

PLCnext Store

install unexpected possibilities

PLCnext Technology 
Designed by PHOENIX CONTACT

www.plcnextstore.com

 **PHOENIX
CONTACT**

PLCnext Technology

The reliability and robustness
of the classical PLC world



enhances

with the openness and flexibility
of Smart Devices.



PLCnext Technology[®]

Designed by PHOENIX CONTACT



enhanced development

Connected coworking



enhanced connectivity

Open interfaces and cloud integration



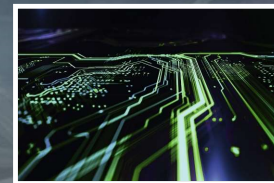
enhanced convenience

Using your favorite programming tool



enhanced freedom

Flexible integration of open source software and apps



enhanced performance

Real-time execution across different programming languages



enhanced freedom

Flexible integration of
open source software and apps

PLCnext Store

PLCnext Technology 
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PLCnext Technology[®]

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PLCnext Control



PLCnext Engineer



PLCnext Store



PLCnext Community

The open ecosystem for limitless automation

PLCnext Technology



The PLCnext Store is the digital Marketplace for all Software around PLCnext Technology



**PHOENIX
CONTACT**



Automation ecosystem

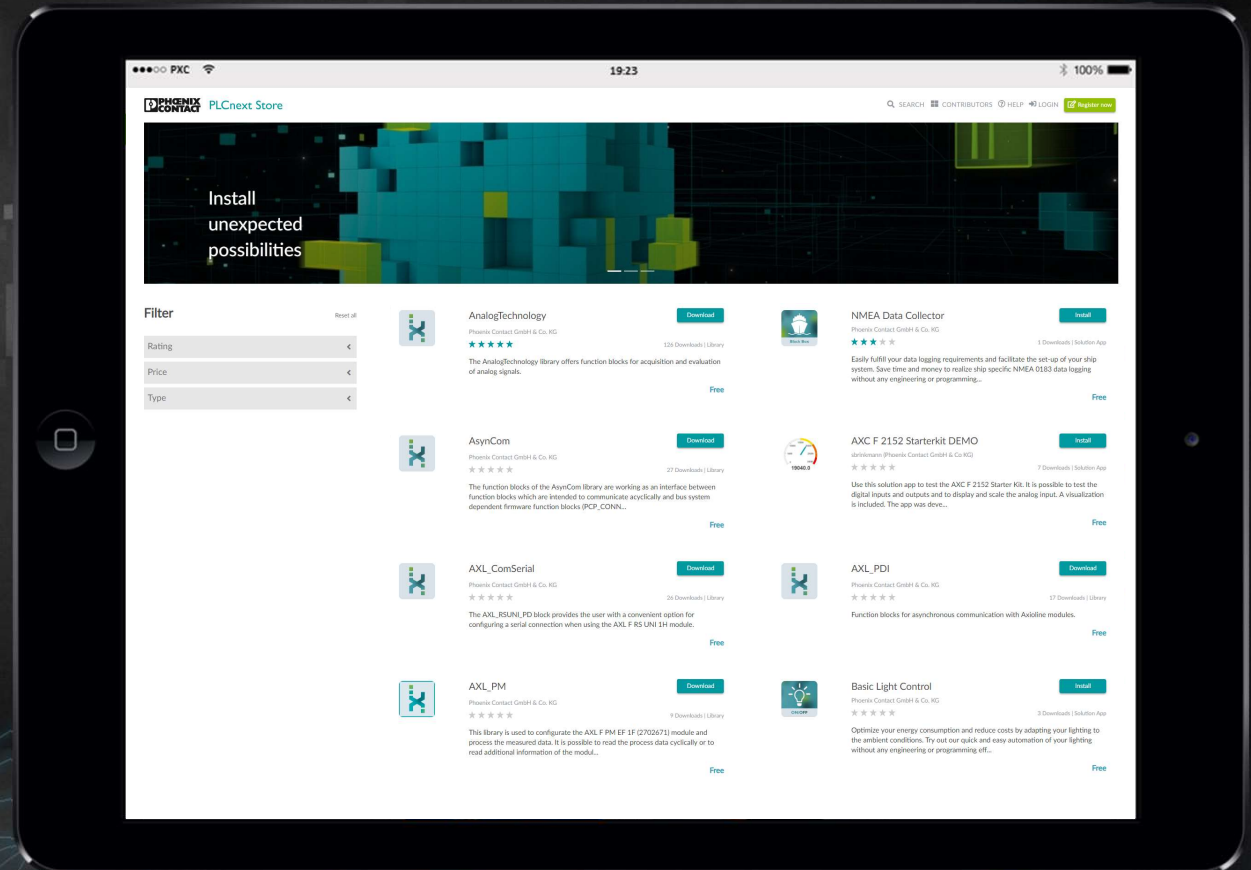
- Open ecosystem for the distribution of Apps for PLCnext Control
- Flexible integration of Open Source software and Apps

World of Applications

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

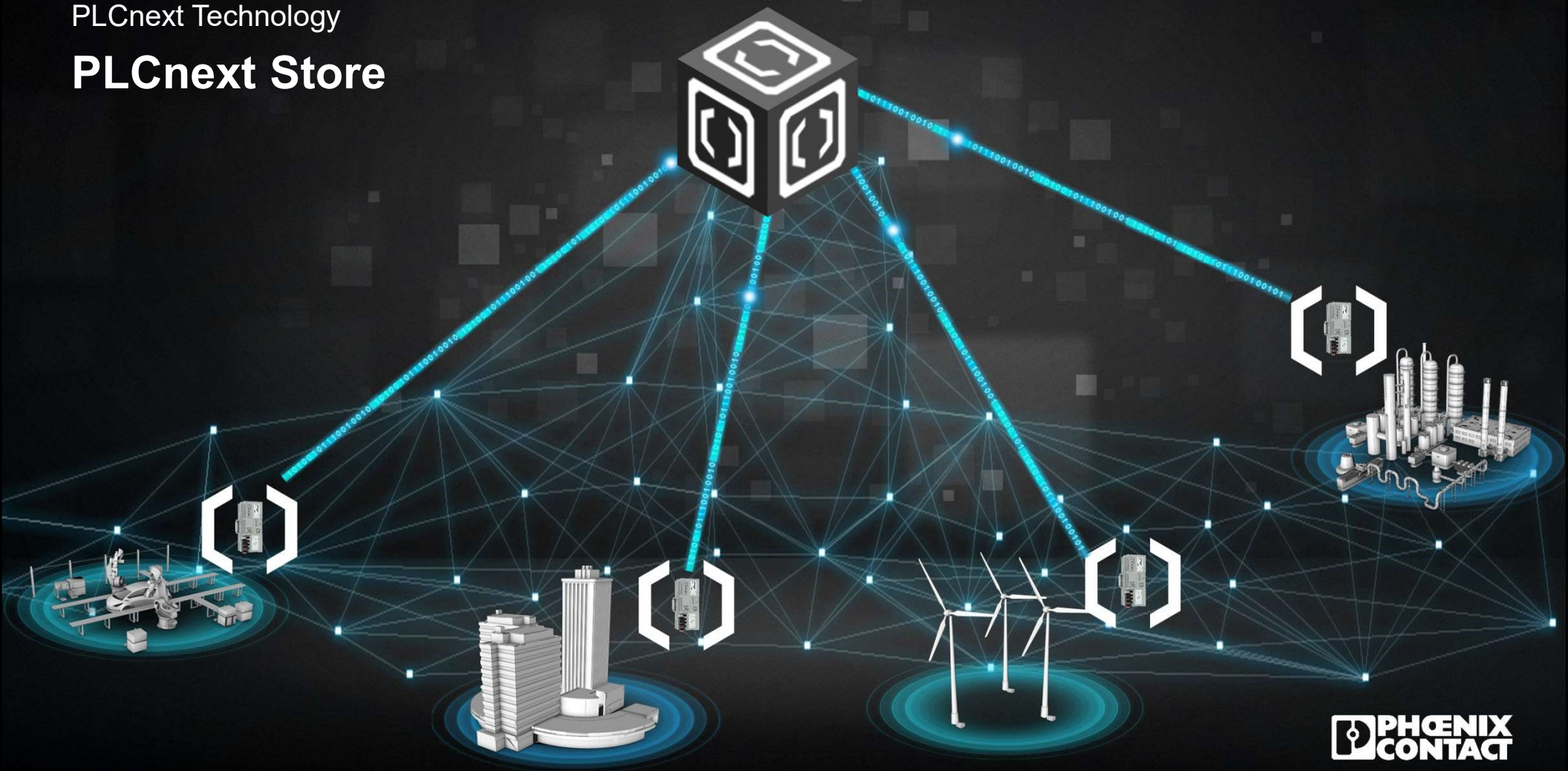
Faster solution building

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



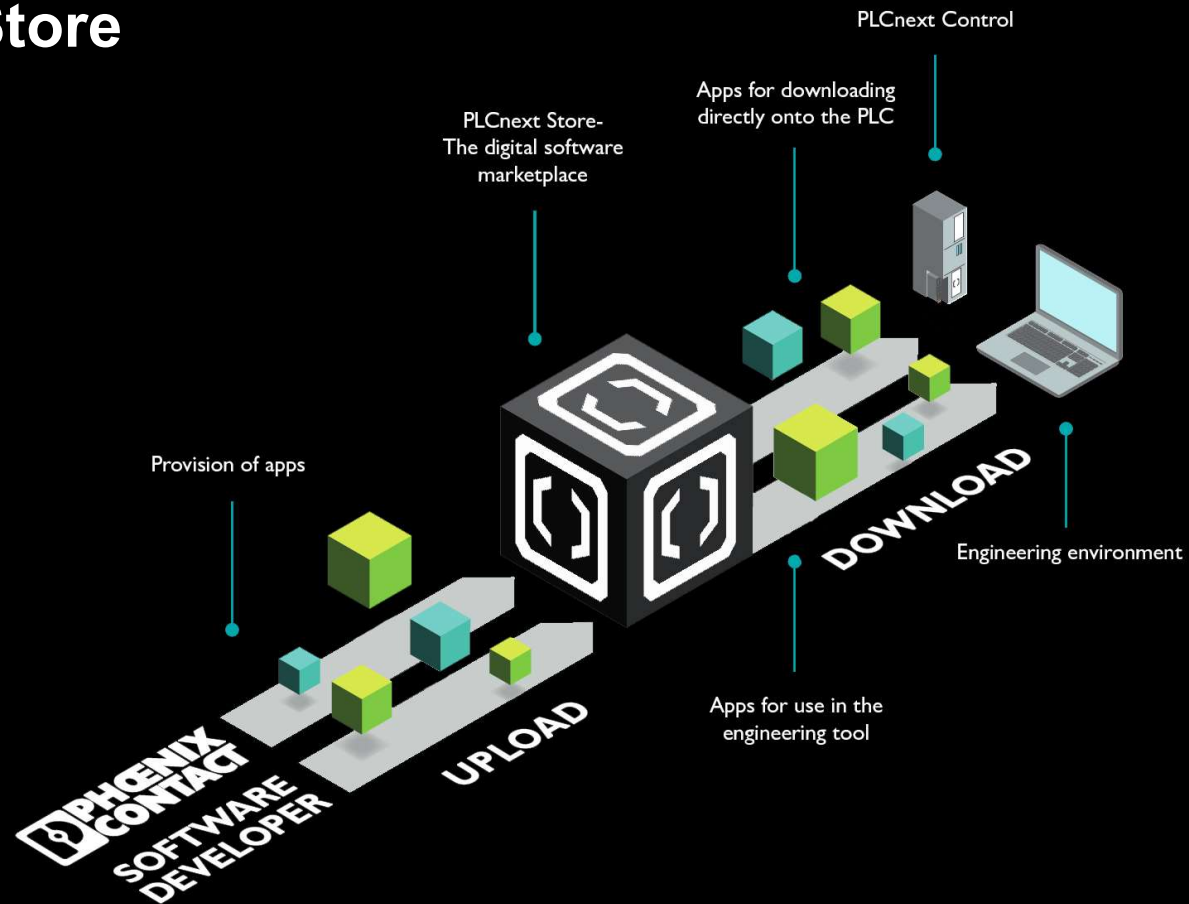
PLCnext Technology

PLCnext Store



Digital marketplace for software

PLCnext Store







What's an App?

An App is a software package in the PLCnext Technology context

- **First App Categories**
 - Solution, Library, Runtimes, Function Extensions
- **Possible Future App Types/ Categories**
 - Cloud Connector, Automation Modules, C++ Libraries

Comparison of different App-Content

4 App Types with more than 96 different Apps available

	Solution App	PLCnext Engineer 61131 Libraries	Runtime	Function Extension
Description	Automation solution consisting of different components with Webpages for parametrization	Function as a Part of an PLC Program	Runtime or Framework for further Programming tools/ Languages	Combinable Apps to create a solution.
Users Skill Level				
Example	Tank and 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
Info	Ready to use, without programming	PLCnext Engineer needed	Ready to use for programming	Engineering needed

Slide 12

FW3 zwei Zeilen mit "Description"
Friedrich Wegener, 12/08/2020

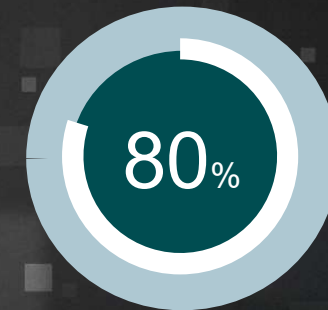
BH [2]2 geändert
Benjamin Homuth, 12/08/2020

PLCnext Store

Pricing /License model

- Wibu License mechanism
- The contributor defines the price of an App
- Payment provider Novalnet
- 20% Transaction Fee
- 80% for the contributor
- Single License per Device
 - Further License Models are possible...

Simple Price Model



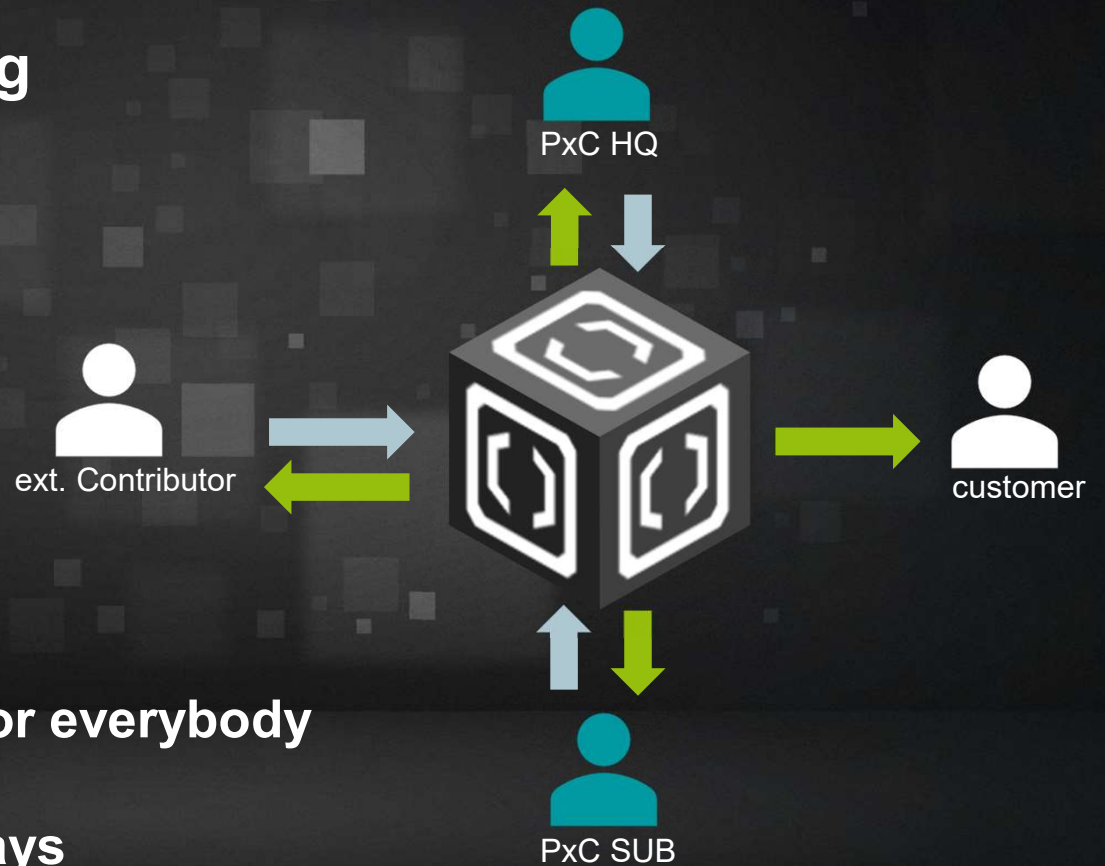
Contributor

20% Transaction Fee

Phoenix Contact

PLCnext Store

Contribution and Purchasing



free apps = free for everybody

chargeable apps = chargeable for everybody

app creator gets the sales - always

PLCnext Engineering (Library)

Option 1: IEC 61131 FU/FBs

Functions and Function Blocks purely written in IEC 61131 language

1

2

Option 2: C++ PROGRAM

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

3

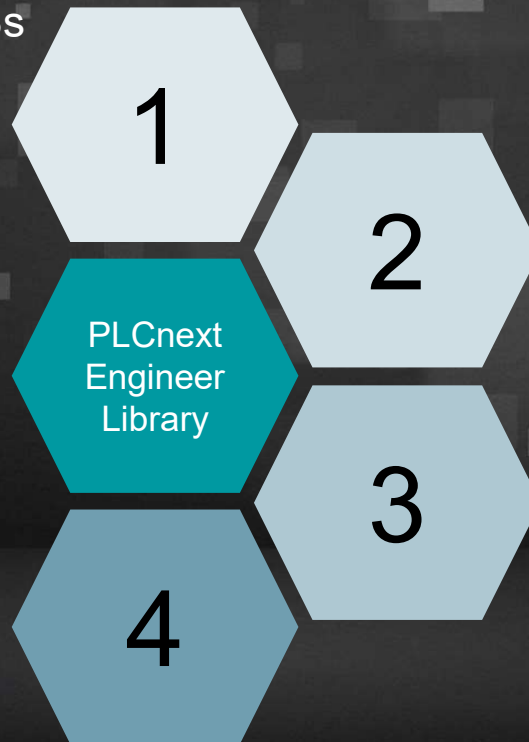
Option 3: Simulink PROGRAM

Simulink Model programmed with PC WORX Target for Simulink

4

Option 4: C# FU/FBs

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



PLCnext Function Extension/ Runtime

Option 6: Command Line Tool

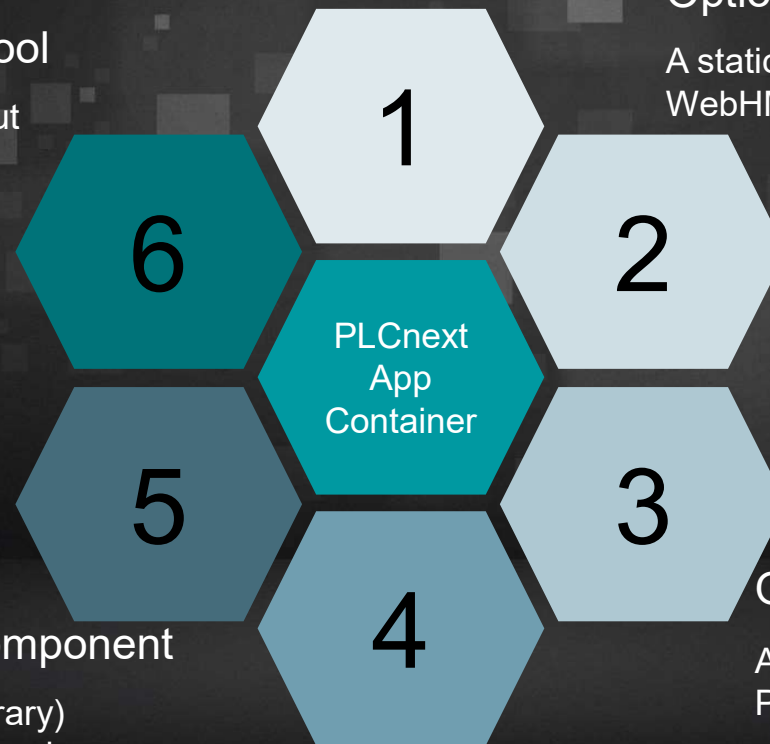
A command line tool with or without usage of PLCnext services.

Option 5: Shared Library

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

Option 4: PLCnext User Component

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



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)

Solution App on PLCnext Control

1: PLCnext Engineer Project

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

1

PLCnext
App
Container

5: PLCnext Function Extension

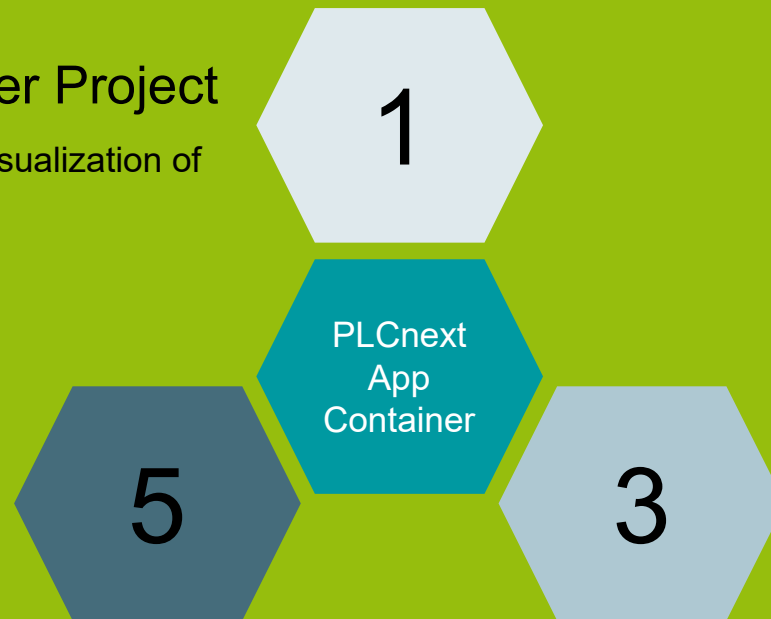
e.g. MQTT Agent pushing values to a cloud system for predictive maintenance.

5

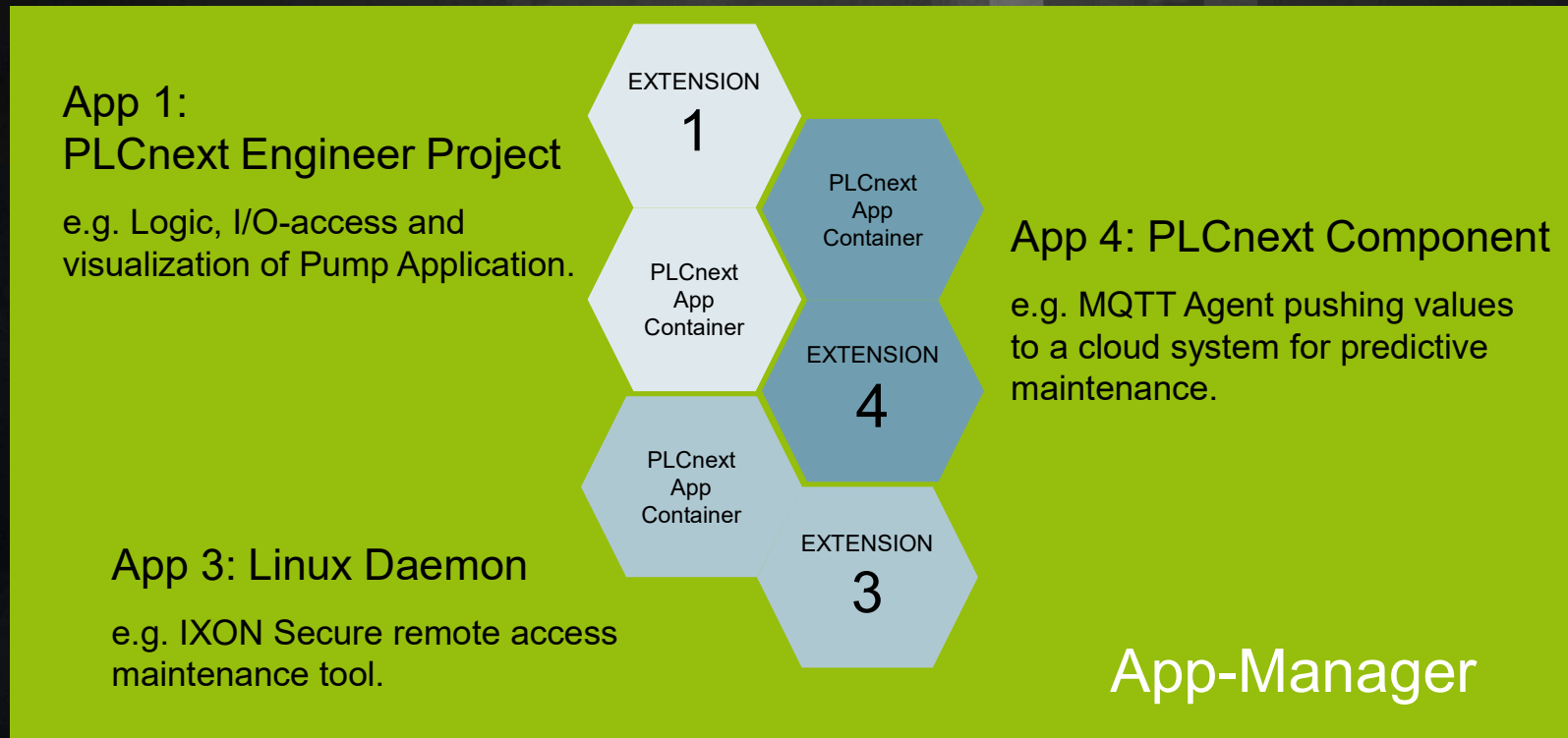
3

3: Linux Daemon

e.g. IXON Secure remote access maintenance tool.



Combination of Apps on PLCnext Control



The PLCnext Store for Users

New Possibilities – Faster to the finished application

- Trading platform for industrial automation - limitless possibilities
- Central, cataloged software store for the PLCnext Control family
- Faster to the finished application / accelerated development
- Convenient access to new possibilities and innovative software functions
- Evaluation and commenting system makes customer experiences transparent
- Easy access also to special software
- Possibility of adaption and customization

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

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.

FAQs

- Who will support the third-party apps?
- Is there a quality gate for apps?
- How should an app get to a controller if it doesn't have a connection to the Internet?
- How can a customer manage their own apps?
- Is there a centralized way/app organizational unit?
- Should there be the possibility of a Save & Restore possibility in the store. For customers and suppliers?
- What are the details of the licensing mechanism?
- Was the control change taken into consideration by the customer?
- Will there be device and patch management for apps? So, bsp. an update from the Store?
- Is Dependency management for apps supported directly by the Store?



Description of application

Open self-scaling ecosystem for the distribution of Apps for PLCnext Controls

Differentiating characteristics to the competitor

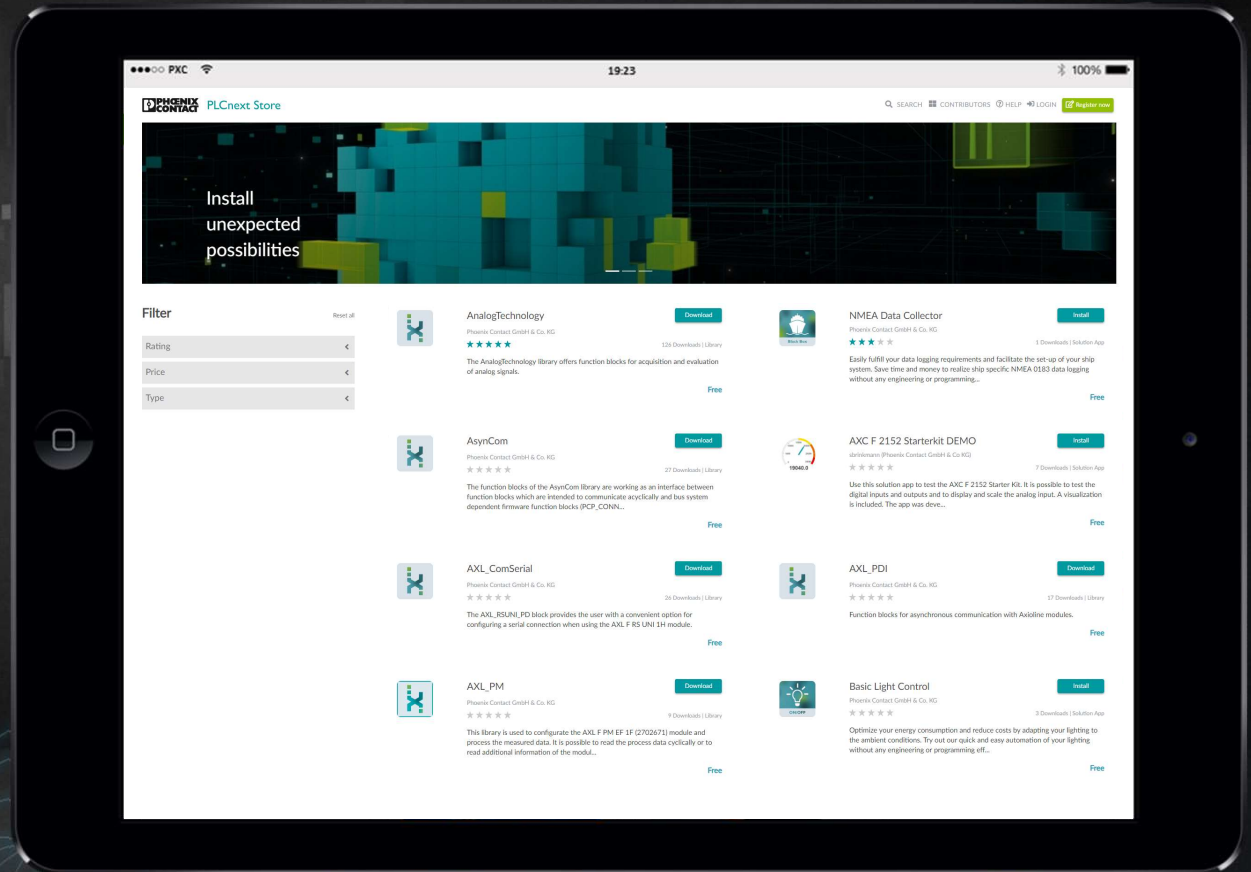
no real competitor

Resulting customer benefit

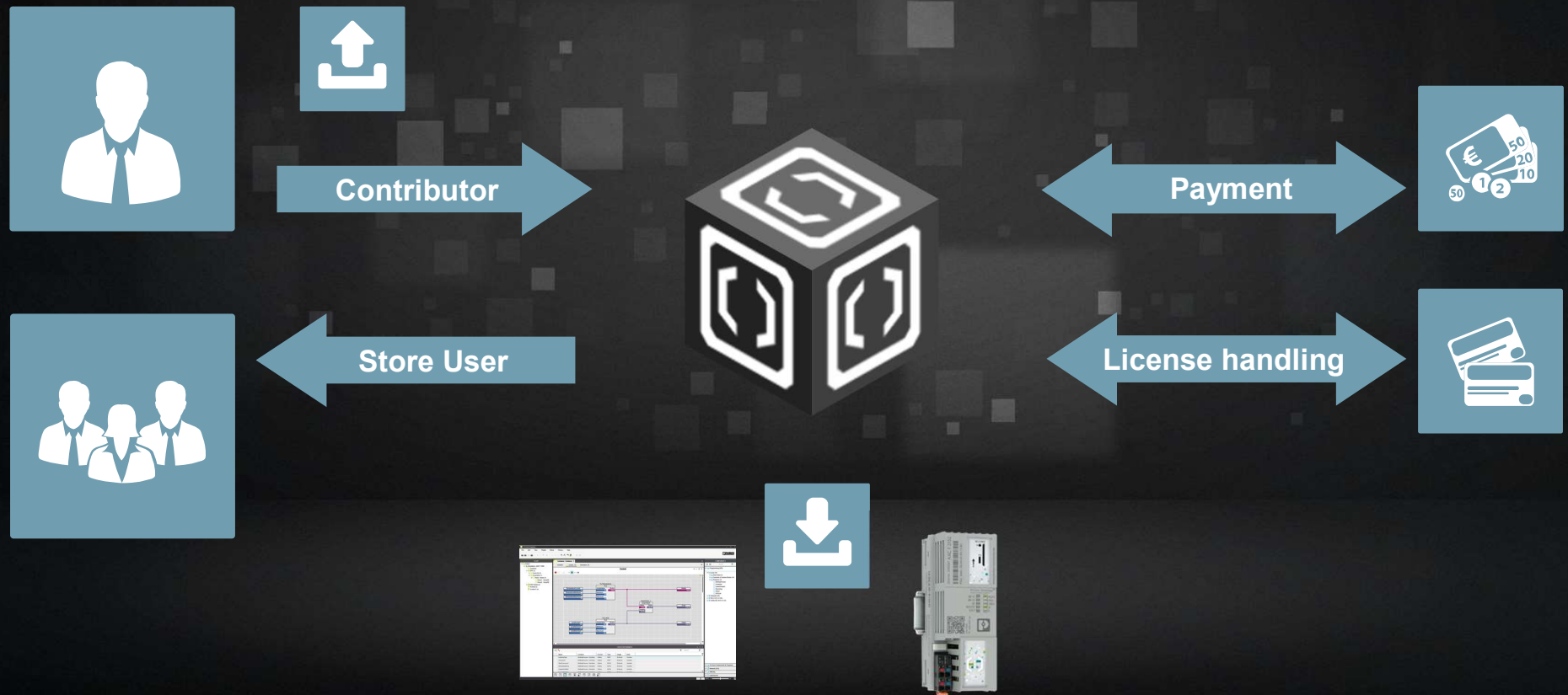
faster solution building with pre configured apps

Core message

Phoenix Contact offers an open solution platform for futureproof automation



Overview PLCnext Store + PLCnext Apps



License Purchase Options

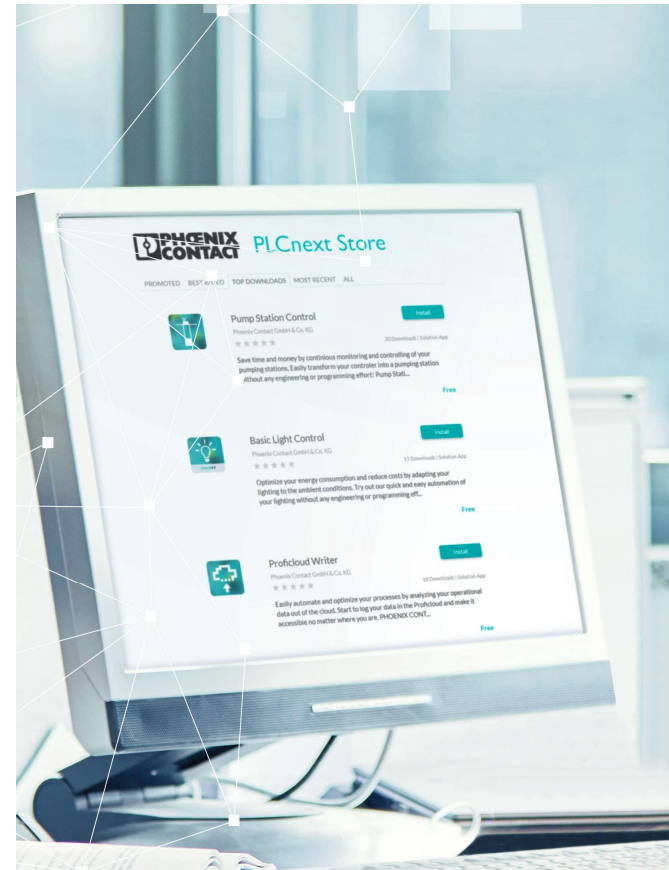
	Customer based in EU member state	Customer NOT based in EU member state
Chargeable Phoenix Contact App (License required)	Direct Payment License Ticket Distribution via SAP	License Ticket Distribution via ERP
Chargeable Third Party App (License required)	Direct Payment	Purchase currently not possible in your country
Direct Payment: Purchase of a license directly in the Store via the Payment Service Provider (e.g. credit card, giropay,...) License Tickets: Local PxC sales organization provides license tickets via SAP/Baan on customer request; Customer uses ticket IDs to activate licenses		

PLCnext Technology

PLCnext Store

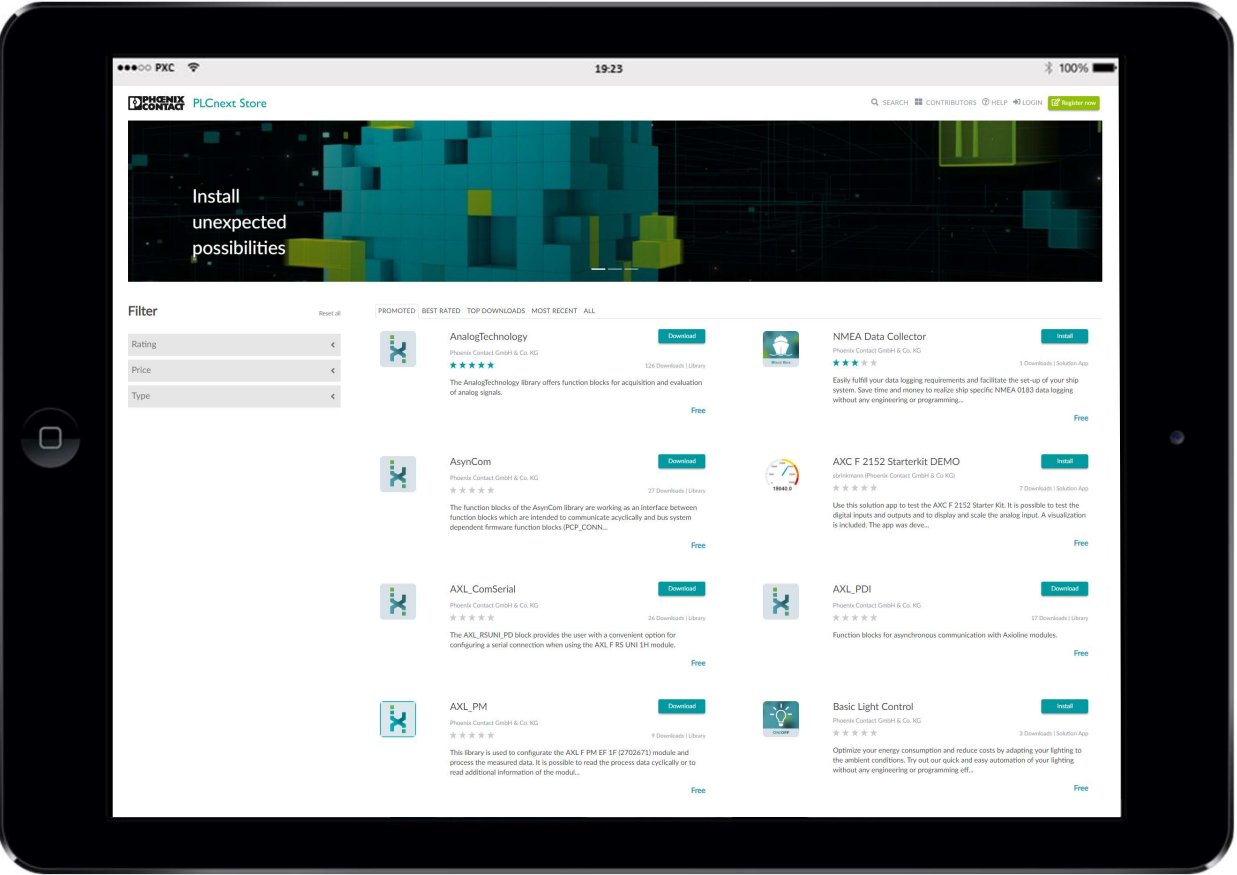


<https://www.plcnextstore.com/#/>



PLCnext Technology

PLCnext Store



1. Register



2. Assign



3. Buy

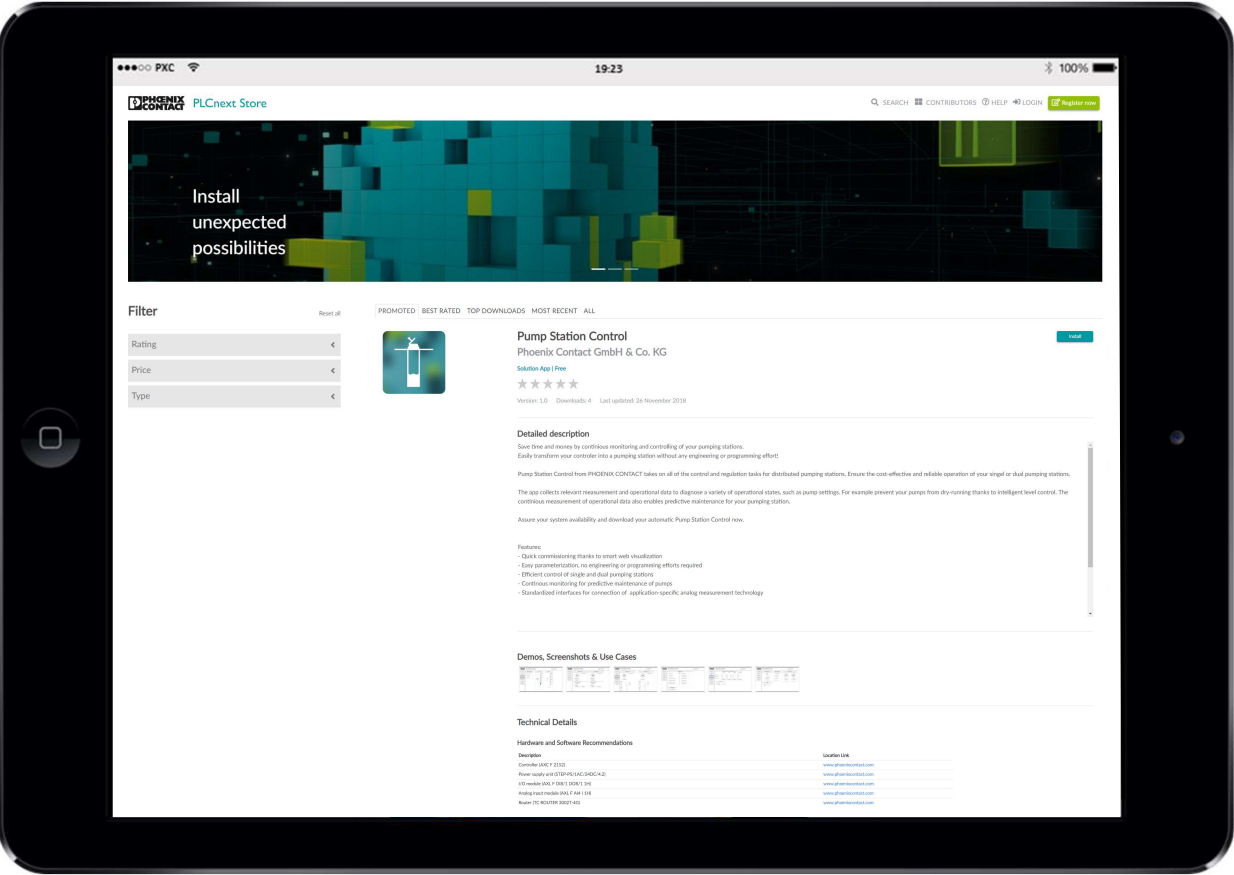


4. Install



PLCnext Technology

PLCnext Store



1. Register



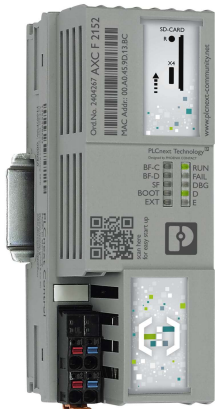
2. Assign



3. Buy

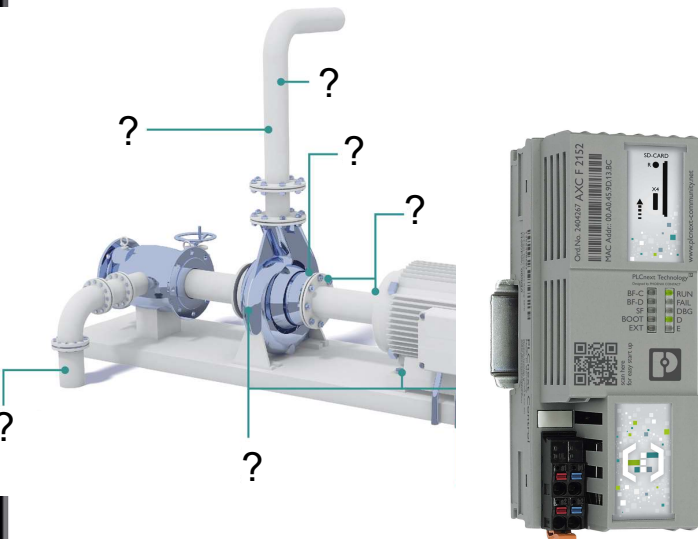
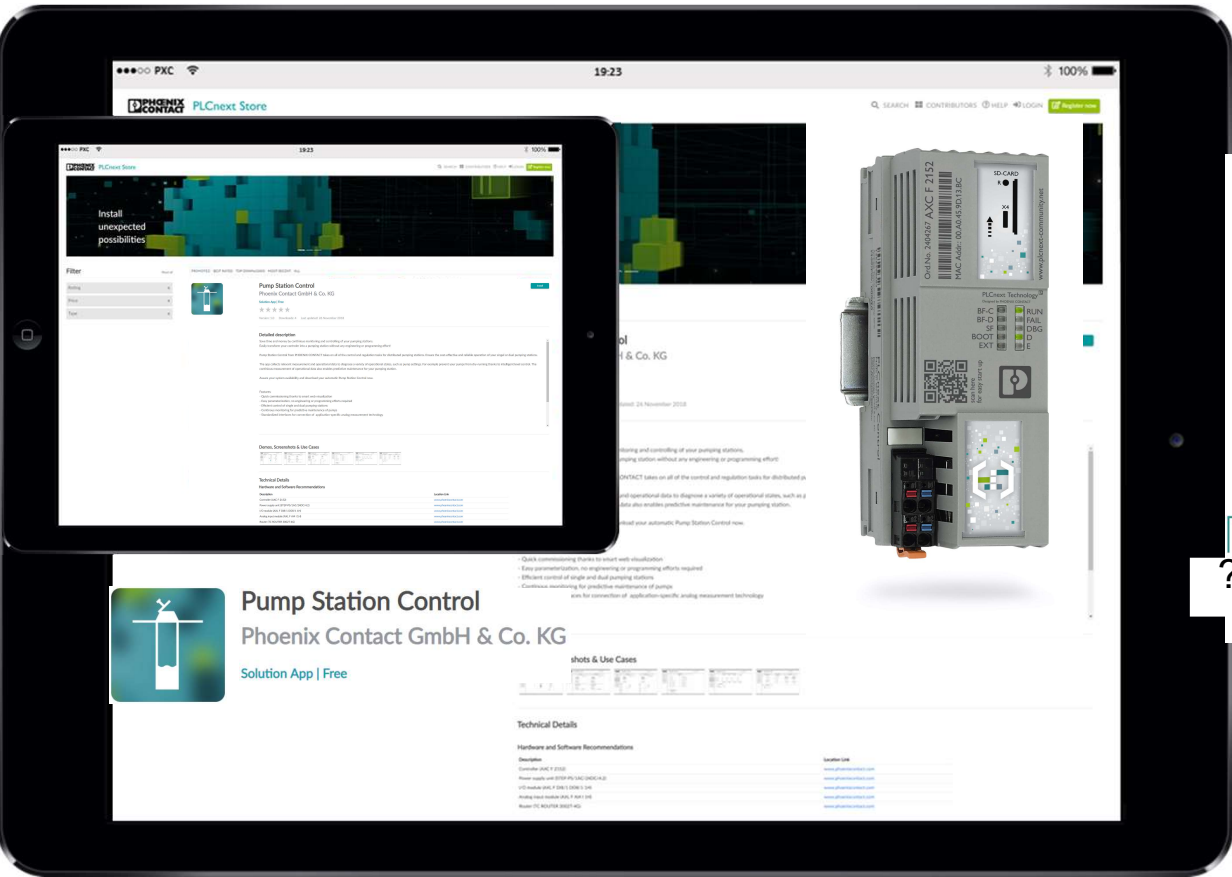


4. Install



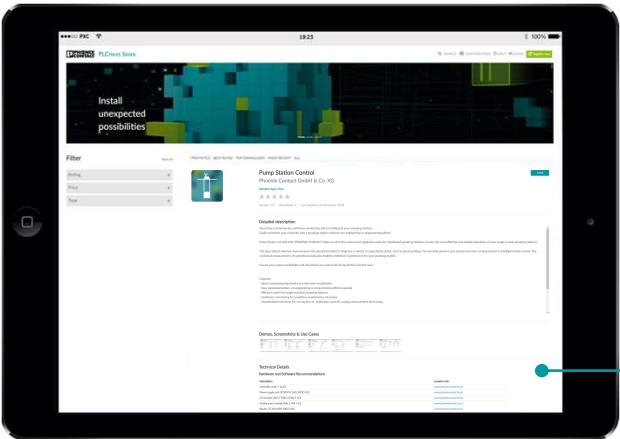
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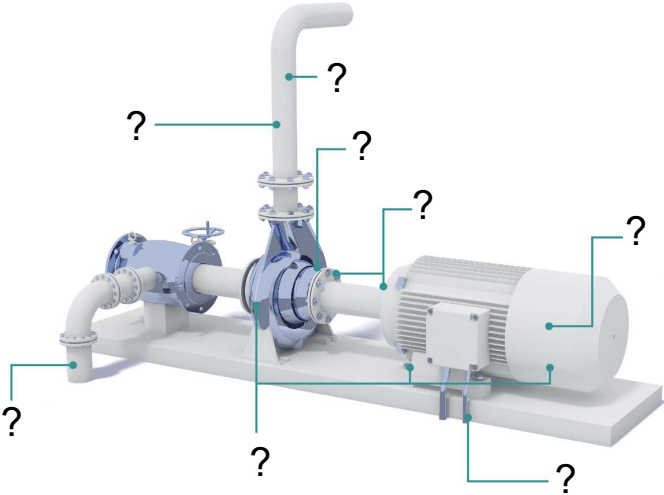
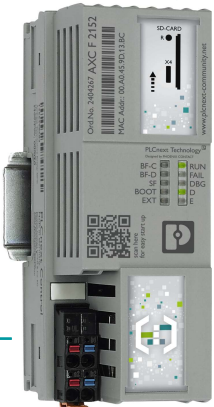
Pump Station Control
Phoenix Contact GmbH & Co. KG
Solution App | Free

Install



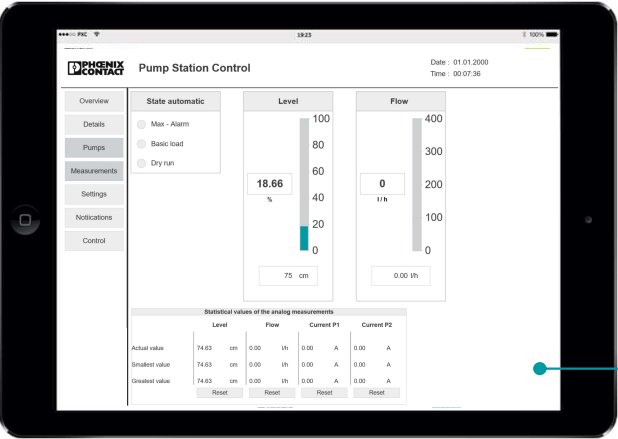



Pump Station Control
Phoenix Contact GmbH & Co. KG
Solution App | Free



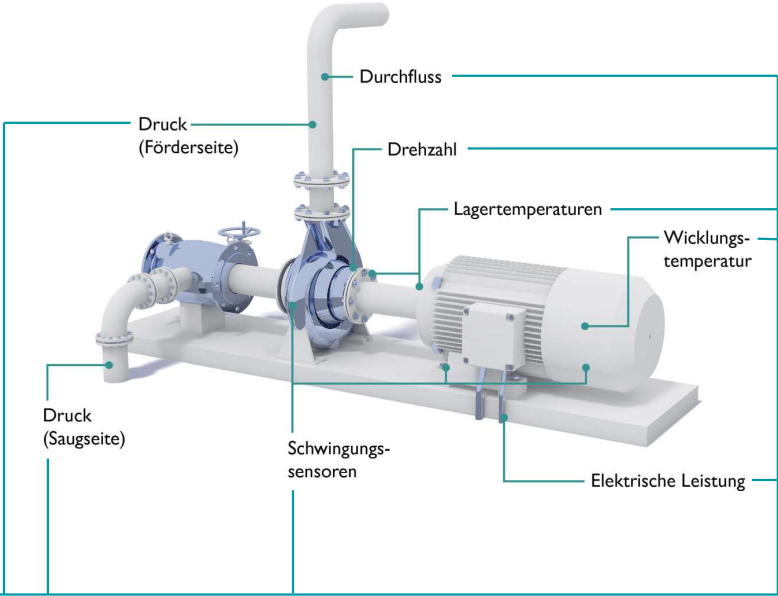
PLCnext Technology

PLCnext Store





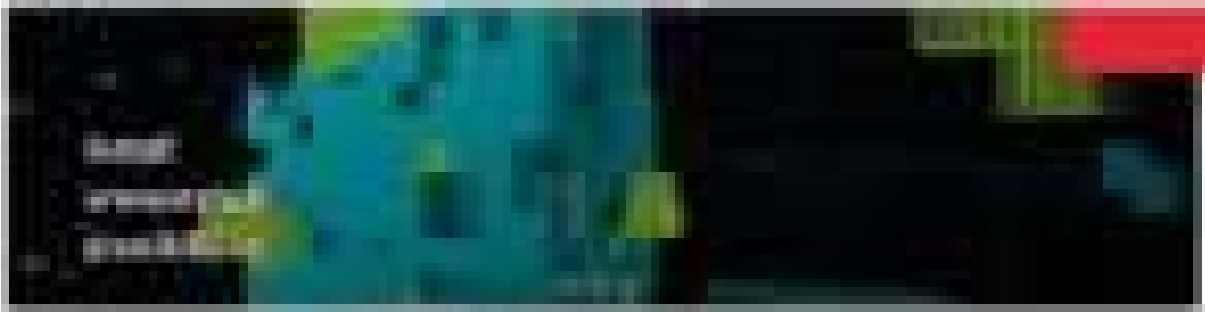
Pump Station Control
Phoenix Contact GmbH & Co. KG
[Solution App | Free](#)



PLCnext Store

First Contributors in PLCnext Store





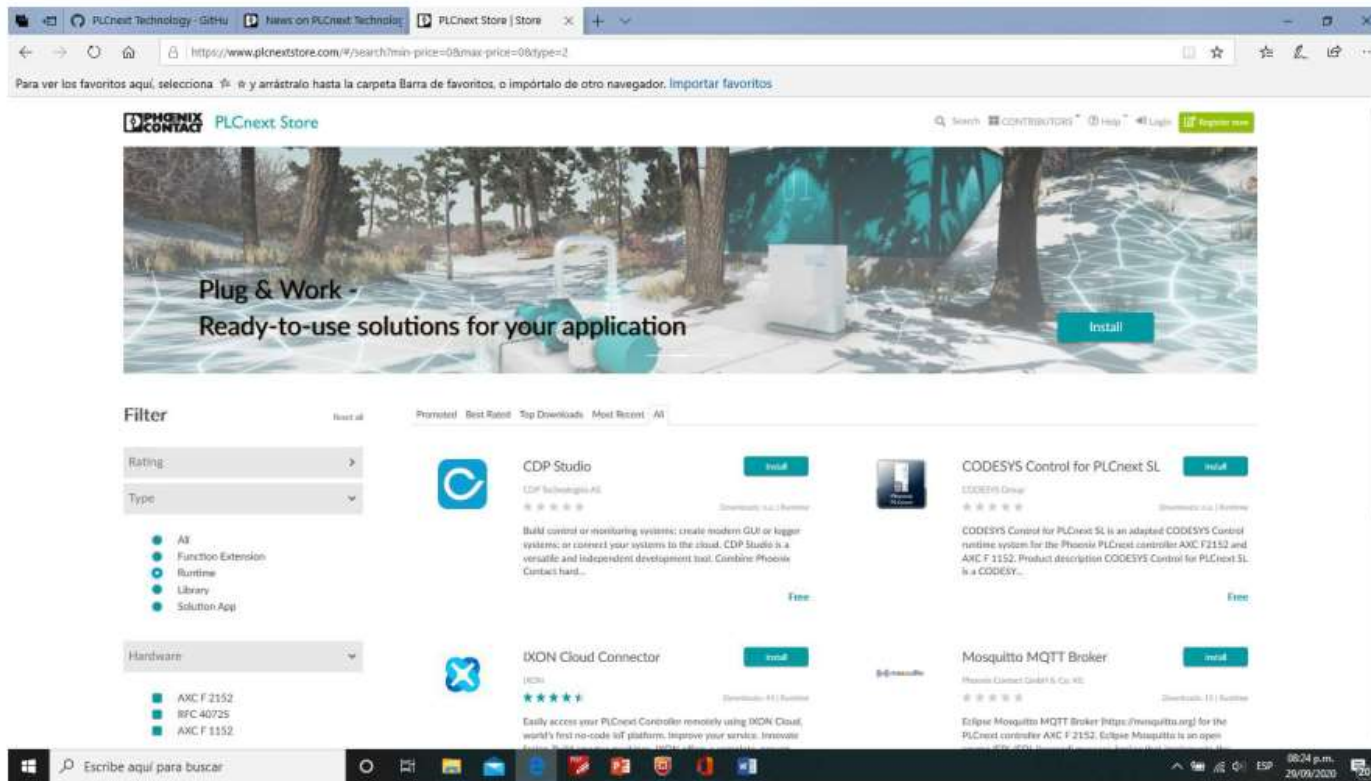
Jak zainstalować apkę z PLCnext Store?

PHOENIX CONTACT

How to install app's applications from PLCnext Store

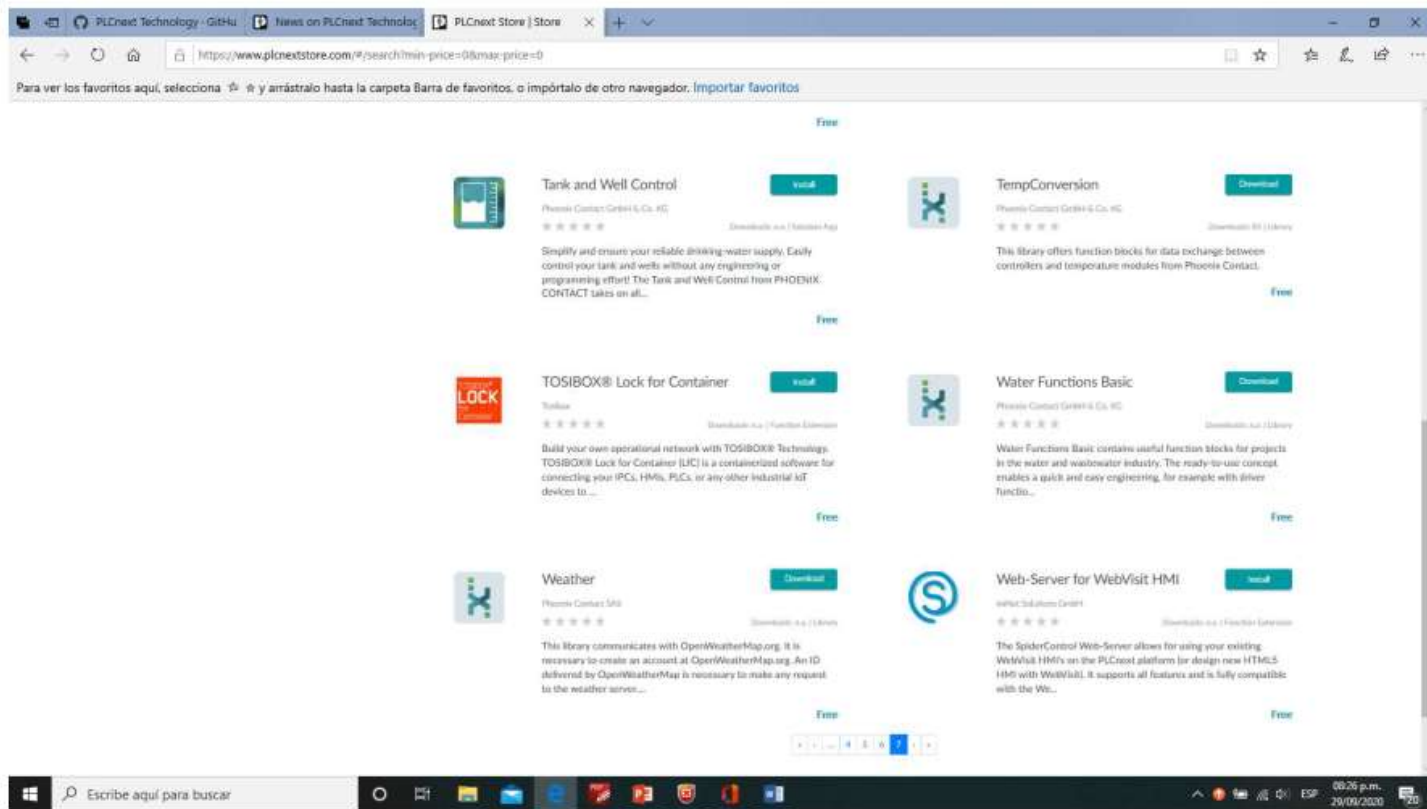
PLCnext Store

www.plcnextstore.com



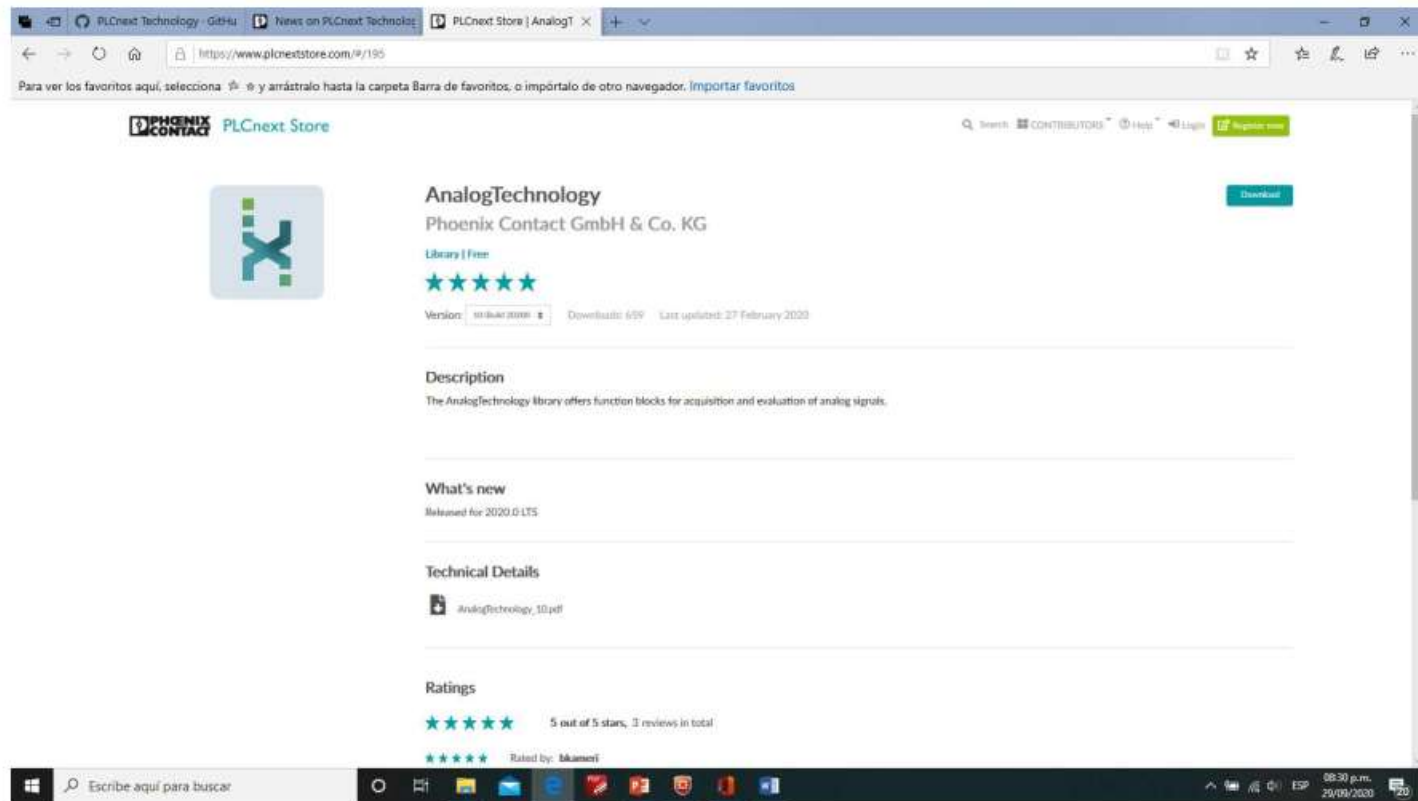
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Function block library

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: <ul style="list-style-type: none">Restricted visible function block	AXC F 2152 (2404267)
9	20190828	2019.0 LTS 2019.3 2019.6	AnalogTechnology_9: <ul style="list-style-type: none">ANL_AO_NORM_3: Bug fix for iModuleType = 7	AXC F 2152 (2404267)

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 2F 24 AI 4/BP (2724737) IB ST 2F 24 AI 4/I (2721264) IB ST 2F 24 AI 4/SF (2750620) IB ST 2F 24 AI 4/SF4 (2750594) IB ST 2F 24 BAI 2/BP (2724957) IB ST 2F 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 function block cyclically converts the analog values of the Phoenix Contact analog modules in a measuring range preset by the user (rLoLim to rHiLim).

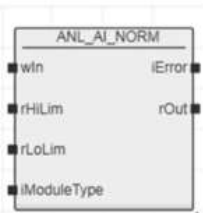
Caution: The function block does not support 16-bit representation of hardware error messages (iModuleType = 3, 6, 7).

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

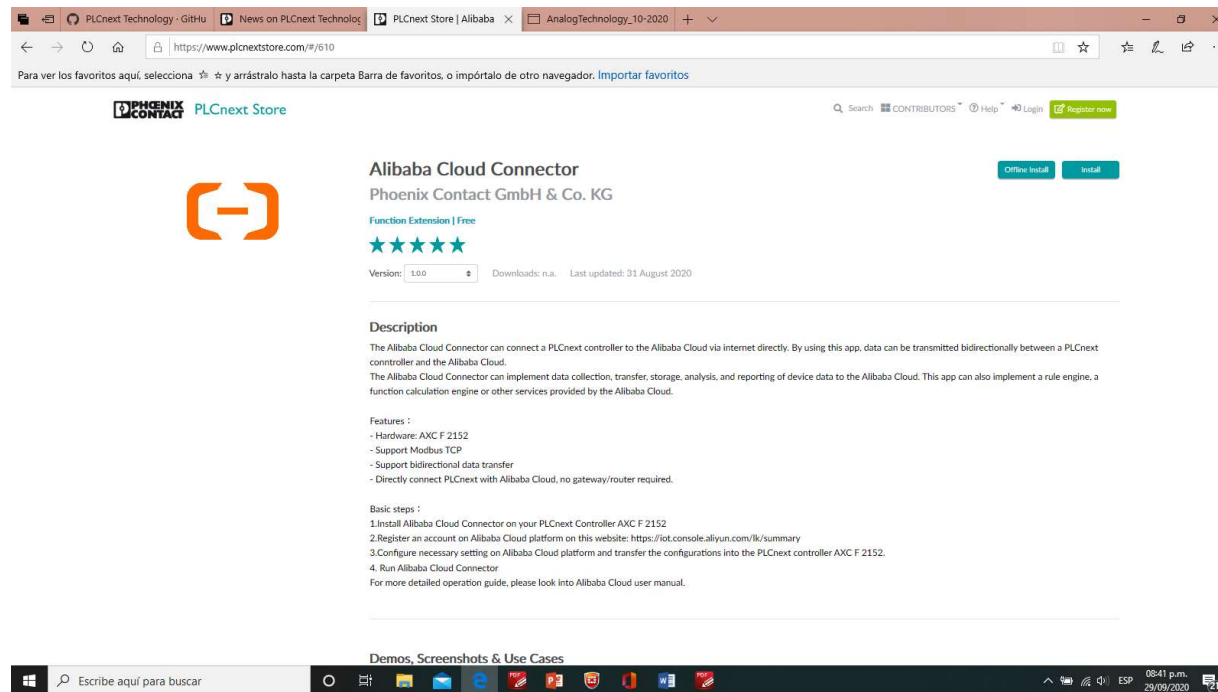


5.2 Input parameters



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Search CONTRIBUTORS Help Login Register now



Alibaba Cloud Connector

Phoenix Contact GmbH & Co. KG

Offline install Install

Function Extension | Free



Version: 1.0.0 Downloads: n.a. Last updated: 31 August 2020

Description

The Alibaba Cloud Connector can connect a PLCnext controller to the Alibaba Cloud via internet directly. By using this app, data can be transmitted bidirectionally between a PLCnext controller and the Alibaba Cloud.

The Alibaba Cloud Connector can implement data collection, transfer, storage, analysis, and reporting of device data to the Alibaba Cloud. This app can also implement a rule engine, a function calculation engine or other services provided by the Alibaba Cloud.

Features :

- Hardware: AXC F 2152
- Support Modbus TCP
- Support bidirectional data transfer
- Directly connect PLCnext with Alibaba Cloud, no gateway/router required.

Basic steps :

1. Install Alibaba Cloud Connector on your PLCnext Controller AXC F 2152
2. Register an account on Alibaba Cloud platform on this website: <https://iot.console.aliyun.com/ik/summary>
3. Configure necessary setting on Alibaba Cloud platform and transfer the configurations into the PLCnext controller AXC F 2152.
4. Run Alibaba Cloud Connector

For more detailed operation guide, please look into Alibaba Cloud user manual.

Demos, Screenshots & Use Cases



www.plcnextstore.com

Attribute Name	Attribute Value
website of Alibaba k8s Link Edge	https://help.aliyun.com/document_detail/85155.htm#spm=a2c4g.11186623.6.54Q.38071ed2hEfG1A
 PCNext_Alibaba_Cloud_Connector_App_User_Manual_zh.pdf	
 PCNext_Alibaba_Cloud_Connector_App_User_Manual_en.pdf	

★★★★★ 5 out of 5 stars, 1 reviews in total

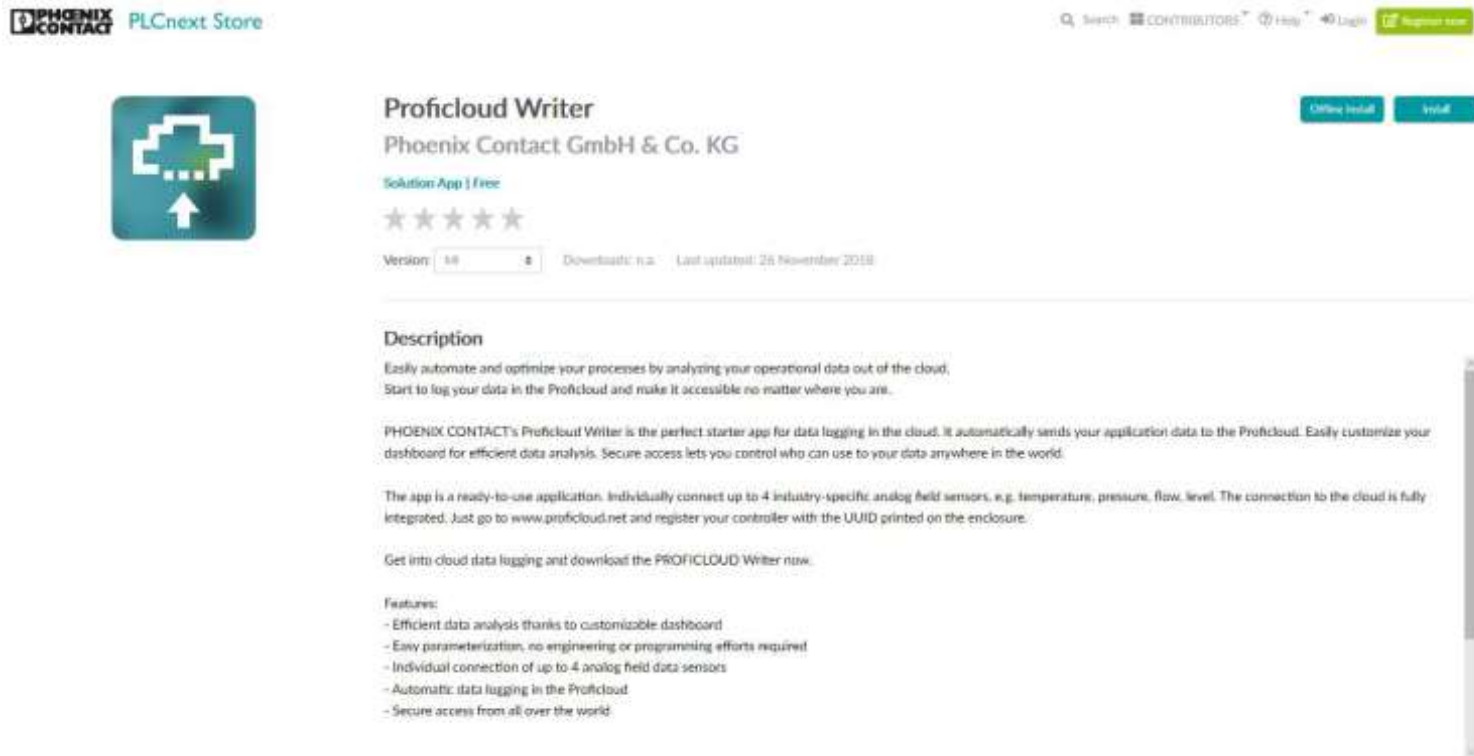
★★★★★ Rated by: [proficloudipm](#)

Very nice solution to connect to Ali-Cloud

Description	Location Link
Controller - AXC F 2552 - 2404267	www.jfbonixcontact.com
Alibaba Cloud Account	account.aliyun.com

PLCnext Store

www.plcnextstore.com



The screenshot shows the PLCnext Store website. At the top left is the Phoenix Contact logo and 'PLCnext Store'. At the top right are links for Search, CONTRIBUTORS, Help, Login, and Register now. The main content area features the 'Proficloud Writer' app by Phoenix Contact GmbH & Co. KG. The app is labeled as a 'Solution App | Free' and has a 5-star rating. It shows a version of 1.0, no downloads, and was last updated on 26 November 2018. The description states that the app automates and optimizes processes by analyzing operational data in the cloud. It mentions that the app is a ready-to-use application that connects up to 4 industry-specific analog field sensors (e.g., temperature, pressure, flow, level) to the cloud. A list of features includes: efficient data analysis, easy parameterization, individual connection of up to 4 analog field data sensors, automatic data logging, and secure access from all over the world. The app icon is a blue square with a white cloud and an upward arrow.

PHOENIX CONTACT PLCnext Store

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Proficloud Writer
Phoenix Contact GmbH & Co. KG

Solution App | Free

★★★★★

Version: 1.0 Downloads: n.a. Last updated: 26 November 2018

Description

Easily automate and optimize your processes by analyzing your operational data out of the cloud. Start to log your data in the Proficloud and make it accessible no matter where you are.

PHOENIX CONTACT's Proficloud Writer is the perfect starter app for data logging in the cloud. It automatically sends your application data to the Proficloud. Easily customize your dashboard for efficient data analysis. Secure access lets you control who can use to your data anywhere in the world.

The app is a ready-to-use application. Individually connect up to 4 industry-specific analog field sensors, e.g. temperature, pressure, flow, level. The connection to the cloud is fully integrated. Just go to www.proficloud.net and register your controller with the UUID printed on the enclosure.

Get into cloud data logging and download the PROFICLOUD Writer now.

Features:

- Efficient data analysis thanks to customizable dashboard
- Easy parameterization, no engineering or programming efforts required
- Individual connection of up to 4 analog field data sensors
- Automatic data logging in the Proficloud
- Secure access from all over the world

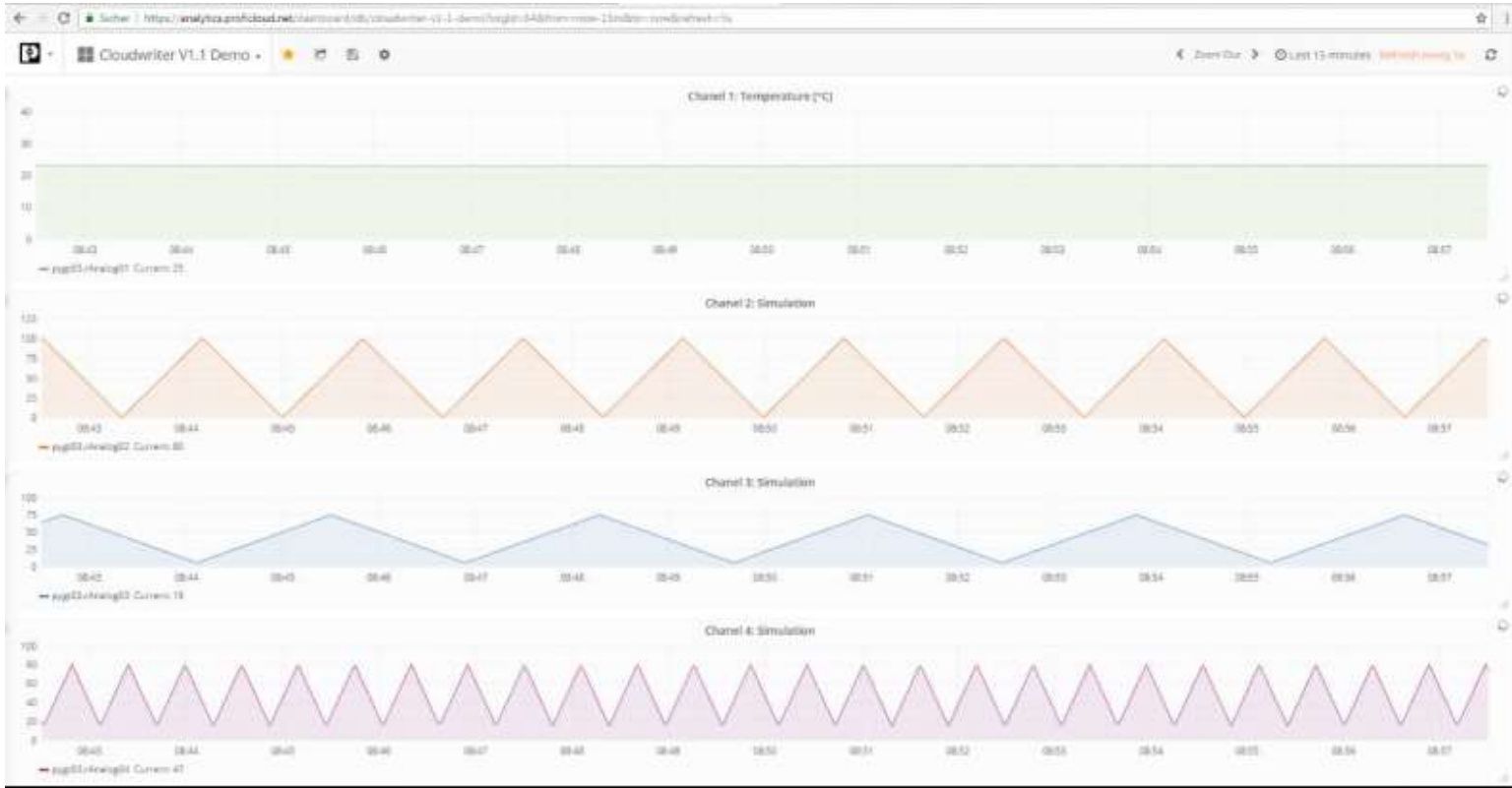
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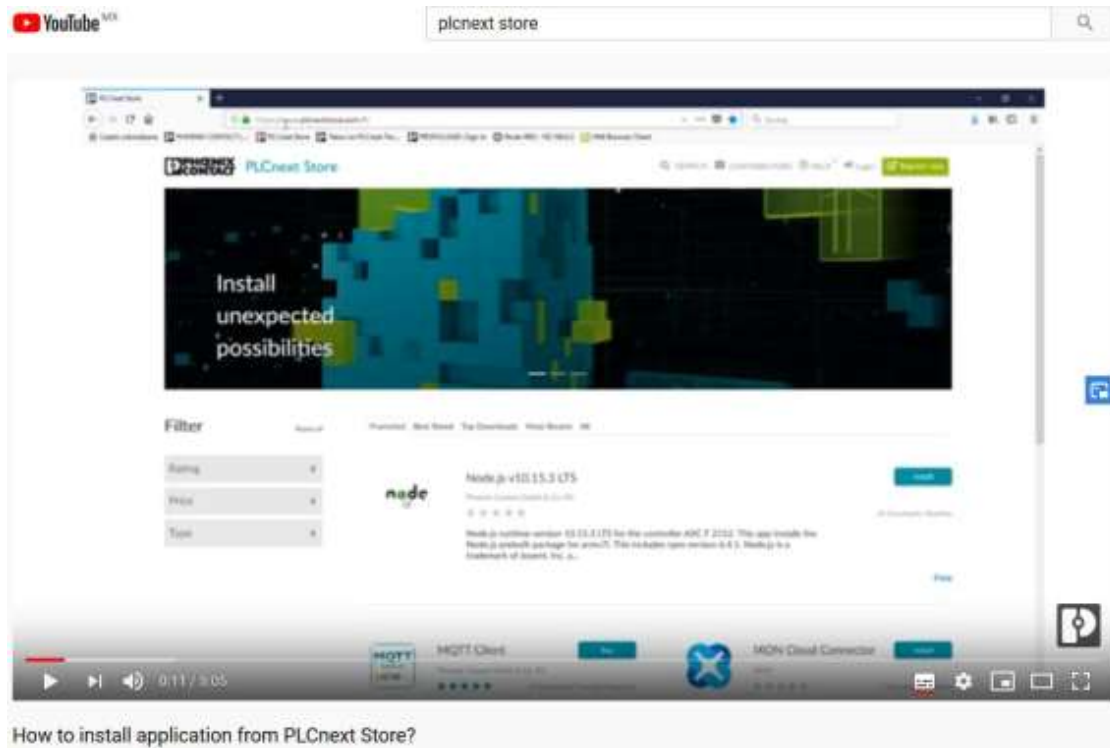
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Link
How to install application from PLCnext Store

PLCnext Store



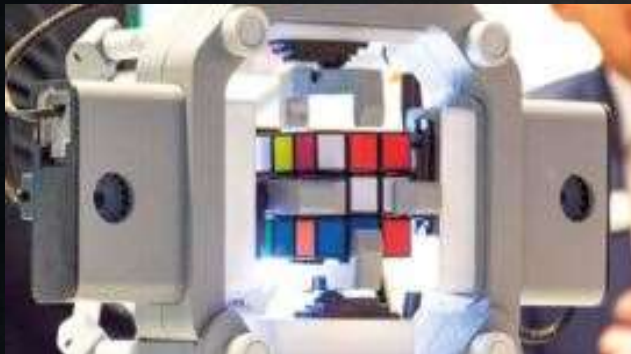
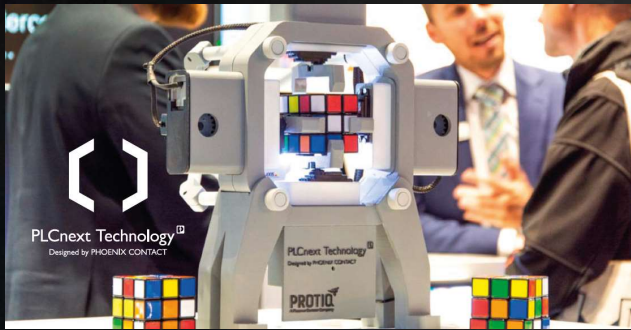
PLCnext Technology - Wat heb ik er aan PHOENIX CONTACT

PLCnext Technology – What it is about



Special area on the Hanover Fair 2019

Experience the Open Source Community live

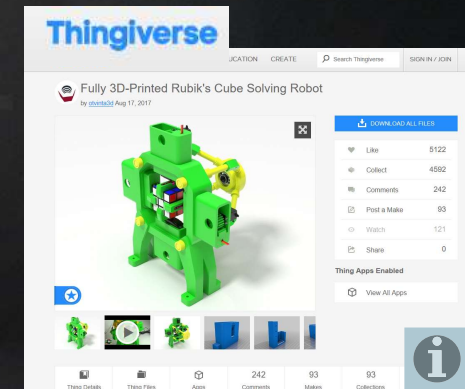


More and more people are networking in online communities. A community is a space used by users for exchanging information or gathering information about products and specialist topics, for example. With PLCnext Technology, Phoenix Contact offers an open ecosystem whose range of products and software 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 AX C 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.





Lesson 11

PLCnext interfacing with
Node-RED via OPC UA



Lesson 12

Interfacing Factory IO
Via OPC UA



Lesson 13

Interfacing Raspberry pi
with PLCnext via OPC UA

PLCnext Technology Code and Compile LEARNING MADE EASY



Lesson 14 Interfacing Raspberry pi with PLCnext via MQTT

PLCNEXT COMMUNITY

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

Watch a tutorial on our YouTube Technical Support Channel:
www.youtube.com/phoenixcontacttechnicalsupport

Find open source code and start an exciting new project: www.github.com/plcnext

Follow us on Instagram: www.instagram.com/plcnext

Share:
#iampcnnext
#plcnext



More on
PLCnext Technology



Upload or
download apps



Support in the
community



Tutorials for
technical support



Use or share open
source code



Share your experience
on Instagram



PLCnext Lesson 15- Sending PLC values to IBM Cloud (1)

PLCnext Store

install unexpected possibilities

PLCnext Technology 
Designed by PHOENIX CONTACT

www.plcnextstore.com

 **PHOENIX
CONTACT**