

# **PLCnext Technology Configuration and Engineering**

#### Fast and flexible configuration

 C-Code, Simulink models, function components, IEC61131-3, Safety, HMI

#### Extendable

By licensed add-ins like the Viewer for Simulink

#### Easy handling

- Intuitive user interface
- Clear structures



#### The software for configuration and engineering



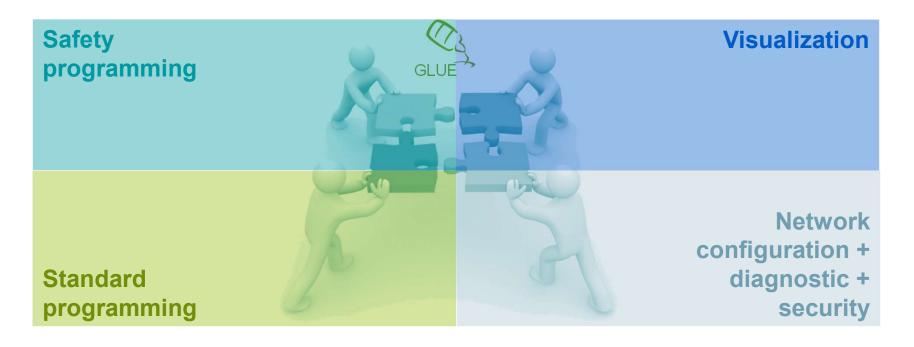




PLCnext Technology

PLCnext Engineer

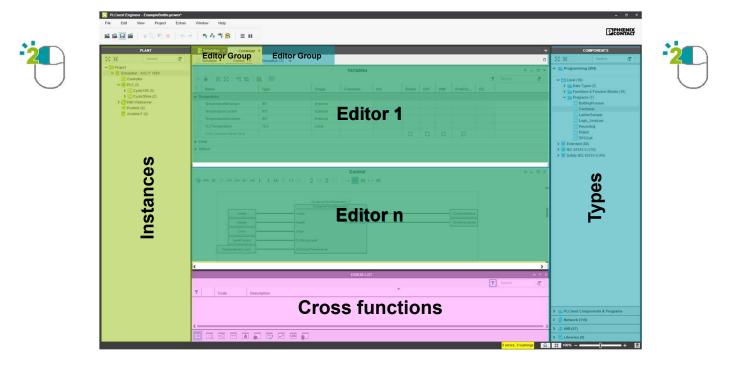
# **Complete Integrated System**







# **Information Architecture**







## The User Interface – Plant Area

- Instance trees
  - Programs
  - Visualization pages
  - IO configuration
- Task configuration
- Controller configuration
- Central Cockpit
  - Application control
  - Device information

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- IEC 61131-3
  - Programs, functions and function blocks
  - Data types
- Device catalogue
  - Import of devices
- Visualization symbol library
- References to libraries





### The User Interface – Editor Area

- Central editing
- Split view windows
- Full screen windows
- Arrange multiple editor windows
- Type or instance Editor color highlighted

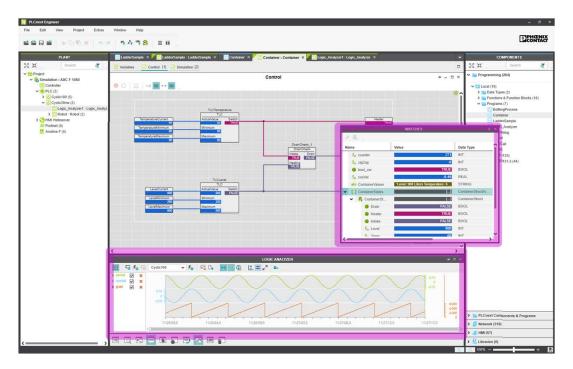
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### **The User Interface – Cross Function Area**

- Undockable windows
- Message window
- Global find & replace
- Cross references
- Watch window
- Debug information
- Logic analyzer
- Logging
- Recycle bin







# The User Interface – Menu Bar



- Standard functions
   Windows conform
  - Project handling
  - Cut / copy / pase objects
  - Delete objects
  - Undo / redo

- System filter
   Show or hide information
  - Programming objects
  - Network related objects
  - HMI related objects
  - Safety related objects

Split Screen function Arrange two editor groups

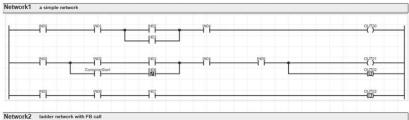
- Horizontal split mode
- Vertical split mode

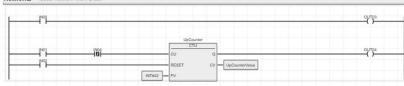


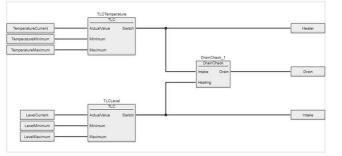


# IEC 61131-3 Editors

- Graphical programming
  - Function Block Diagram (FBD)
  - Ladder (LD)
  - Network based or free graphical editor
  - Methods on function blocks in graphical languages







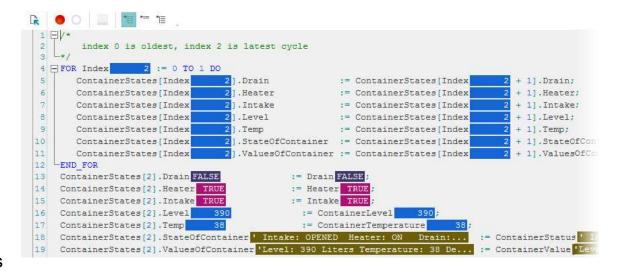




# PLCnext Engineer **IEC 61131-3 Editors**

#### Structured Text (ST)

- Syntax highlighting
- Autofill assistant
- IntelliSense function
- Folding of code segments
- RolePicker assistant
- Templates for statements
- Methods on function blocks





# **Integrated Visualization Editor**

- Deeply integrated
  - Based on central handling
- Scalable
  - From small scale controllers to IPCs
- No client installation
  - Modern web browser
- Technology-neutral
  - Screens are stored in neutral format
- Lightweight
  - Low resource demands on PLC







# **Integrated Visualization Editor**

- Definition of single line expressions
  - IntelliSense completions
  - Semantic analysis
- Integrated online mode
  - Everything in one environment





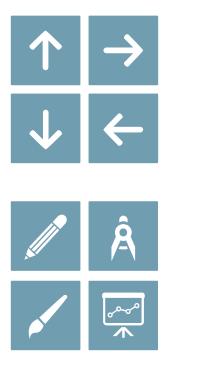




# **Integrated Visualization Editor**

- Navigation Editor
  - Graphical definition of basic navigation structures (swipe up, right, left, or down)
  - Easy assembly of navigation structures through drag & drop
  - Content of a page is displayed within thumbnails
- Consistent library handling
  - Easy to use symbol editor







# **Integrated Visualization Editor**

- User Management
  - Access right configuration of objects
  - Management via IEC 61131-3 function blocks possible
  - Authentication object template





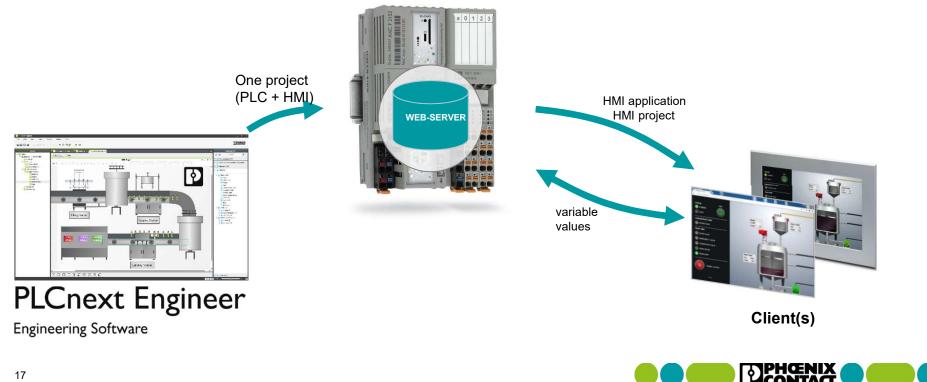
PLCnext Technology<sup>™</sup>

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CONTACT INSPIRING INNOVATIONS

# **PLCnext Engineer Visualization Runtime Concept**

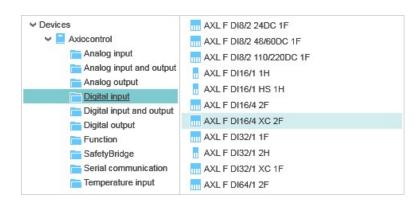


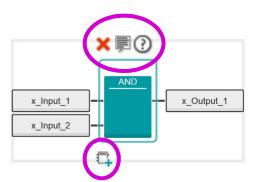
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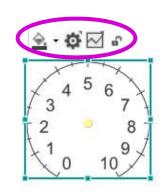
# PLCnext Engineer Usability Features Examples

#### **InPlace Actions**

- Placed directly beside graphical objects
- Offer the most important functions







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#### RolePicker

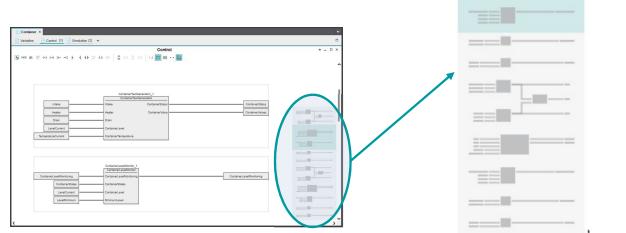
- Offers only usable objects
- Smart filter mechanism
- Pre-selection in categorized folders
- Shown in hardware selection
- Shown in process data assignment, …





# **Fast Navigation through Graphical Code**

- Overview windows for graphical code editors
  - Switch off and on by button
  - Zoom in and out in overview window







# **Commissioning and Troubleshooting**

- Central Cockpit with application information
  - Send and control the application
  - Get controller status
  - Get application status
  - Diagnostic archive
- Logic analyzer
- Watch windows
- Breakpoints / single step
- Online debugging in libraries
- Instance / Function debugging
- Execution value

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# PLCnext Technology

#### PLCnext Engineer

### **Network Configuration**

- Local bus configuration of controller
  - Configuration with RolePicker
  - Read in connected devices
- Profinet IO configuration
  - Complete device catalogue
  - Import devices via GSDML standard
  - Discover and connect online devices
  - Read in online devices

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# **Profinet Configuration**

Most important settings are now available in one table and will be improved for further settings

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# **Project Documentation**

- Function / location / reference instead of BMK
- Printout project:
  - Code
  - Data Lists
  - HMI screens and objects
  - Safety application

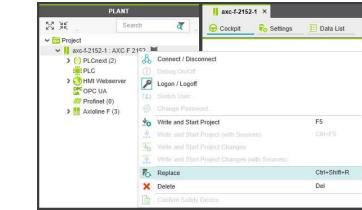
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	10	Write and Start Project Changes	
		Write and Start Project Changes (with Sources)	
	10	Replace	Ctrl+Shift+R
	×	Delete	Del
	B	Confirm Salety Device	





**PLCnext Engineer** 

# **Device Replacement**

- Replace device type at any level
  - Controller
  - Profinet device, module, submodule
  - Axioline F device,
  - IB Inline device
- Keep data of existing object
  - Subsystem
  - Process data connections,
  - Function & Location,
  - Parameters, Settings, Programs, ESM, HMI, ...

# **User Library Management**

- One standard library release function for:
  - Standard IEC 61131-3 Code
  - Safety code
  - HMI symbols
  - Devices
- Additional features
  - \*.chm Help integration for user POU's
  - Localized help
  - Library description via tooltip
  - PLCnext component libraries for MultiTargets

Library:	C:\Users\Public\Documents\PLCne>	t Engineer\Libraries\Demo	Library.pcwlx				
Version:	Your version number						
Description:	your own description						
Help file(s):		Add file(s)	Library description	on file(s):			Add file(s
		Remove file					Remove fil
	nisotX are	i i	1				
Name		Visibility	Version	Additional info	mation		
Name	amming	Visibility	~	Additional info	mation		_
Name	amming	Visibility	1000	Additional info	mation	_	_
Name	amming	Visibility	~	Additional info	mation		_
Name	amming ccal Functions & Function Blocks		> > > >	Additional info	mation		
Name	amming ccal Functions & Function Blocks MinMaxCheck	R Visible	· · · ·	Additional info	mation		



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# **Project Statistics Page**

- First stage of a project statistic:
  - Project limits overview
  - POU usage in detail
  - Check of limits beforehand

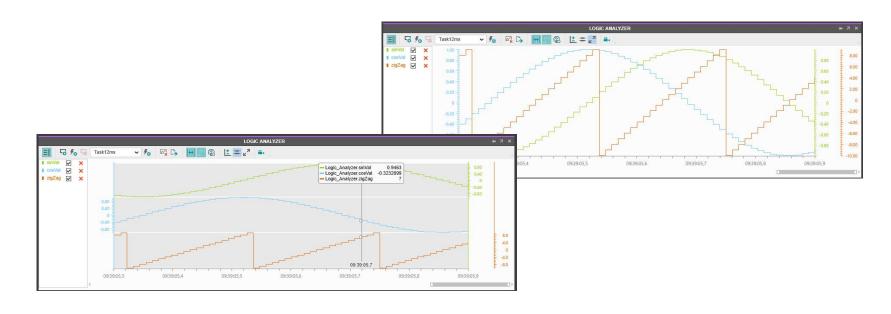
Gockpit Ro Settings	Data List     Jh Statistics	
cy		Statistics
General		
Project name:	KSK_DemoProject	
POUs: ①	13 / 4000	
Controller		
Controller name:	axc-f-2152-1	
POUs: ①	18	
Programs	4 / 500	
CPU load (total):	47	%
CPU load (Core 1):	52	%
CPU load (Core 2):	42	%
Memory:	28	%
Retain memory:	0	%
PLC:		
Global Variables:	106 / 20000	
Local Variables:	73 / 5000	
ESM1:		
Tasks:	3 / 16	
Cyclic50:		
POUs:	11	
Function Blocks:	10	
Programs:	1 / 500	
Cyclic100:		





# PLCnext Engineer Logic Analyzer

# The Logic Analyzer function of PLCnext Engineer can now also be used with PLCnext Controls.





# Extended Qualifiers in IEC 61131-3 Variable Names

- Option to switch on
  - Open the 'Compiler > IEC Compiler Settings' section in the Options dialog, activate the 'Allows extended identifiers' checkbox confirm.
- Rules for using
  - at least contain one alphabetical character.
  - not start with multiple underscores.
  - not start like a constant with <literal\_prefix># or keywords.
  - /\*-+<> are regular operators in textual programming languages, separated them by whitespaces.



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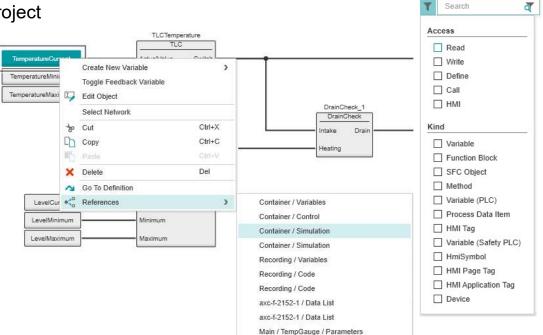
PLCnext Technology<sup>™</sup> Designed by PHOENIX CONTACT

Search

#### **PLCnext Engineer**

#### **Find Variable Access faster**

- X-Reference windows for the whole project
  - Additional "kind" attribute
  - More HMI data
    - Symbol instances
    - Tags
  - Extended filter
- Local X-References at each variable in context menu





# PLCnext Technology

#### PLCnext Engineer

#### **Documentation**

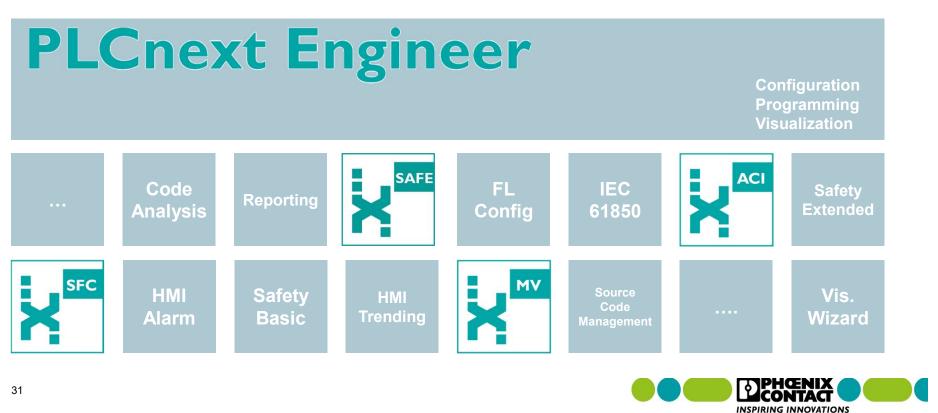
- Property editor for project and HMI symbols
  - Import/Export as HTML
  - Version table
  - Enhanced text properties
  - Insert tables
  - Insert pictures

			F	Properties			* - 0
Version							
Version History:	Version	Date	Life Cycle	Author	Comment		2
	1.0	2019-01-22	Alpha	Weber	First version		
	1.1	2019-01-22	Alpha	Weber	TCP functionality ad	ded	
	1.2	2019-01-24	Alpha	Koch	Modbus functionality	added	
	1.3	2019-02-03	Beta	Leidecker	Modbus tested		
	2.0	2019-02-10	Release	Leidecker	Release test passed		
Ocumentation							
	Lorem ipsum invidunt ut la justo duo do	bore et dolore i lores et ea rebu	consetetur sad nagna aliquyan m. Stet clita ka ipsum dolor sit	n erat, sed diam volupt sd gubergren, no sea t ·amet, consetetur sadij	nonumy eirmod tempor – Ja. At vero eos et accusam et – akimata-sanctus est Lorem ¶ oscing elitr, sed diam ¶ m erat, sed diam voluptua. –		
	1	od tempor in 6					
	nonumy eim At vero eos	et accusam et ju	usto duo dolore:	s et ea rebum.~ sanctus est Lorem ipsu	m-dolor-sit-amet.¶	в	
	nonumy-eim At vero-eos e Stet-clita-kas	et accusam et ji d gubergren, n	usto duo dolore:	s et ea rebum. ¬ sanctus est Lorem ipsu	76	н н н	



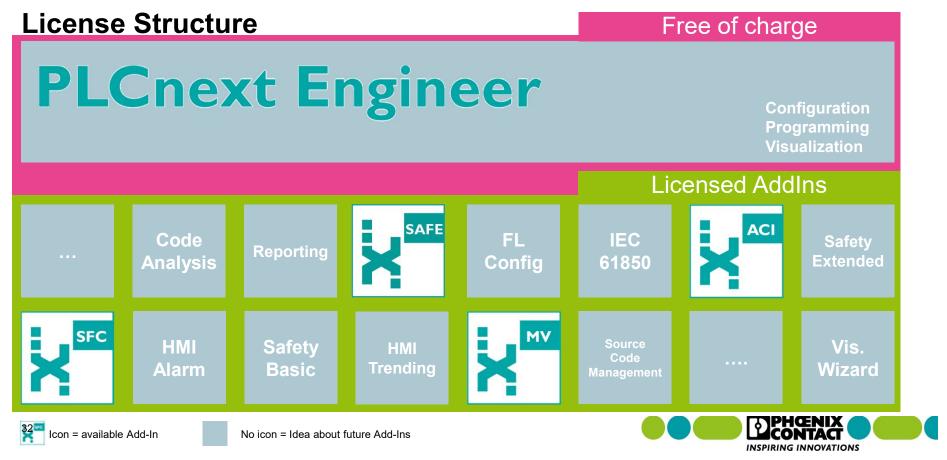


#### **License Structure**



PLCnext Technology<sup>™</sup>

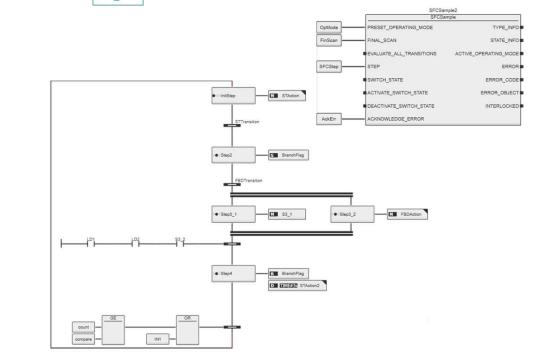
Designed by PHOENIX CONTACT





# Sequential Function Chart – SFC

- Represented as a function block
- Automatic generated TypeInfo and StateInfo structure
- Error handling
- Directly connected transitions
- Transitions in separate worksheets (FBD, ST, LD)
- Operation modes: Automatic, Manual Step, Halted

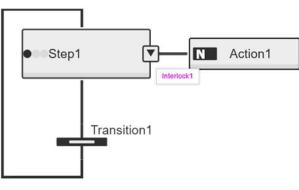






# Sequential Function Chart – SFC

- Compact SFC
- STEP Interlock can be used to control the execution of actions associated to a step
- Pre-Execute worksheet
- Post-Execute worksheet



CompactSFCFunctionBlock1 CompactSFCFunctionBlock

PARAMETERS.

STRUCTURE

SFCFunct	ionBlock
PRESET_OPERATING_MODE	STRUCTURE
FINAL_SCAN	STEP_STATES
EVALUATE_ALL_TRANSITIONS	ACTIVE_OPERATING_MODE
PROCEED	ERROF
ISTEP_ID	ERROR_CODE
ACTIVATE_STEP	INTERLOCK_FAULT
DEACTIVATE_STEP	
ACKNOWLEDGE_ERROR	





# PLCnext Technology

#### PLCnext Engineer

# **Functional Safety Programming**

#### Fully integrated Safety Programming

- TÜV Rheinland certified according to IEC 61508
- Editor with common behavior as known from standard FBD or LD editor
- Low Variability Language support
- Network granular CRC checksums
- PROFIsafe Support

	5478 = II				228
PLANT	s Satari ×				
12s-lan1-1 : NFC 4825 😈	Safety Information 🔐 Vanables 🔒 Code 🔍 👻				M M _ Search
LCred (2)	*- = = >				<ul> <li>Programming (280)</li> </ul>
cherheitssteuerung (1)	B mo ⇒ 0 ⇒ 0 m   12 +  ■				🛩 🛅 Local (4)
SafetyTask (1)	IT_HALT Emergency Stop for the	icy Stop for the whole plant			Data Types     Data Types     Punctions & Function Bia
Mi Webserver					Programs (2) Main 5_Main
PC UA plinet (1)	Equivalent_EStop EmergencyStop				
axi-f-bk-pn-1 : AXL F BK PN (6	SF_Equivalent_V2_00		SF_EmergencyStop_V2_00		Extended (85)
Hadap-1 : DAP (4)     Kap-1 : DAP (4)     Kap-1 : AXL F PSD(5/4 1F (1))	TRUE Activate	Ready	Activate	Ready	<ul> <li>EC 61131-3 (129)</li> <li>PLCopten_SF (18)</li> </ul>
adi-2 : AXL F PSDI8/4 1F (	SI_EMST_1 S_ChannelA	S_EquivalentOut	S_EStopin S_ES	topOut EStopOut	> 🖬 Safety IEC 61131-3 (44)
sdi-3 : AXL F PSDI8/4 1F (	SI_EMST_2 S_ChannelB	SafetyDemand			
di-1 : AXL F DI5/2 24DC 19				emand	
	TIME#200ms DiscrepancyTime	ResetRequest	SAFETRUE S_AutoReset ResetR	equest	
		Error ErrorEquivalentEStop	Reset - Reset	Error ErrorEStop	
		DiagCode DiagEguivalentEStop	Dis	gCode - DiagEStop	1
				And	
					> 🚍 PLCnext Components & Pro
Sat	ety_Door_SG1 Guard Locking f	or the safety door SG1			Y SNetwork (321)
					> En Local
	SafetyDo SF_GuardLock				<ul> <li>Axiocontrol (68)</li> <li>Axioline F Profinet (77)</li> </ul>
	TRUE Activate	Ready			Sevices (77)
					<ul> <li>Buskoppler (4)</li> <li>Controller Device (2)</li> </ul>
	SI_SG1_1 S_GuardMonitoring	S_GuardLocked S_GuardLockedOut			Modules (71)
	S_MaschineStop S_SafetyActive	S_UnlockGuard			> NFC (8)
		SafetyDemand			
	SI_SG1_2 S_GuardLock				1
		ResetRequest		-1-11 / I	
	UnlockRequest UnlockRequest	ResetRequest			
	UnlockRequest SAFETRUE S_StartReset	Error ErrorSafetyDoor_SG1		***( <b>1</b> );	
	UnlockRequest UnlockRequest			**************************************	
	UnlockRequest SAFETRUE S_StartReset	Error ErrorSafetyDoor_SG1		***( <b>1</b> );	
	UnlockRequest SAFETRUE S_StarReset SAFETRUE S_AutoReset	Error ErrorSafetyDoor_SG1		**************************************	> HMR (20)





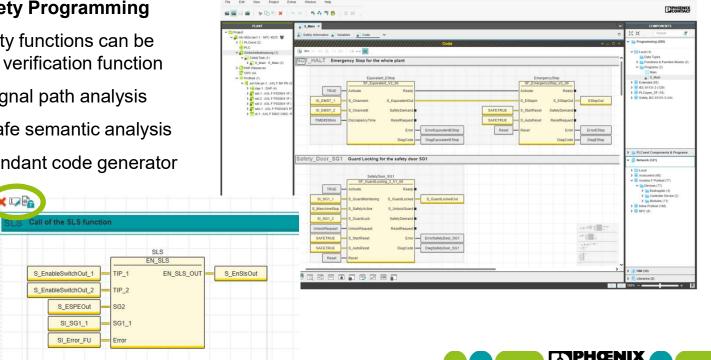
INSPIRING INNOVATIONS

#### **PLCnext Engineer**

# **Functional Safety Programming**

#### **Fully integrated Safety Programming**

- Individual safety functions can be protected by a verification function
- Background signal path analysis
- Background safe semantic analysis
- Diversely-redundant code generator



SAFE



## Functional Safety User Libraries

 Export of safety-related function blocks as new user library

ties and generate a new Safety I	EC library			
is for the library items and general	te with this information a new S	Safety IEC library		
C:\Users\Public\Documents\PC V	/orx Engineer\Libraries\TestLib	pcwbx		
1.0				
Test Library 1				
	Add file(s)	Description file(s):		Add file(s)
	Remove file			Remove file
🔂 Unlimited (cascaded) 🐱				
ning	Visibility	Version Additional infe	ormation	
	~			
		10		
		1.0		
	1.0 Test Library 1 & Unimited (cascaded)	1.0 Test Library 1 Add file(s) Remove file (unimited (cascaded) v ry ID Visibility ing SF_Test1	Test Library 1  Add file(s) Remove file Unimited (cascadod)  Visibility Version Additional inf  ing  visibility Version Additional inf  ing  visibility inclions & Function Blocks  visibility inclions & Visibility inclions & Inclions inf  visibility inclions & Inclions inf  visibility inclions in	1.0 Test Library 1 Add file(s) Remove file Unimited (cascaded) v ry ID Visibility Version Additional information ing ST ST_Test1 Quality Visible v 1.0

File	Edit View Project Extras Window	/ Help			
-*	New Project	Ctrl+N			
2	Open Project	Ctrl+O	=		
۵					
	Save Project As	F12			
	Archive Project As		🖌 Variables 🔒 Code 🗸		
-	Close Project	Ctrl+W	CONTRACTOR CONTRACTOR CONTRACTOR		
	Import		,		
	Export		> Export as Released IEC Library		
8	Print	Ctrl+P	Export as Released Safety IEC Library		
	1 C:\Users\Public\\Projects\Test_Export.pcwex		Export as Released Device Library		
	2 C:\Users\Public\\Projects\Demo_Safety_2.pcwex		Export as Released HMI Library		
	3 C:\Users\\2018_10_10o2_NFC482S.pcwex		Export AutomationML file		
	4 C:\Users\Public\\Projects\Demo_Safety.pcwex		ist1		
	5 C:\SVN\SafeAF\\Limits\Kaskaden_10.pcwex				
	6 C:\Users\9qj6nq\\Local\Temp\p0065-23131.pcwex		ork2 [description]		
	7 C:\Users\Public\\Projects\CFB_Example.pcwex				
	8 C:\SVN\\IFA_Roboterapplikation.pcwex		st21		
	9 C:\Users\Public\\Projects\K4BSUG1_V0_60.pcwex		ist2		
	10 C:\Support\\miniTestProjektV001.pcwex				
0	Exit	Alt+F4			





### **Safety Parameterization**

- Parameterization for PROFIsafe devices
- Export / Import
  - Parameter sets of the whole device
  - Parameter sets of a single group

	Safety PLC × 🔄 SafePro	gram 🗶 🚧 rfc-4072s-lan 1-1 / Profinet	× 📙 axl-f-bk-pn-1 × 🔲 StdProgram ×	💭 rfc-4072s-ia	an1-1 / PLCnext ×	🔓 sdi-1 🗙
oject (1) rfc-4072s-lan1-1 : RFC 4072S PN 4TX (6)	Settings _ Safety Param	eters 📴 Data List				
(;) PLCnext (2)	///////////////////////////////////////	101111111111111111111111111111111111111	Safety Parameters	11111111		9999997
> 11 ESM1 (1) > 11 ESM2 (1) All	(	F_Parameter				Parameter Import/Export
	Parameter	F_Source_Add:	1024		Input 00 Channel	1 / Channel 2
	out 00 Channel 1 / Channel 2	F_Dest_Add:	1		Imported from: AXI Checksum: 0x7	PSDI_Params_Channel_1.sp
HMI Webserver	out 01 Channel 1 / Channel 2	F_WD_Time:	150		Input 01 Channel	
Support (0)	out 02 Channel 1 / Channel 2	Input 00 Channel 1 / Channel 2 Assignment:	both single-channel	~	Imported from: AXI Checksum: 0x7	L_PSDI_Params_Channel_2.sp 8537A87
Profinet (1)	out 03 Channel 1 / Channel 2	Max Filter Duration:	3 ms	~	Input 02 Channel 1 / Channel 2 Imported from: AXL_PSDL_Params_Channel_3 Checksum: 0xFBDB69D7	
> Hip dap-1 : DAP (4) Sdi-1 : AXL F PSDI8/4 1F (1)		Symmetry:	deactivated	~		BDB69D7
Sdi-1 : SDI8		Start inhibit due to symmetry violation:	off	~		
<ul> <li>di-1 : AXL F DI16/4 2F (1)</li> <li>do-1 : AXL F D08/2 2A 1H (1)</li> </ul>		Cross-circuit detection:	no cross-circuit detection	~		
		Assignment	both single-channel	~		
		Max Filter Duration:	3 ms	~		
		Symmetry:	deactivated	~		
		Start inhibit due to symmetry violation:	off	~		
		Cross-circuit detection:	no cross-circuit detection	~		
		Input 02 Channel 1 / Channel 2				
		Assignment:	double-channel equivalent	~		
		Max Filter Duration:	3 ms	~		
				Ú.		

SAFE



### Safety Cockpit

- Display the status information from the safety-related PLC
- Display the error messages from the safety-related PLC

😽 Safety Cockpit 📃 Data List								0
				Safety (	Cockpit		÷ = □	x
Safely PLC simulation 🐱 🛃		±o >8 =   =						
Overview	Id	Serial Number	Safety PLC Date	Code	Message	Additional Information	Extended Information	
	3	EasySim HNF 2.8.4 SIL2	09.10.2018 09:29:01	0x1211	Interner Fehler! Wenden Sie sich an den technischen Support.	0x0000	0x00000001	
Safety PLC error messages	2	EasySim HNF 2.8.4 SIL2	09.10.2018 09:29:01	0x30B9	Interner Fehler! Wenden Sie sich an den technischen Support.	0x0000	0x00FFFFFF	
Safety FLO on a messages				0x30DC	Interner Fehler! Wenden Sie sich an den technischen Support.	0x00FF	0x00000003	



Overview	Diagnostics and status indicato	rs			
Diagnostics	Status	Safe Run			
	Fait				
	Signals forced:				
	Safety PLC cycle time:	2124	μs		
	Program execution time:	2	ha		
	Utilization				
	Program memory:	1	%		
	Data memory:	1	%		
	Safety PLC project information				
	Name:	2018_03_19_IFA_Roboterapplikatio			
	Last build date:	Donnerstag, 3. Mai 2018, 15:59			
~	Checksum:	0x4BCD4247			
	User:	9QJ6NQ			
* - ¤ ×	Engineering project information				
	Name:	2018_03_19_IFA_Roboterapplikation			
led Information	Last build date:	Donnerstag, 3. Mai 2018, 15:59			
0001	Checksum:	0x48CD4247			
FFFF	User:	9QJ6NQ			
0003	Version Information				
	Firmware version:	2.8.66			
	Serial number:	EasySim HNF 2.8.4 SIL2			

SAFE

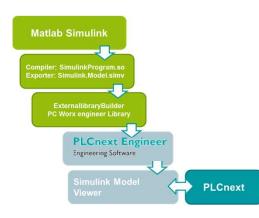


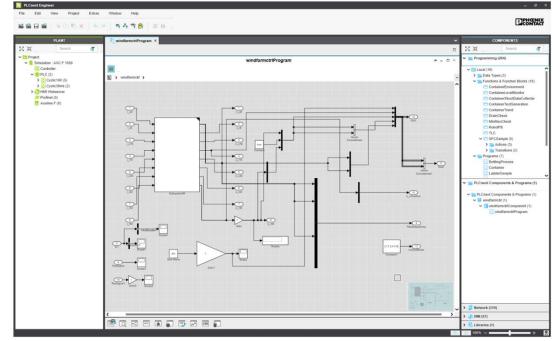


### Viewer for Simulink

- Model export as part of a PLCnext library
- Drill-down into sub-models
- Online-values for In- and Out-Ports

X







## PLCnext Technology

### PLCnext Engineer 2019.0 Viewer for Simulink

- Global / Local Search
  - Jumpable objects selected
- Display block with online values
- Overwrite of GDS ports
- Jump to Type Model from Instance
- Online Indication on lines for boolean in /out ports



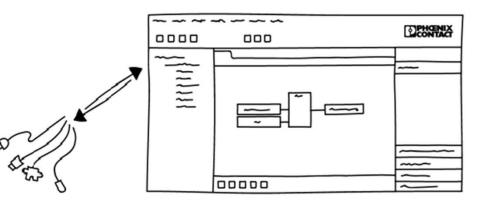
Application Control Interface (ACI)



#### Remote Control of the software:

- Application.BuildPath (property)
- ✓ Application.OpenProject (method)
- ✓ Application.ProjectOpened (event)
- ✓ Project.Close (method)
- ✓ Project.Save (method)
- ✓ Project.SaveAs (method)
- ✓ Project.Closed (event)

**•** 





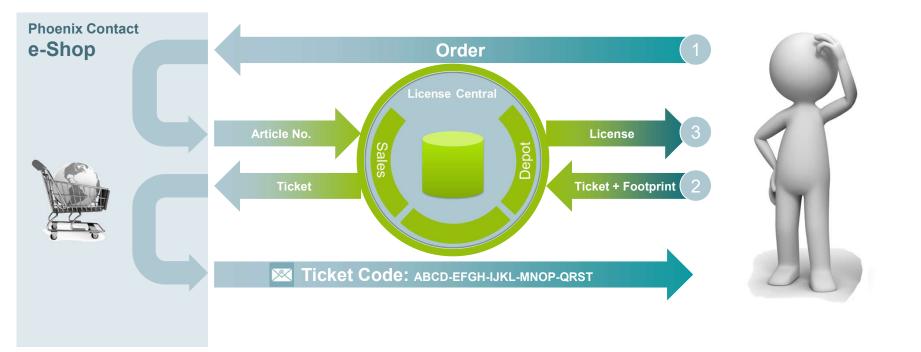
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42



### **Software License Distribution**







- 🗆 🗙

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## Licensing **Activation Wizard**

- Version 1.1 HMI 2018
  - Deactivating / Moving licenses
- Version 1.2 SPS 2018
  - Network server for licenses
  - Server list; authentication
  - Borrowing of licenses (can be returned to pool)

	File Extras Help	
	Borrow License	CONTAC
Phoenix Contact Activation Wizard		
File Extras Help Select Action	Select the license(s) you want to borrow, set the borrowing time and select the license container.	
	Available licenses:	
Activate a license for this PC (internet connection required). You can also crea		^
request file for another PC that is not connected to the Internet. Furthermore send a license receipt file you have received from an offline PC to the Phoenic		
server.	PHOENIX CONTACT (130-3495770155)	
	PLCnext Engineer 1 1 30.00:00:00	
Please select the desired action:	PLCnext Engineer - SFC Editor 1 1 30.00:00:00	
(A) Activation / deactivation on this PC	PLCnext Engineer 0 0 30.00:00	
Activate license     Activate a license for a license container on this PC.     Deactivate a license for a license container on this PC and return the lice     Deactivate a license for a license container on this PC and return the lice     Contact license server.     Deactivated licenses can later be activated again using the same ticket IC	PLCnext Engineer - SFC Editor 0 0 30.00:00:00	
	PLCnext Engineer - Application Control Interface 10 10 30.00:00:00	
	PLCnext Engineer - MATLAB® Simulink® Viewer 10 10 30.000:000 Borrowing time:	0:00
• Activation / deactivation on another PC	PHOENIX CONTACT (130-3495770155)	٧
S Emergency license	Results:	
	Connected to Phoenix Contact license server (licence01.phoenixcontact.com).	- 144-
	Borrow Cancel	Help
Connected to Phoenix Contact license server (licence01,phoenixcontact.com).           Next         Cancel	Help	

Phoenix Contact Activation Wizard



### **Electronic Software License on USB A**

#### Software dongle - ESL STICK USB A - 1080084





### IF Design Award 2019



PLCnext Technology<sup>™</sup>

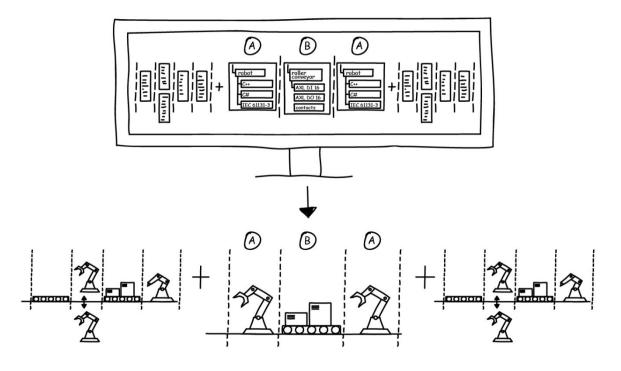
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45 RoHS



PLCnext Engineer – Modular Software Platform

### **Automation Modules**





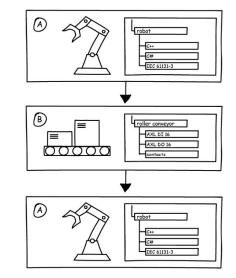
PLCnext Engineer – Modular Software Platform

### **Automation Modules**

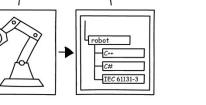
- Reusability across all trades
  - Can contain all items from the application
    - IEC 61131-3 Code
    - Visualization pages
    - Data connections
    - Hardware configuration
    - High language programs
    - Safety function

#### **Orchestrate instead of programming!**









(A)

## PLCnext Technology

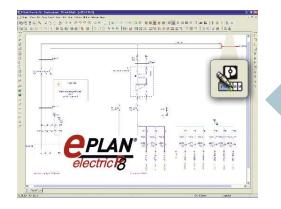
#### PLCnext Engineer 2019.3

### AutomationML APC Interface

#### **Automation Project Configuration**

- Reuse identifier (devices, terminal points)
- Create prewired variables
- Import / Export / Synchronization

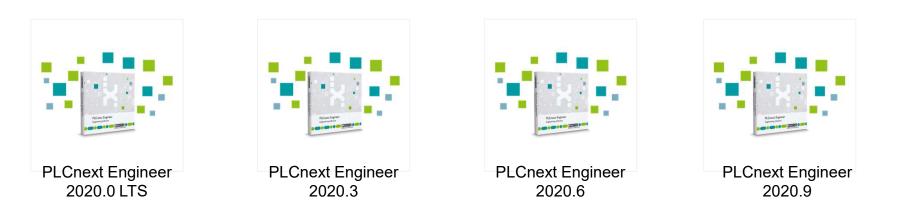
Import	>		
Export	>	Export as Released IEC Library	
	10	Export as Released Safety IEC Library	
		Export as Released Device Library	
		Export as Released HMI Library	
		Export AutomationML APC	
		Export as Released AutomationModule Library	







### PLCnext Engineer Versioning



PLCnext Technology<sup>™</sup>

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INSPIRING INNOVATIONS

49					
	January 2020	March 2020	June 2020	September 2020	

### **LTS Version**

Wikipedia:

#### Long-term support (LTS) ...

... is a product lifecycle management policy in which a stable release of computer software is maintained for a longer period of time than the standard edition. The term is typically reserved for opensource software, where it describes a software edition that is supported for months or years longer than the software's standard edition. PLCnext Technology Designed by PHOENIX CONTACT

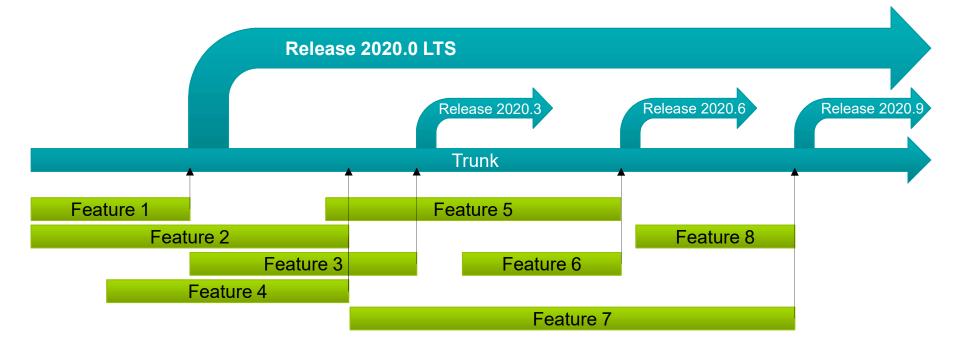


Source 2019/01: https://en.wikipedia.org/wiki/Long-term\_support





### **Feature-Driven Development**





### **PLCnext Engineer 2020**

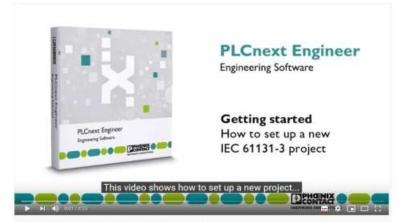






## Video Youtube

### **PLCnext Engineer Tutorial(s)**



How to set up a new project | Getting Started with PLCnext Engineer



How to program a PLC in IEC 61131-3 languages | Getting Started with PLCnext Engineer





How to create a basic visualization with PLCnext Engineer





Overview to the Web-based Management on PLCnext Control | Getting started with PLCnext Engineer



PROFINET Diagnostics via the Web-based Management | Getting started with PLCnext Engineer



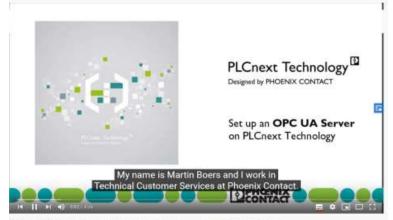


How to create a library out of many device descriptions | Getting started with PLCnext Engineer



How to import device descriptions and devices libraries | Getting started with PLCnext Engineer



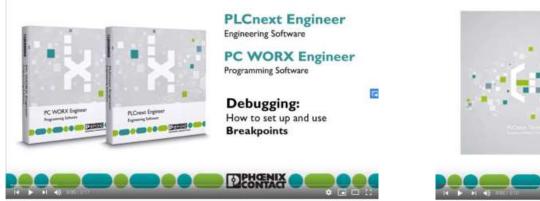


OPC UA with PLCnext Technology I How to set up a server connection with PLCnext Engineer



OPC UA with PLCnext Technology | How to transfer a file to the PLCnext Control via OPC UA Server





How to debug using Breakpoints | Debugging with PLCnext Engineer



How to use Wireshark and WinSCP in debugging PLC installations | Working with PLCnext Technology





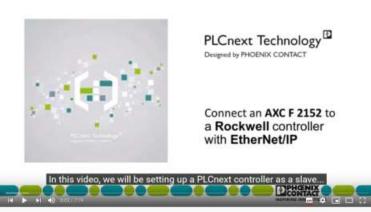
[1] PLCnext Engineer | Comenzando con PLCNext - Phoenix Contact





PLCnext - Connecting Industrial Automation to the IT World





EtherNet/IP\*\* | How to connect your PLCnext Control to controllers from other manufacturers using EIP





PLCnext Technology | DataLogger in IIoT | Short introduction to the key features



PLCnext Technology | DataLogger in IIoT | Use with OPC UA and its Historical Access (HA) feature





PLCnext Technology | DataLogger in IIoT | Configure the DataLogger for "Record on Time" mode



PLCnext Technology | DataLogger in IIoT | Configure the DataLogger for "Record on change" mode

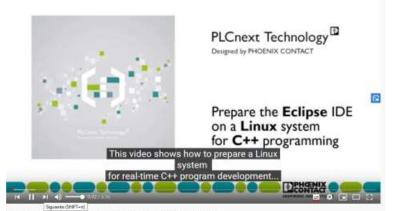


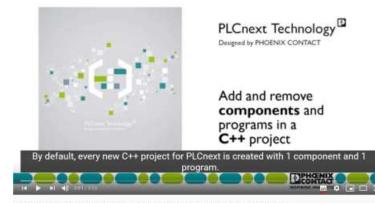


How to install Eclipse IDE tools on Windows 10 | C++ with PLCnext Technology

How to program C++ on a PLCnext control | C++ with PLCnext Technology



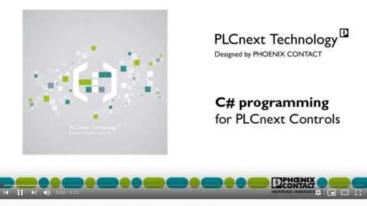




How to install Eclipse IDE tools on Linux | C++ with PLCnext Technology

How to add or remove programs and components in C++ programming | PLCnext Technology





How to execute C# code on PLCnext Control | C# with PLCnext Technology

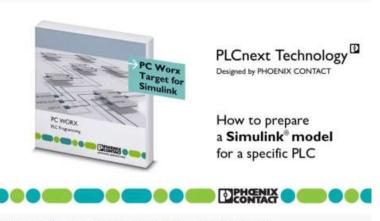




How to prepare your station for remote debugging C# code on PLCnext Controls | PLCnext Technology

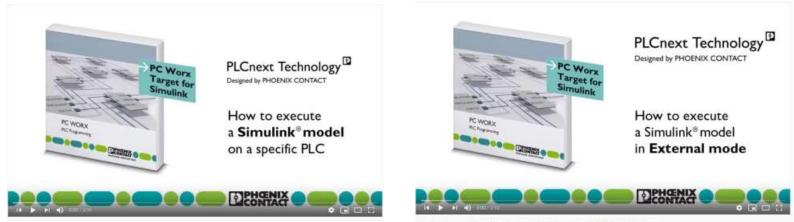
How to debug C# code with Visual Studio development tools | PLCnext Technology





How to prepare a Simulink model for PLC programming | #1 Simulink with PLCnext Technology





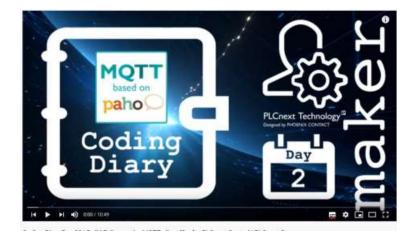
How to execute a PLC program based on a Simulink model | #2 Simulink with PLCnext Technology

How to set up an External Mode execution | #3 Simulink with PLCnext Technology





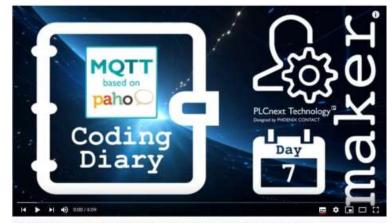
Coding Diary Day 01 | Project Brief: introduction to MQTT and the client for PLCnext Control devices







Coding Diary Day 03 | Creating and deploying a PLCnext Technology Function Extension component



Coding Diary Day 07 | Creating a Remote Service Call client that connects our MQTT client to the GDS





How to connect a PLCnext Control to Microsoft Azure via Node is SDK | Makers Blog









PLCnext Lesson 5 - Programming the Controller's External Analog IOs





PLCnext Lesson 6 - Designing the HMI for Digital IOs



PLCnext Lesson 7 - Designing the HMI for Analog Inputs





PLCnext Lesson 8 - Designing the HMI for Analog Outputs



PLCnext Lesson 9 - Monitoring and controlling HMI in browser





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### **PLCnext Engineer**



# Thank you

