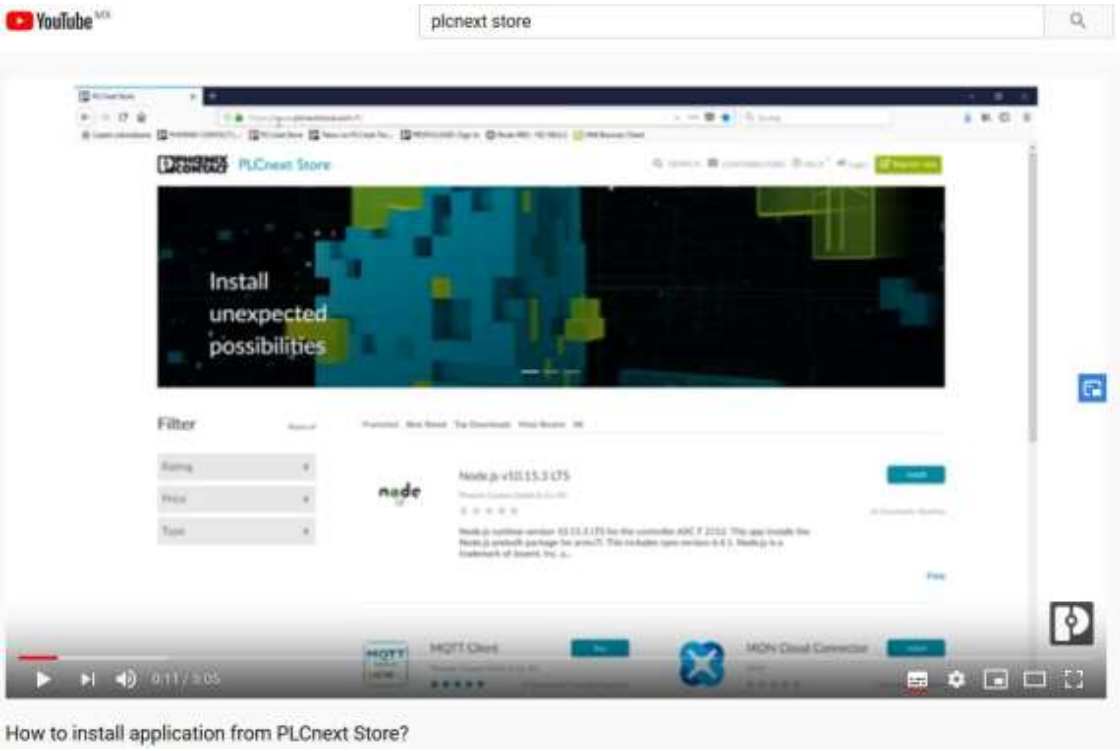

Link
How to install application from PLCnext Store

PLCnext Store

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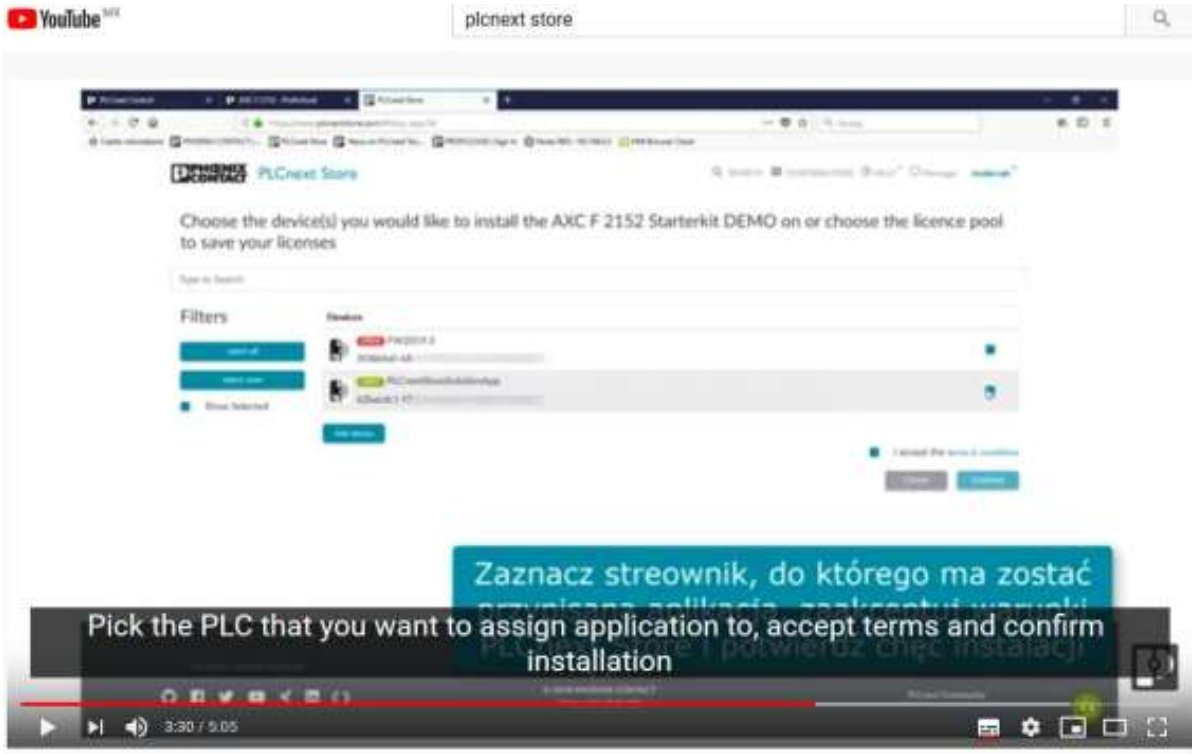

How to install application from PLCnext Store?

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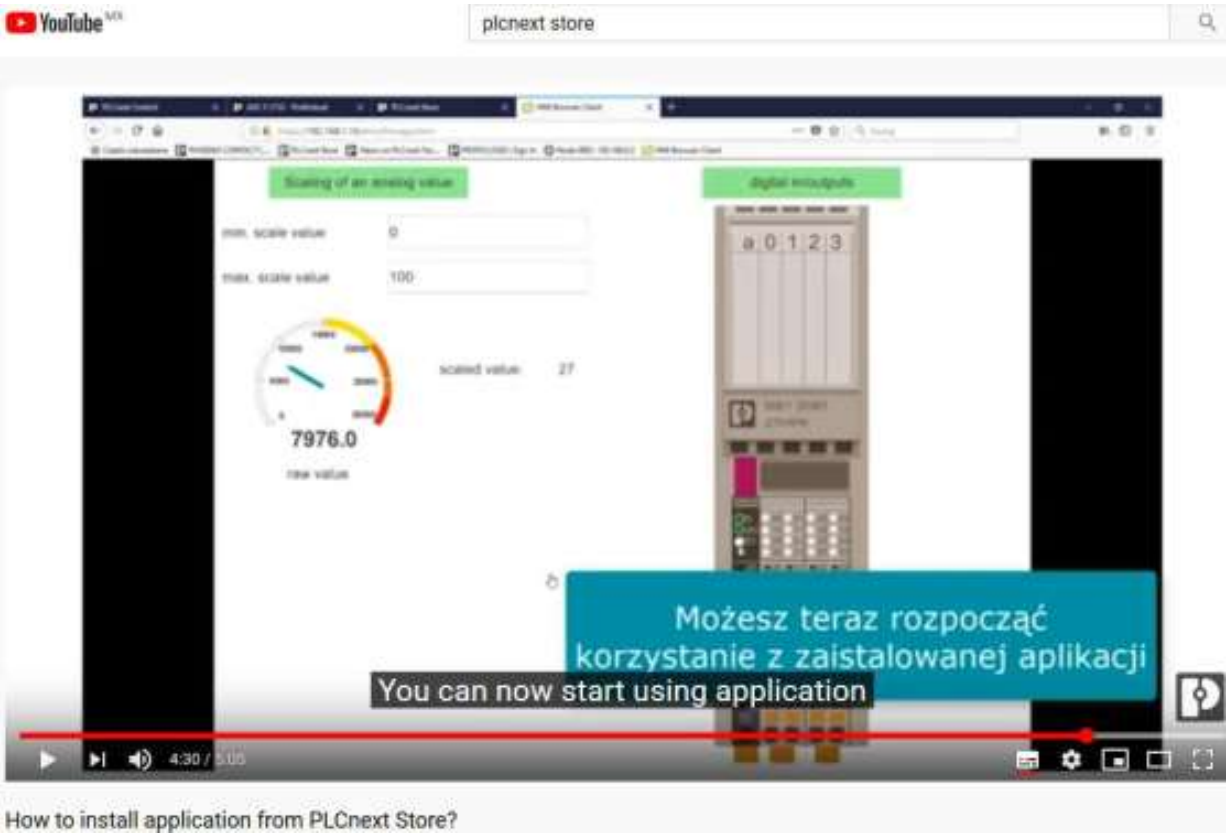

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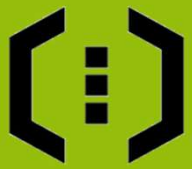
Designed by PHOENIX CONTACT

Das Ecosystem für grenzenlose Automatisierung

PLCnext Technology
enhance your automation thinking

PLCnext Control	PLCnext Engineer	PLCnext Store	PLCnext Community
			
Open Control Platform PLCs in various performance classes including PLCnext Runtime System and accessories for PLCnext Technology	**Engineering Software** Engineering tool for commissioning, configuring, and programming PLCnext Controls	**Software Store for Automation** Apps for functional extension of PLCnext Control and PLCnext Engineer	**User Collaboration & Resources** Information, support, and helpful resources about PLCnext Technology including FAQs, forums, tutorials and a GitHub presence

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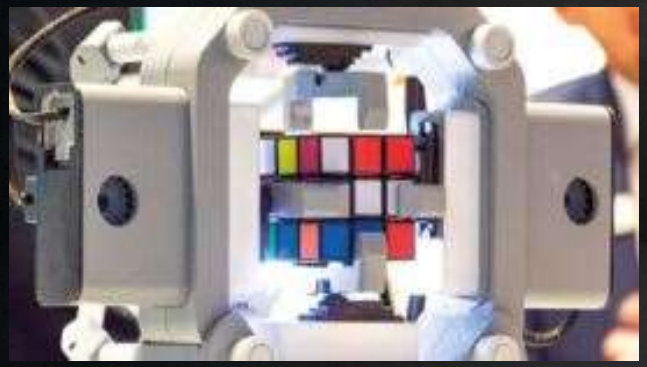
Special area on the Hanover Fair 2019

Experience the Open Source Community live

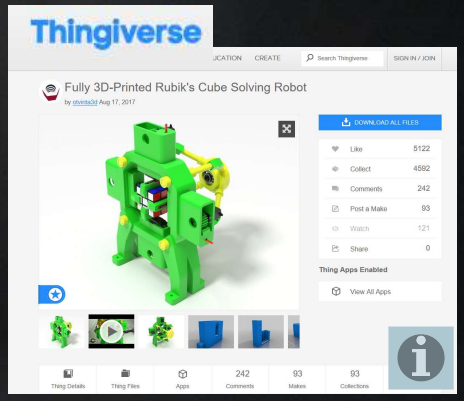


More and more people are networking in online communities. A community is a space used by users for exchanging information or gathering information about products and specialist topics, for example.
With PLCnext Technology, Phoenix Contact offers an open ecosystem whose range of products and software for the first time includes a growing user community. Not least due to the possibility of integrating open source software into automation, common platforms in the IT sector are also becoming interesting for the automation industry. The Rubik´s Cube exhibit is an example of an application that has grown out of a community.

Experience the spirit of the makers scene and get involved:

Join and get involved: The Rubik´s Cube Demo

- The Rubik´s Cube Solver is an example for a community project. The project was published on the platform **Thingiverse**. Thingiverse is a community for discovering, making and sharing 3D printable things.All parts for this demo can be downloaded as 3D print templates. Furthermore the code for the automation via Rasp PI is available here.
- The PLCnext team transferred the Raspberry PI project to a PLCnext Control AXC F 2152. The components were printed in 3D by the Phoenix Contact Company PROTIQ.
- With the help of an OpenCV library (Open Source Software) the images of the cube pages are analyzed with a simple IP camera. An application program consisting of C++ code and IEC 61131 then brings the servo motors into the correct position. The demo shows that with the PLCnext Control we are now able to run software packages in the PLC that were previously only intended for execution on an operating system.



PLCNEXT COMMUNITY

Join and get involved: www.plcnext-community.net

Watch a tutorial on our YouTube Technical Support Channel:
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Find open source code and start an exciting new project: www.github.com/plcnext

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