



Welcome

Webinars 2020

Software y Tecnologías

IMA



Webinar Software y Tecnologías

Agenda

- Software Suite para Controladores Inline, Axioline, RFC
 - Software para Controladores PLC PC WORX
 - Software para Controladores PLCnext
 - Software de Diagnóstico y Configuración de Sistemas de Control
 - Software para Diagnóstico de Red
 - Softwares para OPC y OPC UA
 - Softwares para Sistemas de Entradas/Salidas PROJECT+
 - Software para inicio de estaciones Axioline STARTUP+
-



Webinar Software y Tecnologías

Agenda

- Software para parametrización de Interfaces de Comunicación
 - Software para Seguridad Funcional
 - Software para Visualización HMI y SCADA
-



Webinar Software y Tecnologías

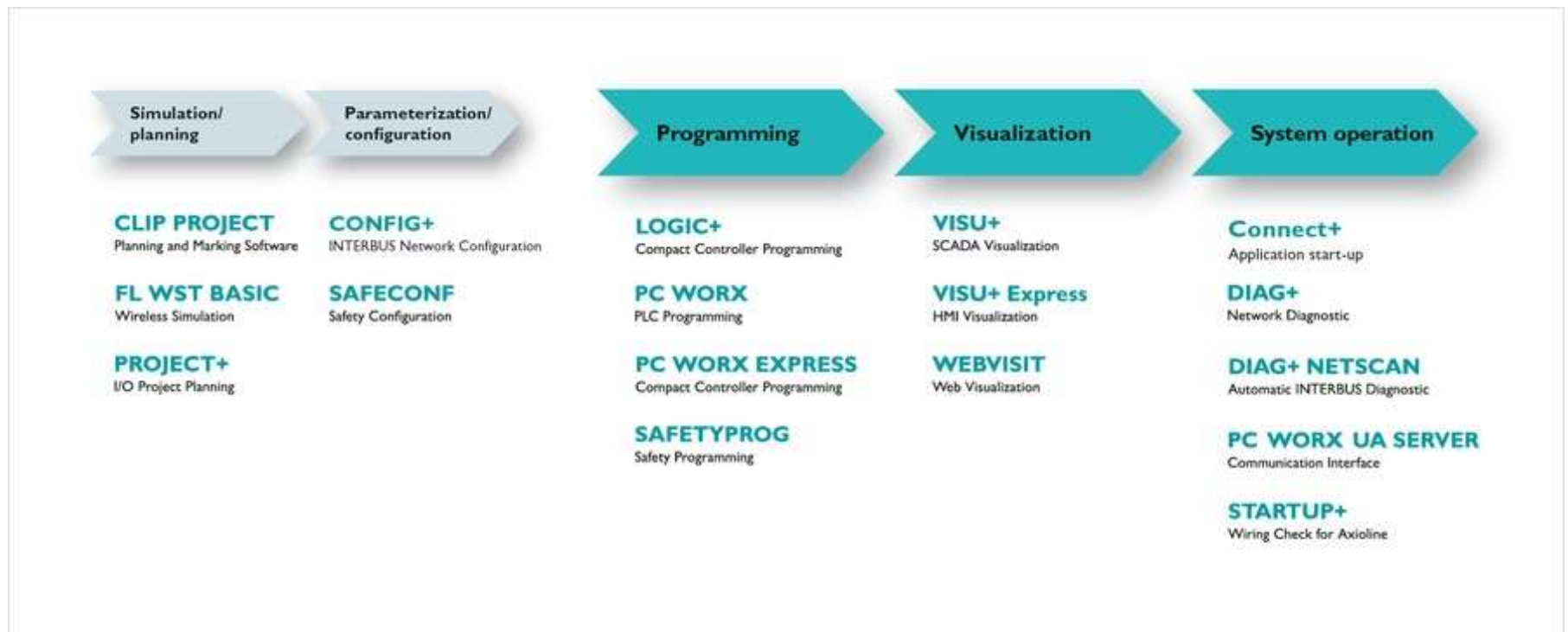
Agenda

- Tecnología PROFINET
 - Tecnología OPC UA
 - Tecnología DIGITAL TWIN
 - Tecnología PLCnext Technology
 - Tecnología PROFICLOUD
 - Tecnología SMART Services
 - Tecnologías E-Mobility
 - Tecnologías IIoT
 - Tecnología Plataforma Industria 4.0
-



Software

AUTOMATIONWORX



Softwares de Automatización

AUTOMATIONWORX Software



Software

AX SW SUITE

The AUTOMATIONWORX Software Suite is a comprehensive collection of optimally coordinated software tools for the Automation Worx automation system consisting of

PC WORX
PC WORX EXPRESS
DIAG+
DIAG+ NETSCAN
CONFIG+
VISU+
VISU+ EXPRESS
WEBVISIT
AX OPC SERVER



2985660 AX SW SUITE DEMO

Softwares

PC WORX

PC WORX EXPRESS

PC WORX

PLC programming

PC WORX DEMO Order No. [2985725](#)
PC WORX BASIC LIC Order No. [2985275](#)
PC WORX PRO LIC Order No. [2985385](#)

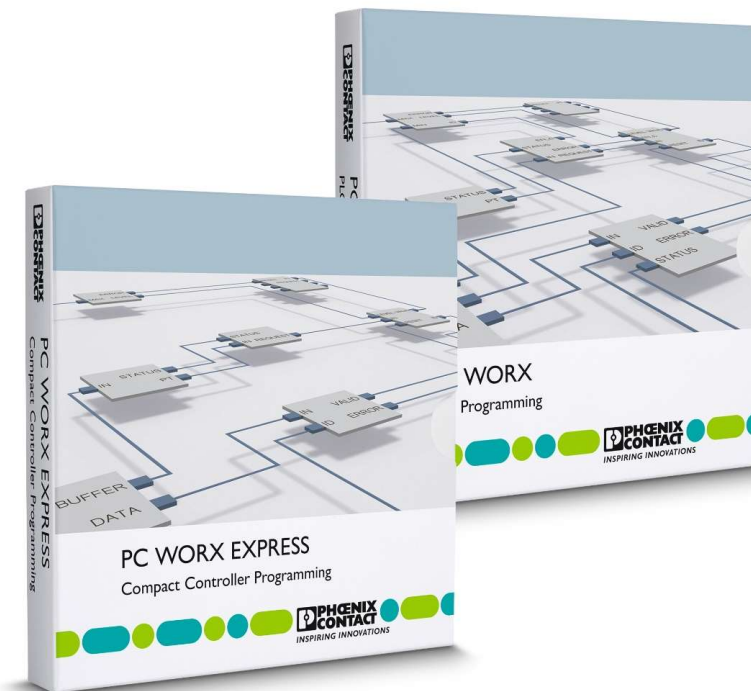
- Programming of Phoenix Contact controllers
- Network configuration and diagnostics
- Numerous programming languages supported: IL, FBD, LD, ST, SFC, FFLD

PC WORX EXPRESS

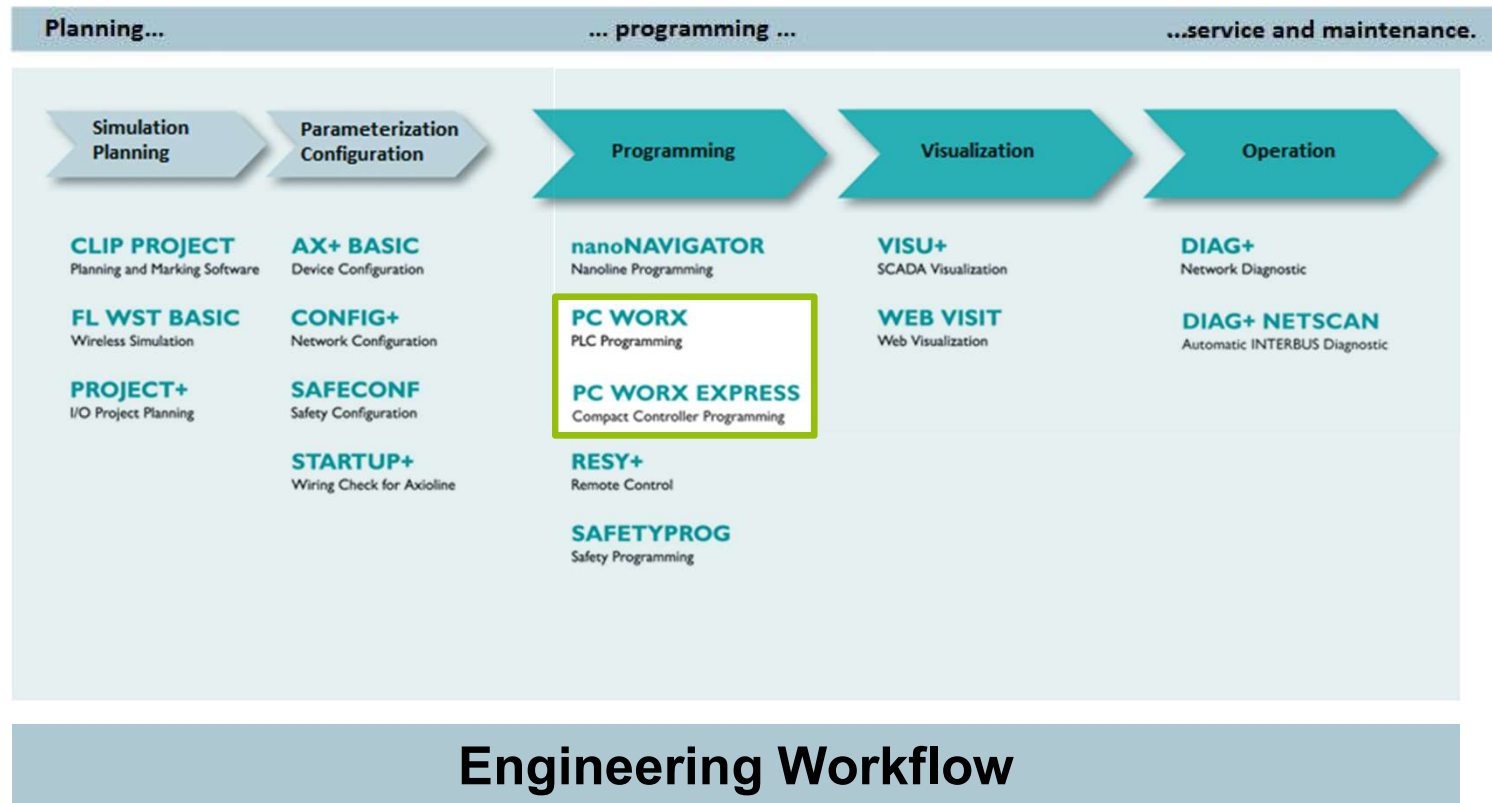
Programming small-scale controllers

PC WORX EXPRESS Order No. [2988670](#)

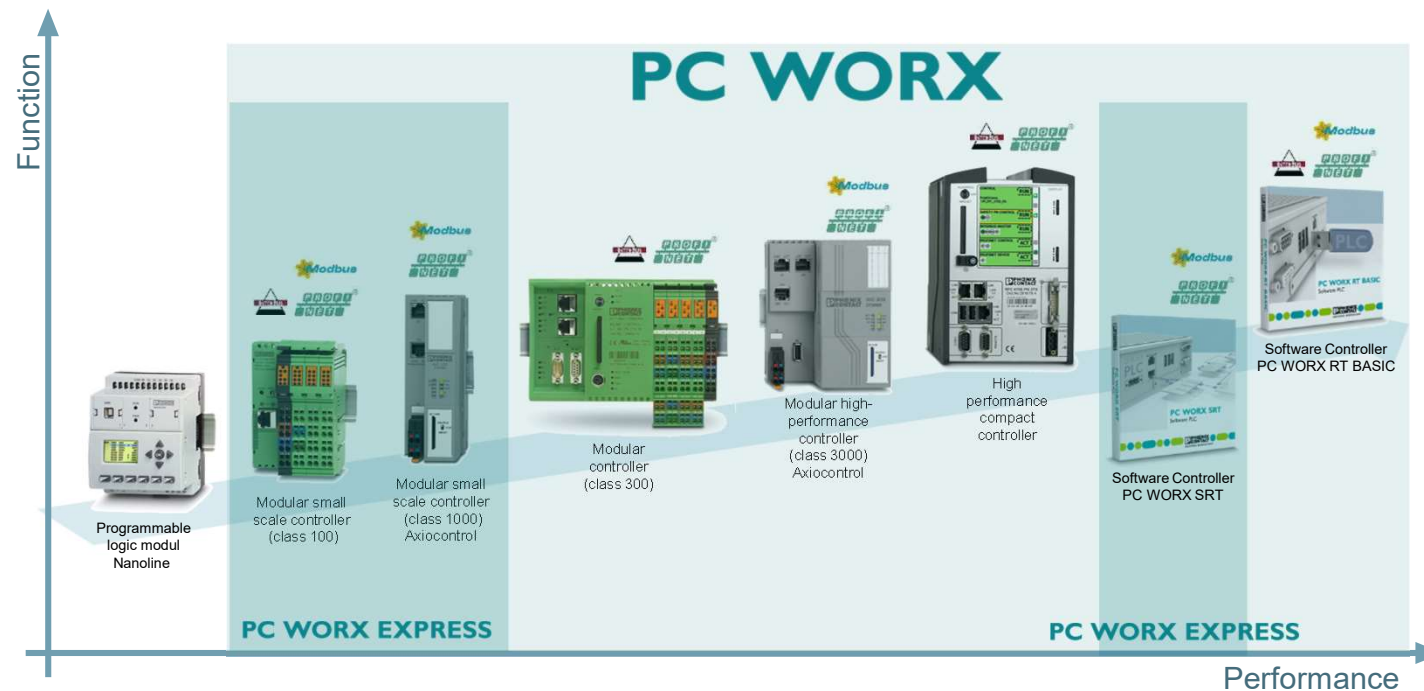
- Programming for class 100 and AXC 1050 modular small-scale controllers
- Automation system configuration
- INTERBUS module parameterization
- Programming languages supported: FBD, LD, ST
- 128 kB input/output data (mix)
- Can be downloaded free of charge



AUTOMATIONWORX Software Overview



PC WORX – Compatible controller



PC WORX

Worldwide consistent programming – IEC 61131

Integrated software-tools

Fast and flexible programming

- Additional standard libraries

Extensible

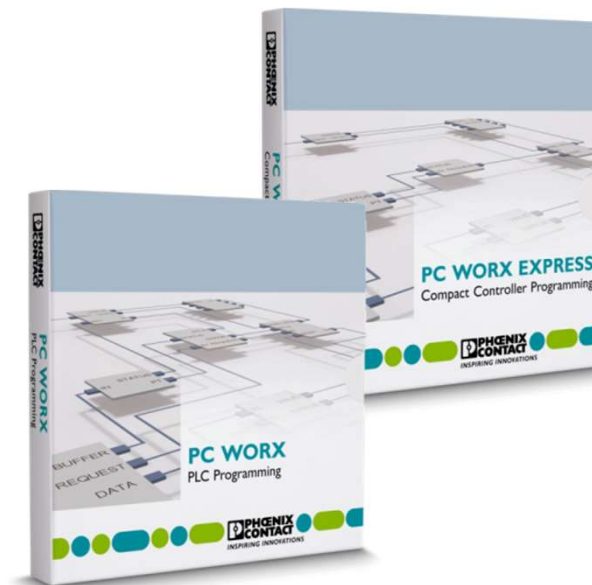
- User functions
- Function blocks or libraries

Easy handling

- Intuitive user interface
- Clear structures



One software for every engineering step



PC WORX – IEC 61131

All programming languages

PLC networks

Free graphical editor

The screenshot displays the PC WORX IEC 61131 software interface. The main workspace shows a ladder logic network with two CTUD (Counter Up/Down) blocks and several input/output variables. A 'Watch Window' is open, displaying a table of variables and their values. A 'Cycle consistent logic analyzer' window is also visible, showing a waveform plot. The interface includes a project tree on the left, a variable declaration window on the right, and a command window at the bottom.

Variable	Value	Default value	Type
Container_Status	TRUE	TRUE	Container_Status_Byte
Chop	FALSE	FALSE	Container_Status_Byte
Heater	FALSE	FALSE	BOOL
Motor	FALSE	FALSE	BOOL
Level	80	80	INT
Temp	25	25	INT
Status_of_container	Heater: CLOSE He...	Heater: CLOSE He...	STRING
Values_of_container	Level: 80; User Temp...	Level: 80; User Temp...	Container_Status

Editor-assistent

Watch windows

Cycle consistent logic analyzer

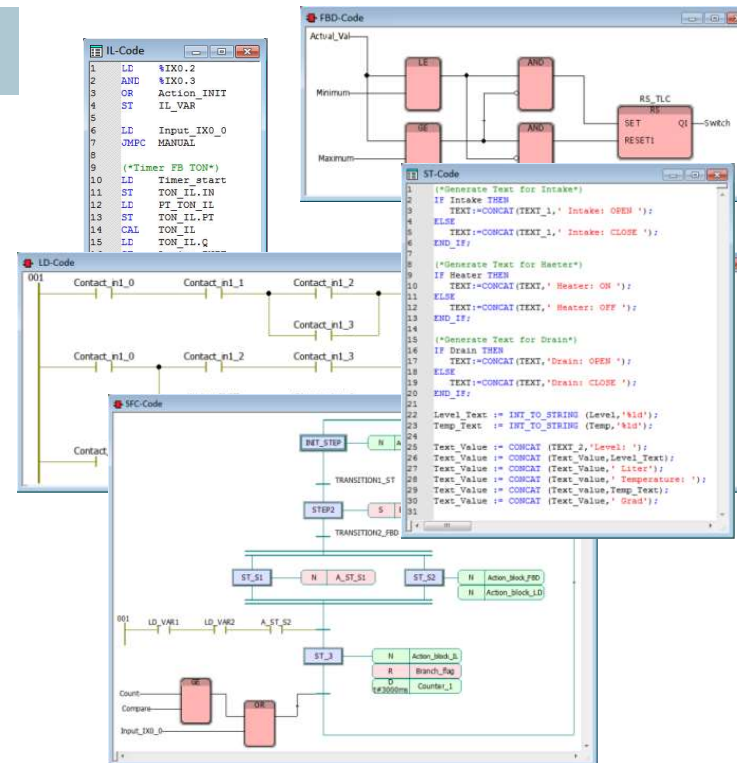
One programming system for all controllers

PC WORX – IEC 61131

Fast start with project templates

- Ladder logic (LD)
- Fixed format ladder logic (FFLD)
- Function block diagram (FBD)
- Instruction list (IL)
- Structured text (ST)
- Sequential function chart (SFC)

 **Easy handling**

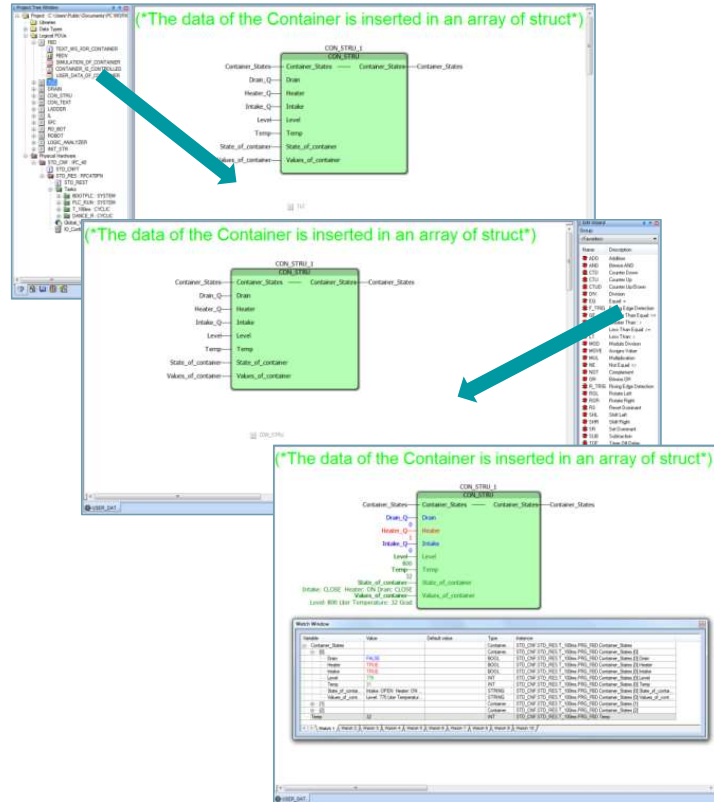


PC WORX – IEC 61131

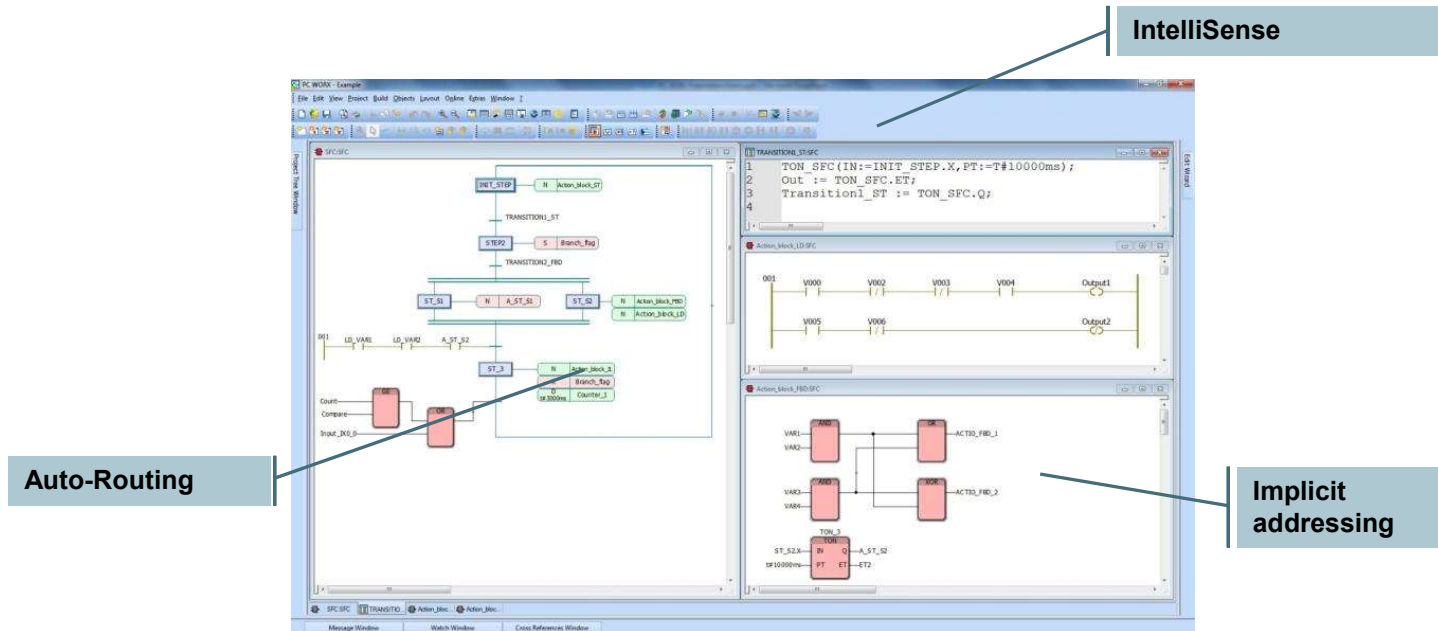
Consistent Drag & Drop

- Project tree
- Editor assistant
- Variable editor
- Watch windows
- Logic analyzer

 Easy programming



PC WORX – IEC 61131 editors

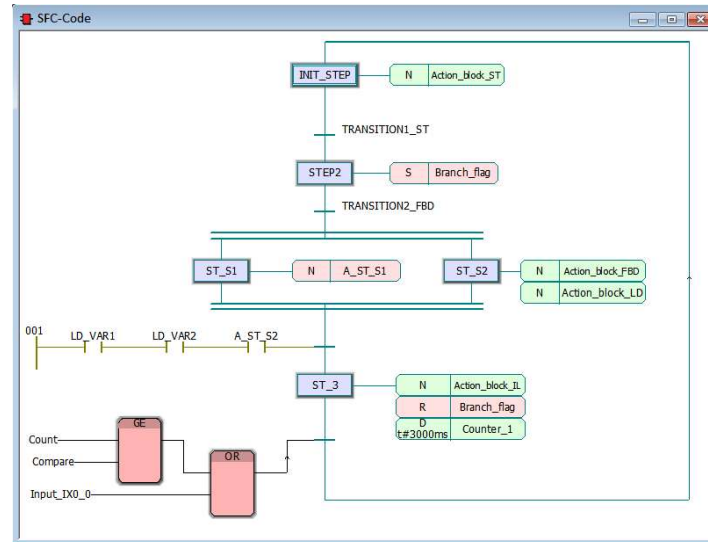


Free graphical or network based programming

PC WORX – Graphical programming

SFC

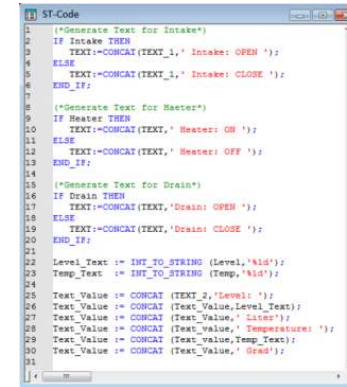
- Automatic insert and placing of objects
- Actions and transitions in all base IEC 61131-3 languages
- Auto routing
- Easy keyboard handling – programming without mouse



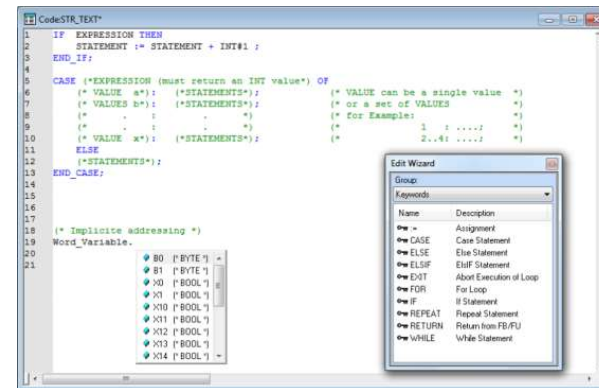
PC WORX – Network based programming

IL and ST

- Syntax highlighting
- Editor assistant for keywords, functions and function blocks
- Context sensitive menus



```
1 (*Generate Text for Intake*)
2 IF Intake THEN
3   TEXT:=CONCAT(TEXT_1,' Intake: OPEN ');
4 ELSE
5   TEXT:=CONCAT(TEXT_1,' Intake: CLOSE ');
6 END_IF;
7
8 (*Generate Text for Heater*)
9 IF Heater THEN
10  TEXT:=CONCAT(TEXT,' Heater: ON ');
11 ELSE
12  TEXT:=CONCAT(TEXT,' Heater: OFF ');
13 END_IF;
14
15 (*Generate Text for Drain*)
16 IF Drain THEN
17  TEXT:=CONCAT(TEXT,' Drain: OPEN ');
18 ELSE
19  TEXT:=CONCAT(TEXT,' Drain: CLOSE ');
20 END_IF;
21
22 Level_Text := INT_TO_STRING (Level,'%ld');
23 Temp_Text := INT_TO_STRING (Temp,'%ld');
24
25 Text_Value := CONCAT (TEXT_2,'Level: ');
26 Text_Value := CONCAT (Text_Value,Level_Text);
27 Text_Value := CONCAT (Text_Value,' Lines');
28 Text_Value := CONCAT (Text_Value,' Temperature: ');
29 Text_Value := CONCAT (Text_Value,Temp_Text);
30 Text_Value := CONCAT (Text_Value,' Grad');
31
```



```
1 IF EXPRESSION THEN
2   STATEMENT (* STATEMENT = INT#1 *)
3 END_IF;
4
5 CASE (*EXPRESSION (must return an INT value*) OF
6   (* VALUE a*): (*STATEMENTS*); (* VALUE can be a single value *)
7   (* VALUES b*): (*STATEMENTS*); (* or a set of VALUES *)
8   (* . . . *) (* For Example: *)
9   (* . . . *) (* 1 . . . 2 *)
10  (* VALUE x*): (*STATEMENTS*); (* 2..4i . . . 2 *)
11 ELSE
12  (*STATEMENTS*);
13 END_CASE;
14
15 (* Implicit addressing *)
16 Word_Variable.
17
18 00 [BYTE]
19 01 [BYTE]
20 02 [BOOL]
21 03 [BOOL]
22 04 [BOOL]
23 05 [BOOL]
24 06 [BOOL]
25 07 [BOOL]
26 08 [BOOL]
27 09 [BOOL]
28 10 [BOOL]
29 11 [BOOL]
30 12 [BOOL]
31 13 [BOOL]
32 14 [BOOL]
```

Name	Description
=	Assignment
CASE	Case Statement
ELSE	Else Statement
ENDIF	End Statement
EXIT	Abort Execution of Loop
FOR	For Loop
IF	If Statement
REPEAT	Repeat Statement
RETURN	Return from FB/FU
WHILE	While Statement

PC WORX – Variable management

The screenshot displays the PC WORX software interface. The top window, titled 'PC WORX - Example', shows a table of variables for a project named 'FEDV-FED'. The table includes columns for Name, Type, Usage, Description, Address, Init, Retain, PGC, OPC, TB, Hidden, Intvalue on, Default Val, LG, and Connection. Below the table, a green text box states: (*The Container is controlled and Text information is generated*). The bottom window shows a control diagram with three main components: 'TLC_Level', 'TLC_Temp', and 'CON_TEXT_1'. 'TLC_Level' and 'TLC_Temp' are control blocks with inputs for Level, Temp, and various setpoints. 'CON_TEXT_1' is a text block that outputs 'State_of_container' and 'Values_of_container'. The diagram illustrates the logic for controlling the container's level and temperature.

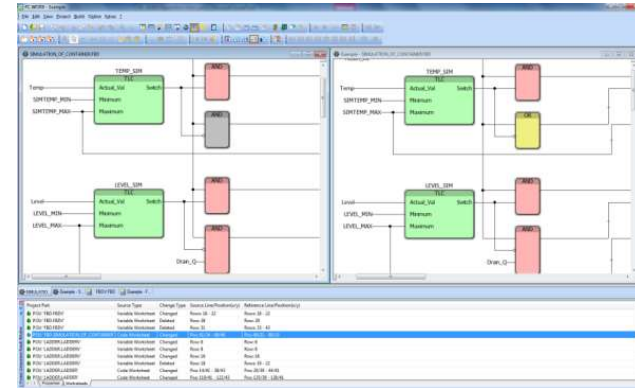
Name	Type	Usage	Description	Address	Init	Retain	PGC	OPC	TB	Hidden	Intvalue on	Default Val	LG	Connection
TO VARIABLES_OF_CONTAINER														
Action_Rst	BOOL	VAR_EXTERNAL	Action Rst is active											
SETTEMP_MIN	INT	VAR_EXTERNAL	Minimum of temperature											
SETTEMP_MAX	INT	VAR_EXTERNAL	Maximum of temperature											
LEVEL_MAX	INT	VAR_EXTERNAL	Maximum of level											
LEVEL_MIN	INT	VAR_EXTERNAL	Minimum of level											
Temp	INT	VAR_EXTERNAL	Temperature of the Container											
Temp_Min	INT	VAR_EXTERNAL	Minimum temperature of the Container											
Temp_Max	INT	VAR_EXTERNAL	Maximum temperature of the Container											
Drain_Q	BOOL	VAR_EXTERNAL	Drain is open											
Heater_Q	BOOL	VAR_EXTERNAL	Heater is on											
Level	INT	VAR_EXTERNAL	Level of the Container											
LEVEL_MIN	INT	VAR_EXTERNAL	Minimum of level											
LEVEL_MAX	INT	VAR_EXTERNAL	Maximum of level											
Container_Status	Container_Status	VAR_EXTERNAL												
CU_andolump	BOOL	VAR_EXTERNAL												
Values_of_container	STRING	VAR_EXTERNAL												
Reset	BOOL	VAR	Reset the up and down Counter											
Load	BOOL	VAR	Load the up and down Counter											

Assistants monitor every step | errors are displayed visually

PC WORX – Features

Online und Offline

- Own workspace for program comparison
- Differences will be shown vice versa and highlighted
- Differences in configuration settings will be listed
- Print of differences possible



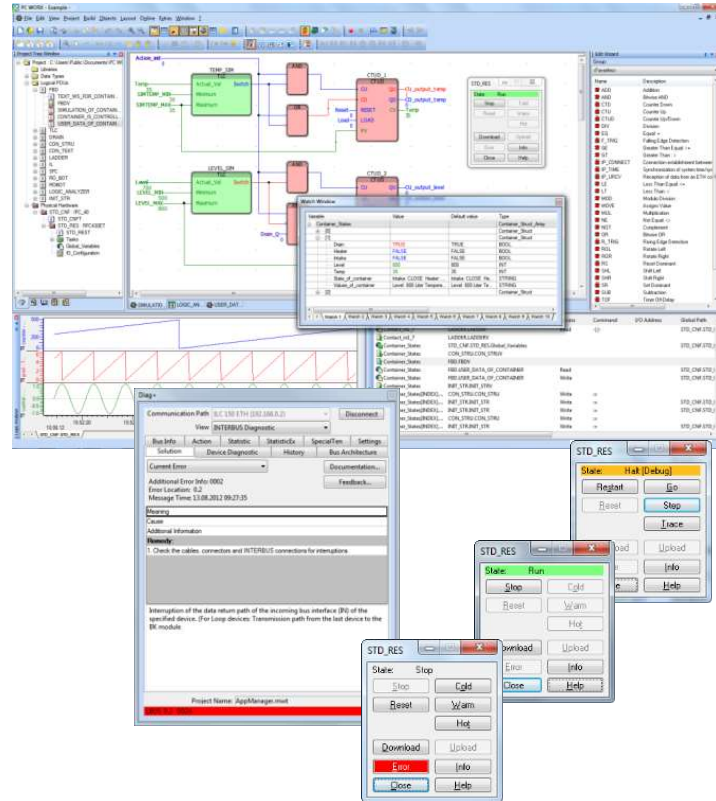
The screenshot displays the PC WORX software interface with a comparison table of configuration settings. The table is divided into two main sections: 'Left' and 'Right'. Each section contains a list of parameters and their values. The 'Left' section lists parameters such as 'TEMP_SSH', 'SPRTTEMP_PNO', 'LEVEL_SSH', and 'LEVEL_PNO'. The 'Right' section lists parameters such as 'TEMP_SSH', 'SPRTTEMP_PNO', 'LEVEL_SSH', and 'LEVEL_PNO'. The table includes columns for 'Name', 'Type', 'Value', and 'Comment'. The bottom of the interface shows a 'Project Explorer' pane with a list of files and folders, including 'TEMP_SSH' and 'LEVEL_SSH'.

PC WORX – Features

Program und network

- Logic analyzer
- Breakpoints / Single step
- Online debug in libraries
- Instance debug
- Watch windows / recipe management
- Force list
- Plain text messages of PLC errors
- Network- and field bus diagnostic

➔ **Easy commissioning and troubleshooting**



PC WORX – Features

Network- and bus configuration

Configuration, parametrization and diagnostic:

- INTERBUS
- PROFINET
- MODBUS
- PROFIBUS
- Ethernet

FDT/DTM Technology



Open and uniform



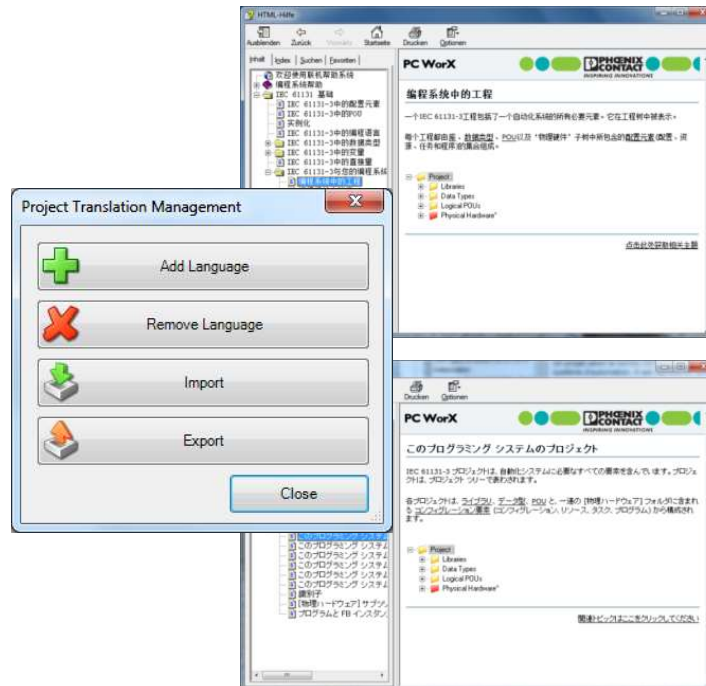
Ethernet



PC WORX – Features

Usable worldwide

- English
- German
- Spanish
- French
- Italy
- Chinese



➡ Easy project translation management

PC WORX – Features

Projekt documentation

Print layout configurable with comfortable page layout editor

User defined documentation for:

- Projects
- Libraries
- Function block functions

POU: FBD_1, Description: TEXT_WS_FOR_CONTAINER
This POU is used to control the container.

In the worksheet SIMULATION_OF_CONTAINER the level and temperature are simulated.
In the second worksheet CONTAINER_IS_CONTROLLED the container is controlled.

POU: FBD_1, Variables: FBD_1V

Name	Type	Usage	Description	Is it a global variable?	Is it a local variable?	Is it a parameter?	Is it a variable?	Is it a constant?	Is it a function?	Is it a device?	Signal	Address
VARIABLES OF CONTAINER												
Alarm_In	BOOL	VAR_IN	Alarm-In									
CONTAINER_MIN	INT	VAR_IN	Minimum									
CONTAINER_MAX	INT	VAR_IN	Maximum									
LEVEL_MAX	INT	VAR_IN	Maximum									
LEVEL_MIN	INT	VAR_IN	Minimum									
Temp	INT	VAR_IN	Temperature									
Temp_Min	INT	VAR_IN	Minimum									
Temp_Max	INT	VAR_IN	Maximum									
Drawn_In	BOOL	VAR_IN	Drawn-In									
Drawn_Out	BOOL	VAR_IN	Drawn-Out									
Header_In	BOOL	VAR_IN	Header-In									
Header_Out	BOOL	VAR_IN	Header-Out									

Time diagram

The input IN changes from FALSE to TRUE, switching on a delay for the duration of the time interval applied to the input PT. After PT has passed, Q is set to TRUE. The elapsed time interval is indicated at the output ET.

Function block diagram

The input IN and the output Q can be negated.

PC WORX

Phoenix Contact GmbH & Co. KG
Postfachstraße 4
33031 Bielefeld
Germany

Sheet number: 1

Current POU: FBD_1

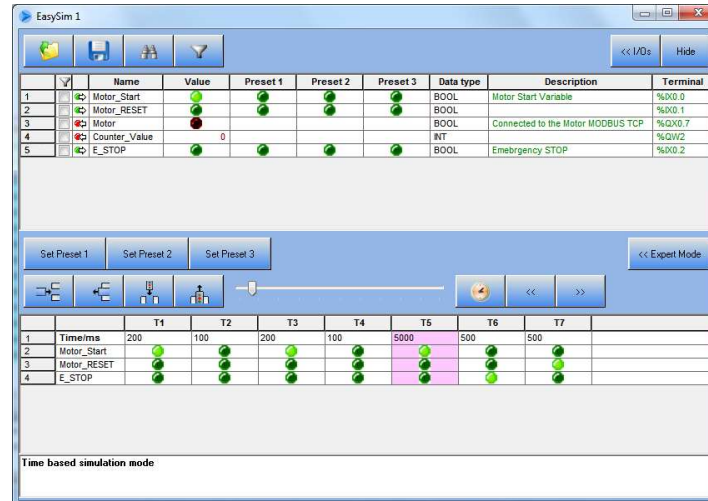
Example

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PC WORX – Features

Simulation

- Read and write IO Variables
- Time based simulation of your process
- Comment every simulation step
- Store and reopen the configuration of your simulation

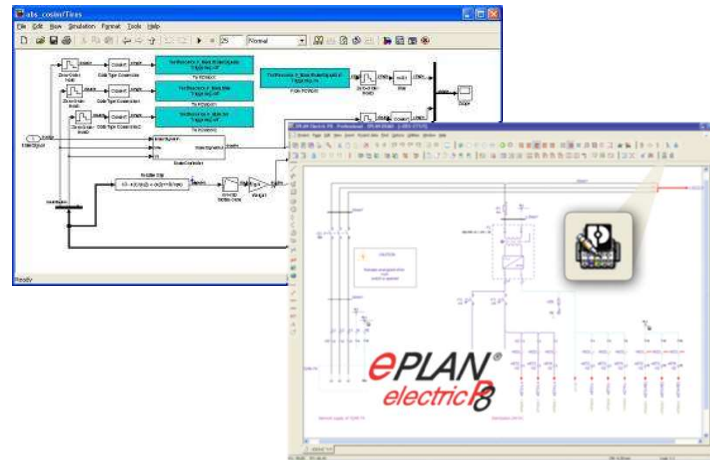


PC WORX – features

Interfaces

- Simulation with WinMOD
- Code generation with Matlab/Simulink® and Stateflow
- PLCopen XML import and export
- EPLAN interface
- Project+ interface
- FDT/DTM

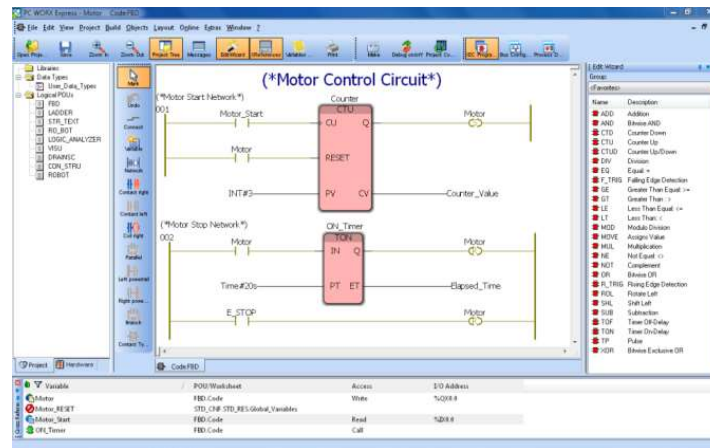
 **Consistency**



PC WORX – features

Easy Automation - EXPRESS

- Free IEC 61131-3 engineering tool
- For all PLC's of the 1xx class
- Inclusive configuration and diagnostic

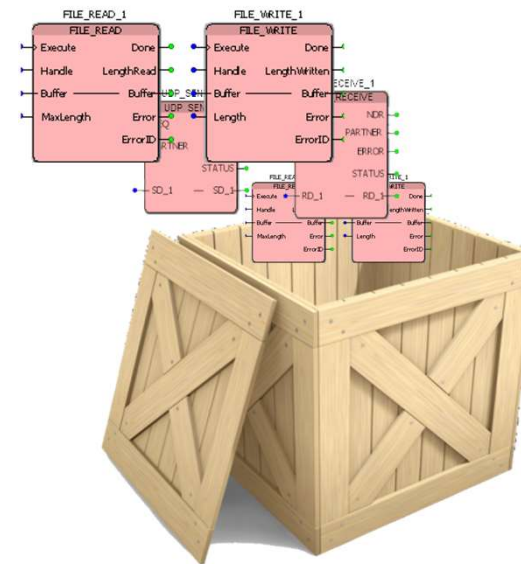


Free download: www.phoenixcontact.com

PC WORX – features

Prefabricated libraries

- Analog signal processing
- Control engineering
- IT libraries
- SMTP, SNMP, SQL, FTP Function block libraries
- Building automation
- MODBUS RTU
- Positioning
- CAN open
- And much more...



Software para controladores PLCnext

PLCnext Engineer



PLCnext Engineer

PLCnext Technology 
Designed by PHOENIX CONTACT

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 Engineer

PLCnext Technology 
Designed by PHOENIX CONTACT

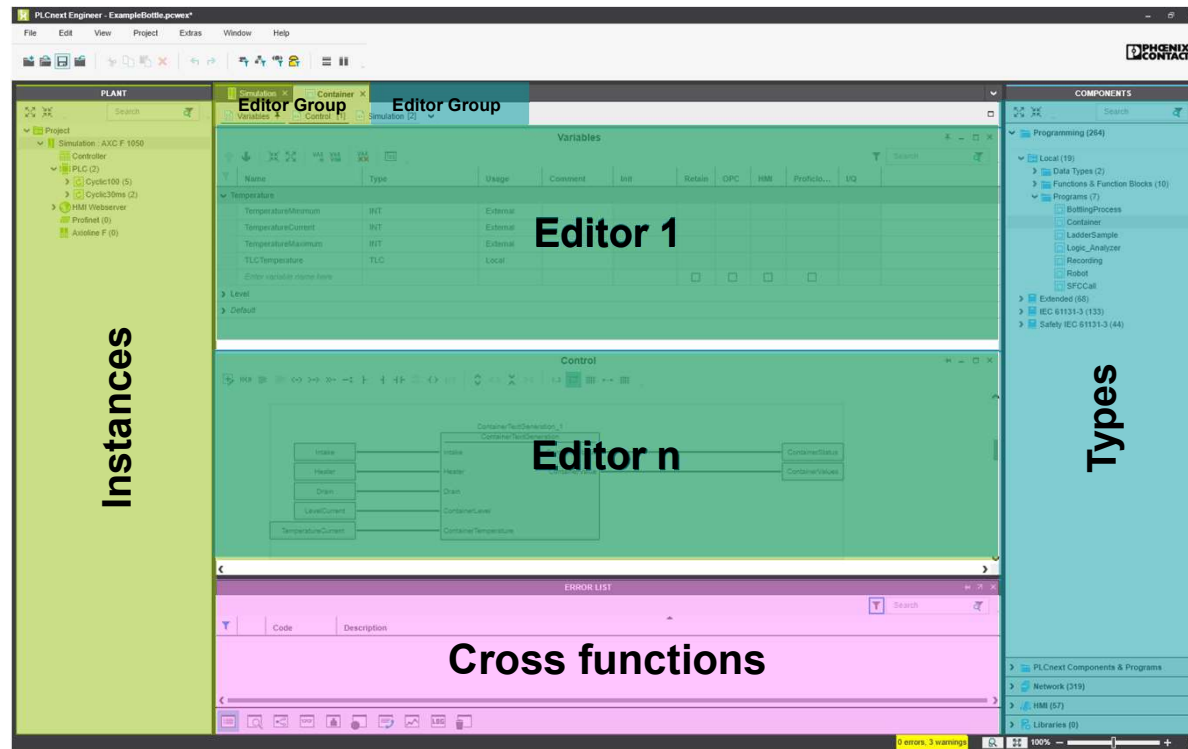
Complete Integrated System



PLCnext Engineer

Information Architecture

PLCnext Technology 
Designed by PHOENIX CONTACT



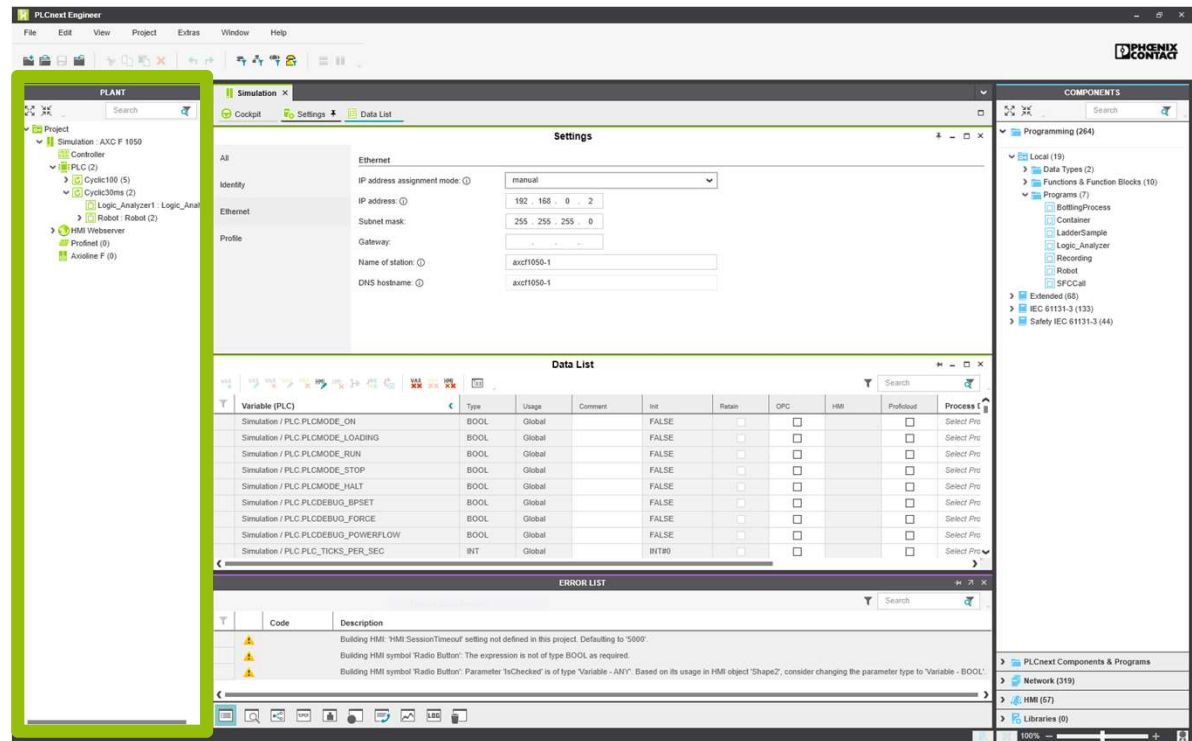
The screenshot displays the PLCnext Engineer software interface, which is organized into several key areas:

- Instances:** A vertical pane on the left side of the interface, highlighted in green, showing a project tree with components like 'Simulation: AXC F 1050', 'Controller', 'PLC (2)', 'CycleTime (5)', 'HMI Webserver', 'Profinet (8)', and 'Analog F (8)'.
- Editor 1:** The top section of the main workspace, labeled 'Editor 1', which contains a 'Variables' table. The table has columns for Name, Type, Usage, Comment, IIR, Retain, OPC, HMI, Profile..., and IO. It lists variables such as 'TemperatureMaximum', 'TemperatureCurrent', and 'TLCTemperature'.
- Editor n:** The bottom section of the main workspace, labeled 'Editor n', which displays a control logic diagram with various components like 'Container', 'ContainerTemperature', and 'ContainerCurrent'.
- Cross functions:** A horizontal pane at the bottom of the interface, labeled 'Cross functions', which is currently empty.
- Types:** A vertical pane on the right side of the interface, highlighted in blue, showing a list of components and types under the heading 'COMPONENTS'. It includes categories like 'Programming (264)', 'Local (19)', 'Data Types (2)', 'Functions & Function Blocks (10)', 'Programs (7)', 'Extended (88)', 'IEC 61131-3 (133)', and 'Safety IEC 61131-3 (44)'.

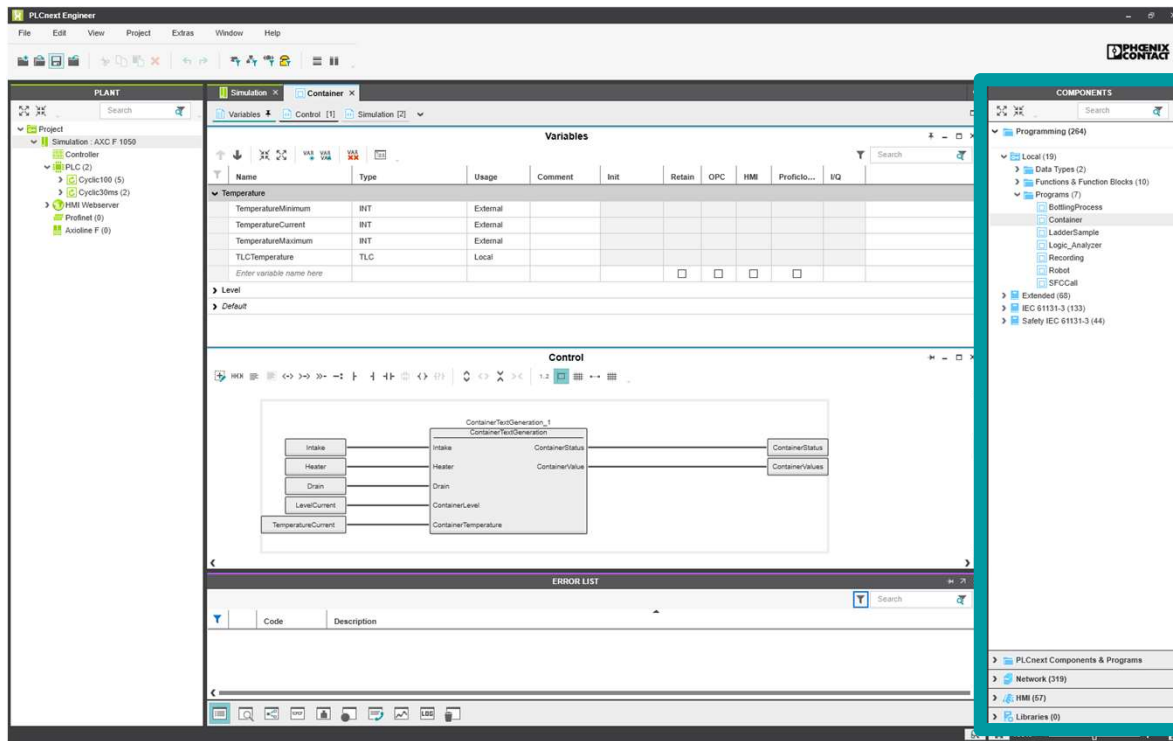


The User Interface – Plant Area

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



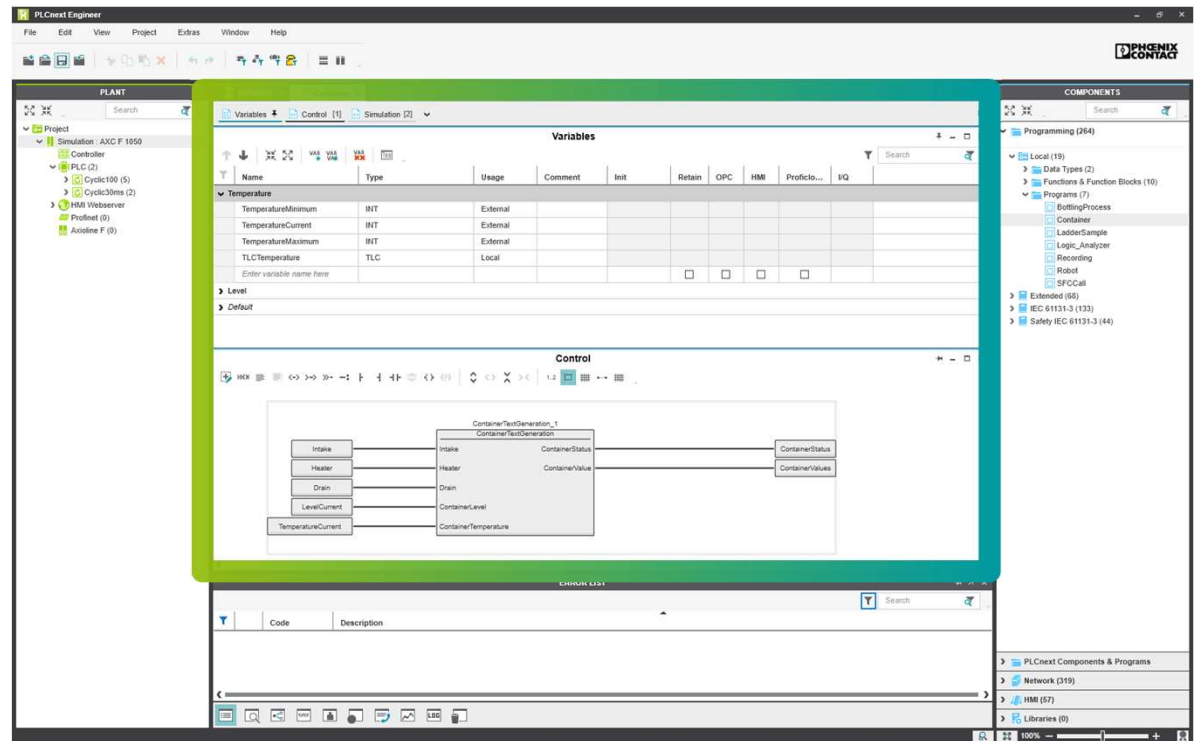
The User Interface – Component Area



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

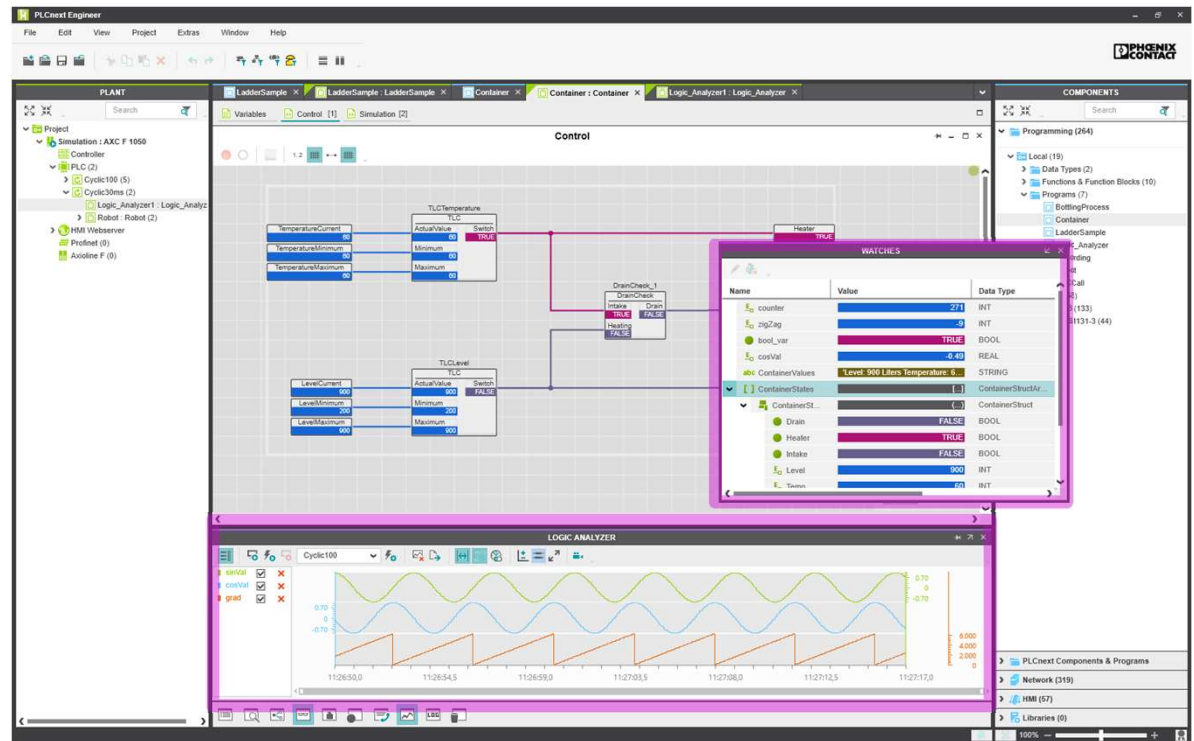
The User Interface – Editor Area

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



The User Interface – Cross Function Area

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



PLCnext Engineer

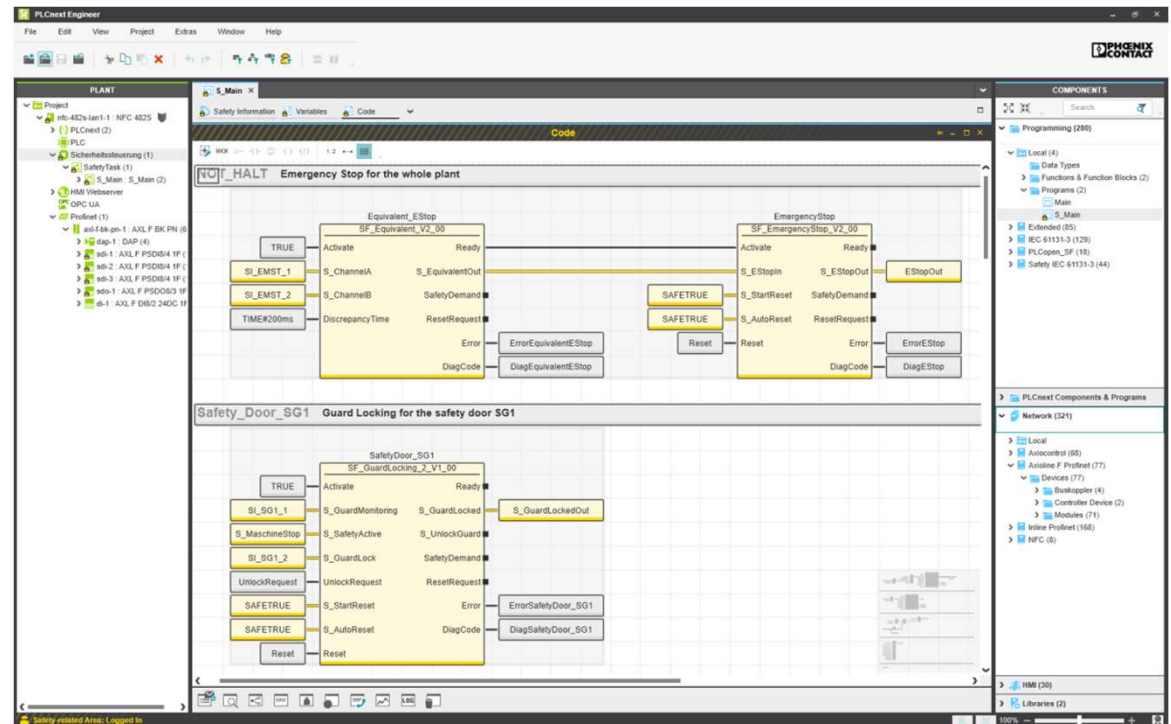
Functional Safety Programming



PLCnext Technology 
Designed by PHOENIX CONTACT

Fully integrated Safety Programming

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



Software de Diagnóstico y Configuración para Sistemas de Control

CONFIG+ DIAG+ DIAG+ NETSCAN



Software de Diagnóstico y Configuración para Sistemas de Control

CONFIG+

The screenshot displays the CONFIG+ software interface for a 'Load-Station.bcp' project. The main window is divided into several panes:

- Bus Structure:** A tree view showing the hierarchy of the control system. It includes a 'Load-Station' root with various modules like 'IBS S7 400 DSC(I-T 0.0)', 'IBS IL 24 BK RB-LK 1st 1.0', and 'IBS IL 24 BK RB-LK 2nd 2.0'. The 'IBS IL 24 BK RB-LK 1st 1.0' module is expanded, showing its internal components.
- Device Details:** A pane showing the configuration for the selected device, '# 8 IB IL 24 SAFE 1 9.1 (INTERBUS Settings)'. It contains a table with the following data:

Name	Value
Vendor	Phoenix Contact
Designation	IB IL 24 SAFE 1
Functional Description	INTERBUS Inline Safety Terminal
Device Type	I/O Function Module
Device Family	IL
Order number	2740782
Revision	xx
Consecutive Number	8
Bus Segment Number	9
Position Number	1
Group	0
Alternative	0
Service Information	
Station Name	
Device Name	
Module Equipment ID	
Non-reactive Switch off	Bus in stop
ID Code	190
Process data length	2
Parameter channel length	0
500 kbaud supported	True
2 Mbaud supported	False

- Device Catalog:** A list of manufacturers and their products, including 'M&M Software GmbH', 'microsonic GmbH (IODDs)', 'Mitsubishi', 'Nelson_O1', 'PEPPERL+FUCHS GmbH', and 'Phoenix Contact'.
- Output window:** A message at the bottom states: 'INTERBUS: The interface types of device A and B do not match (A: "IBS IL 24 BK RB-LK 1st"(1.4.0), B: "IBS IL 24 BK RB-LK 1st"). Install an interface converter.'

Software de Diagnóstico y Configuración para Sistemas de Control

DIAG+

Diag+ 2

Communication Path: Gerät174.204.4.11 Disconnect

View: Optical PROFINET Diagnostics

Source Print Compare... Save Comparison... Open Comparison... Columns

Test_FO_RFC470PN_180112-mwt_rfc-470-pn-fw382-ts_07-02-2012 11-04-05.diagfo

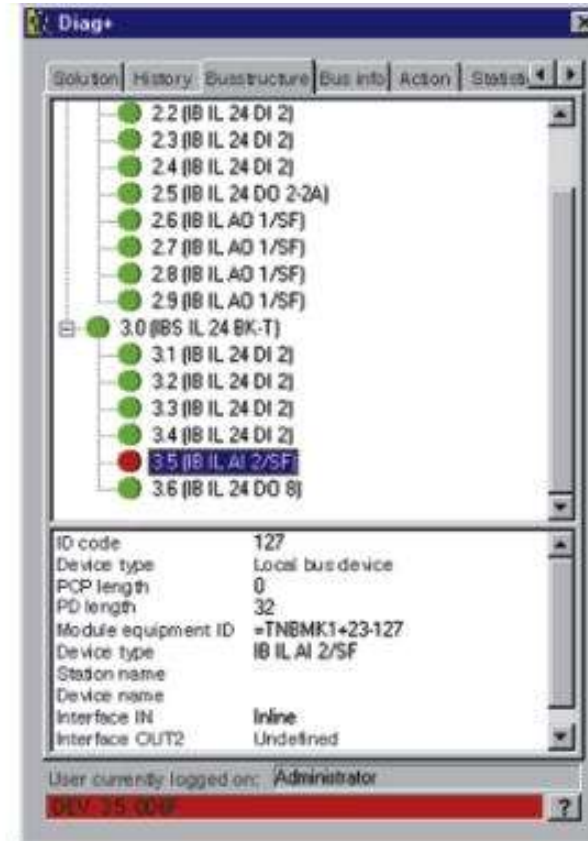
DNS/PN Name:	Port	dB	Status	Length	DNS/PN Name:	Port	dB	Status
fl-switch-mm-hs2.pybr02	port-001-00004	--	●	--				
fl-switch-ghs.dtm.testschrank	port-001-00014	15,2	●	--	scalance-x202-lemgo-test	port-003	--	●
fl-switch-irt-1bx3pof-lemgo1	port-002	15,6	●	--	fl-switch-smn-6tx2pof-ts-1	port-002	--	●
il-pn-bk-2scij-2	port-001	0,0	●	48	rt-pn-24-2-dio-2scij-1.testschrank.de	port-002	2,6	●
fl-switch-ghs.dtm.testschrank	port-001-00009	3,0	●	--	rt-pn-24-2-dio-2scij-2.testschrank.de	port-001	0,6	●
rt-pn-24-2-dio-2scij-2.testschrank.de	port-002	14,0	●	--	fl-switch-mm-hs1.pybr02	port-002-00002	17,3	●
fl-switch-mm-hs.pybr02	port-002-00002	1,6	●	--	et200pro-im154-4pnhv50-lemgo-test	port-002	4,8	●
il-pn-bk-2scij-2	port-002	0,8	●	25	il-pn-bk-2scij-1	port-002	2,2	●
et200pro-im154-4pnhv50-lemgo-test	port-001	6,0	●	44	rt-pn-24-2-dio-2scij-1.testschrank.de	port-001	1,0	●
fl-switch-mm-hs1.nuhr02	port-001-00002	16,6	●	--	fl-switch-mm-hs2.nuhr02	port-002-00002	14,3	●

Project Name: FDTKofferNeu170_81111_D.mwt

Online

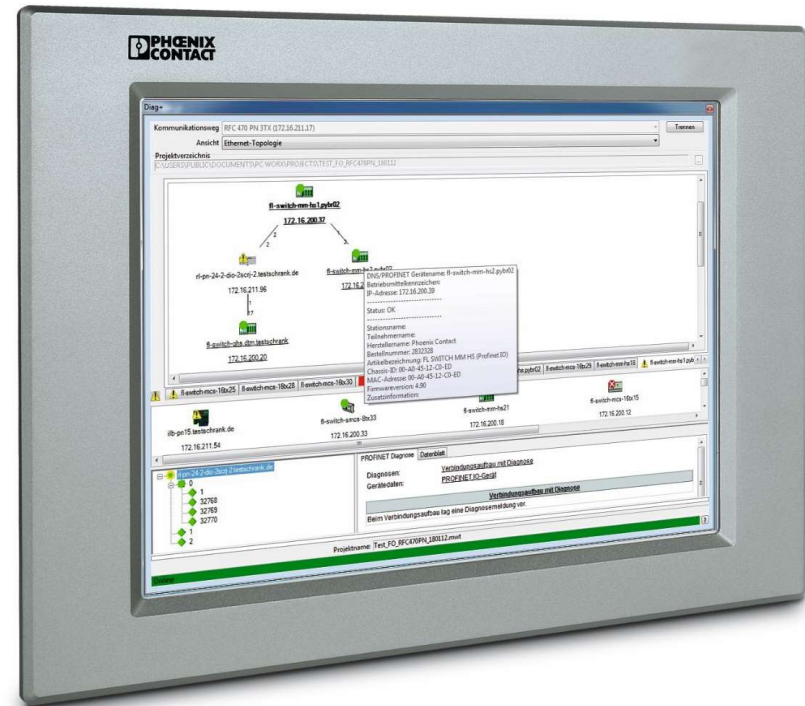
Software de Diagnóstico y Configuración para Sistemas de Control

DIAG+ NETSCAN



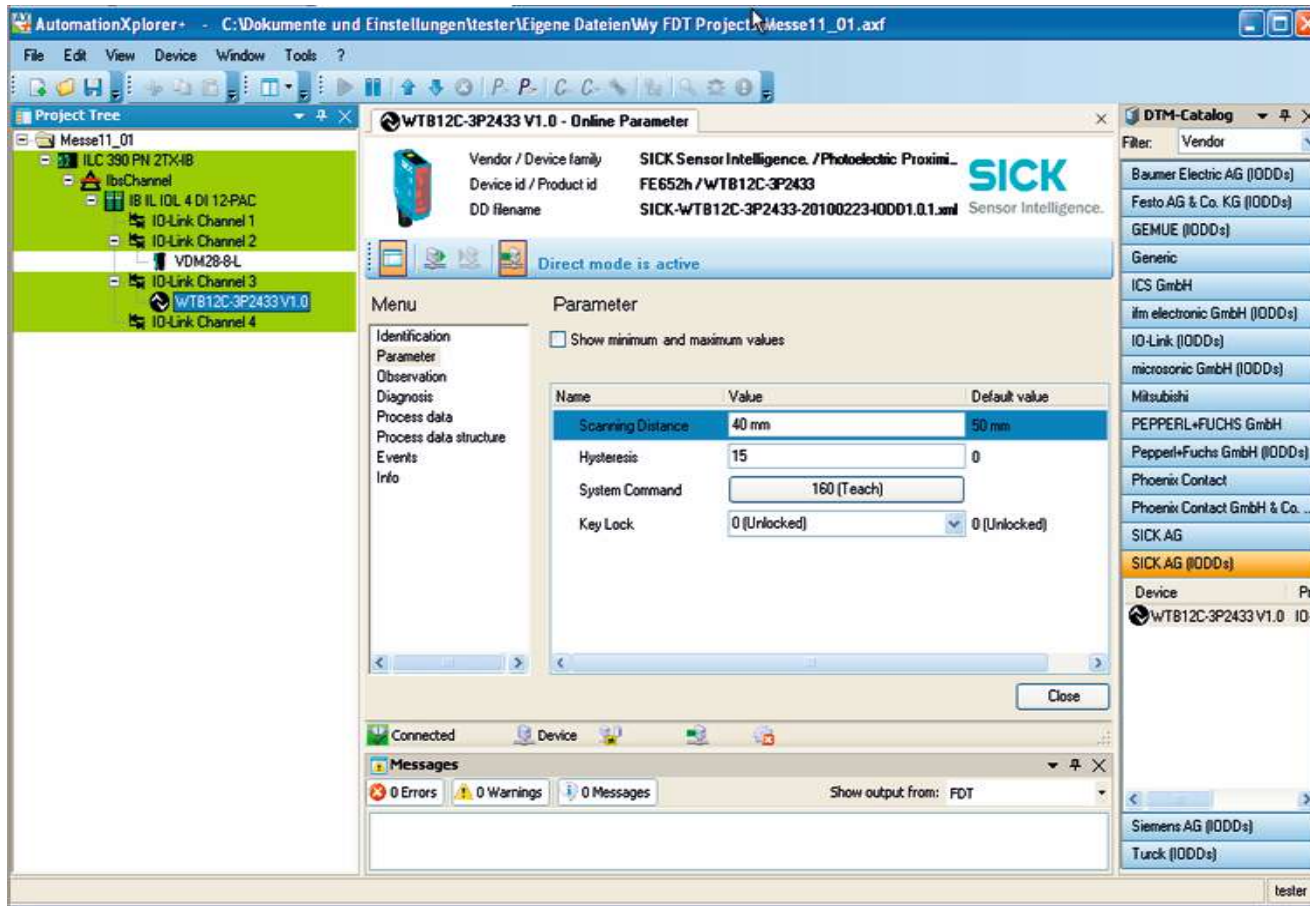
Software de Diagnóstico y Configuración para Sistemas de Control

DIAG+ NETSCAN



Software de Diagnóstico y Configuración para Sistemas de Control

DIAG+

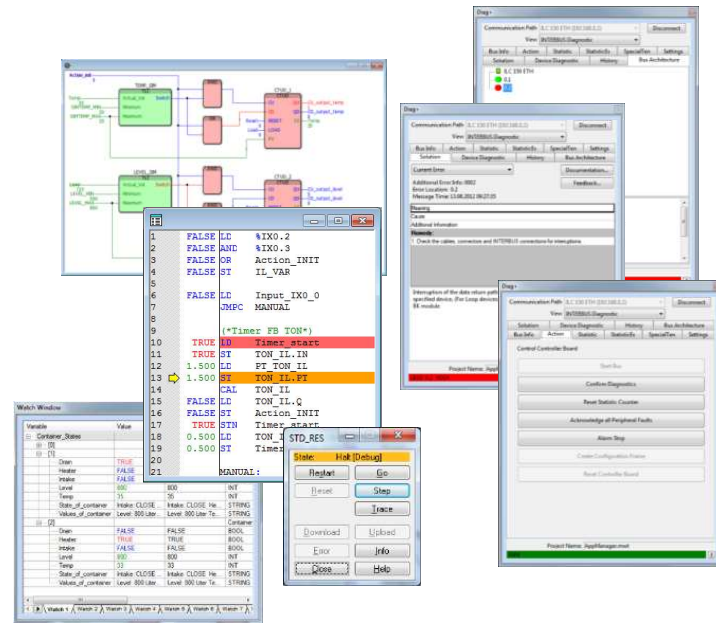


DIAG+ Network Diagnostics

Support in Error Avoiding

Fieldbus Diagnostic with comfortable PLC functions

- Breakpoints
- Individual steps
- Debugging in libraries
- Instance debugging
- Observing values from different program parts in a watch window
- Force list
- Quick bus startup
- Quick error localization thanks to plain-text error messages

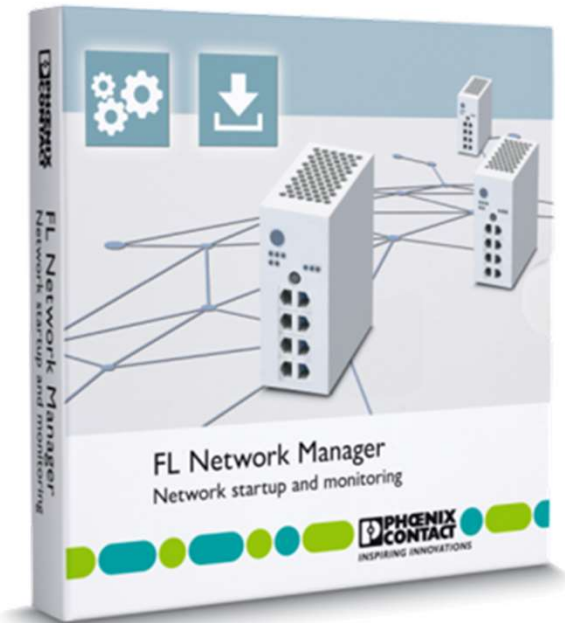


Quick error localization and error-free startup thanks to extensive debugging functions.

Herramienta de Software para red

FL NETWORK MANAGER

- With the FL NETWORK MANAGER you are able to get a quick and easy startup of your network . The software supports you with the following functions:
 - Scan of available networks
 - IP Assignment and Multi Device Configuration
 - Configuration File Handling
 - Firmware Update
 - SNMP based scripting



Übersicht der Funktionen des Network Manager

How can the Network Manager help you?

The screenshot displays the FL Network Manager Basic software interface, which is used for managing industrial network devices. The interface is divided into several panels:

- Project:** Shows the current project name, "Project (26 of 20)".
- Online Devices:** A table listing 24 online devices. The table has columns for "Name of station", "Type", "Status", "Display Name (Online)", "Subnet mask", and "Default gateway". The devices are listed with their IP addresses and names, such as "192.168.200.17 - Ethernet Device" and "192.168.200.237 - FL SWITCH MM HS".
- Scan options:** A panel on the right side of the interface showing settings for various scans. It includes sections for "SNMP scan", "ICMP scan", "Ping scan", and "BOOTP/DHCP scan". Each section has checkboxes for "Enable" and "Disable", and a "Network adapter" dropdown menu.
- LOGGING:** A panel at the bottom left showing a log of events. It has columns for "Time Stamp", "Code", and "Description". The log shows events related to TFTP server activity, such as "Transfer of file 't_switch_1900_v2_00_00'" and "Successful firmware update on the device".
- TFTP SERVER:** A panel at the bottom right showing a table of TFTP server activity. It has columns for "IP address", "File name", "Progress", and "Action".

The interface is running on a Windows operating system, as indicated by the taskbar at the bottom.

FL NETWORK MANAGER



Software configurators for OPC

OPC Configurators



Software OPC Visualización

AX OPC SERVER

When all variables of PLC are declared OPC...

Then....

OPC Variables can be used immediately on

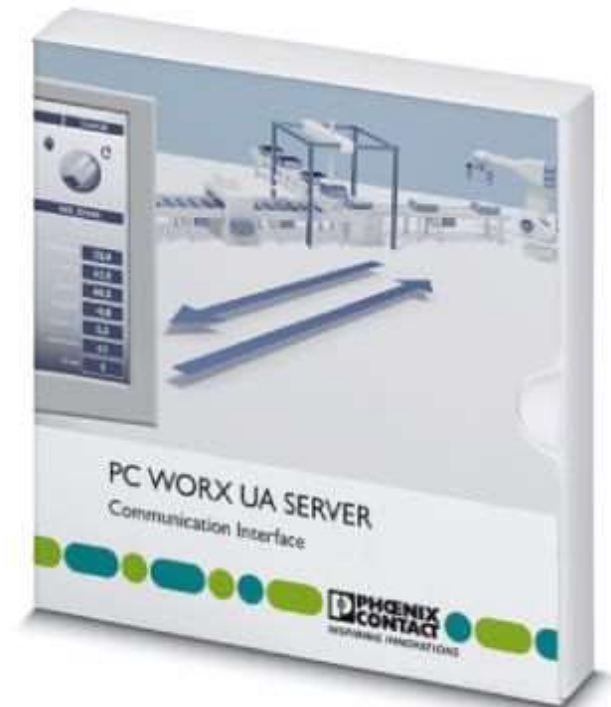
Visualization Software as VISU+

This tool enable communication between PLC and HMI Software



PC WORX OPC UA SERVER

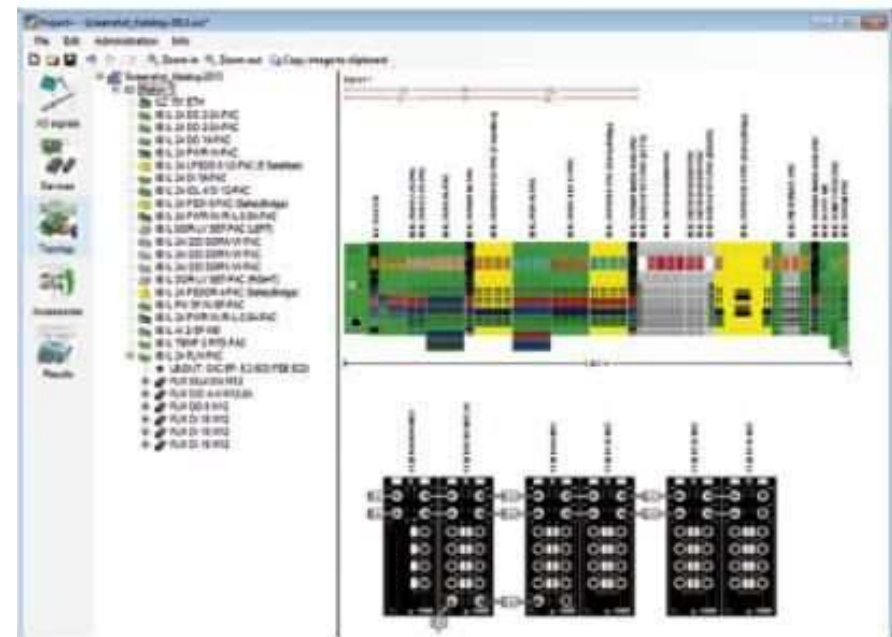
The PC WORX UA SERVER from Phoenix Contact enables you to access all variables of PC Worx programmable controllers via the OPC UA (Unified Architecture) standardized communication protocol.



PROJECT+ 2.8

Inline Controllers & Buskopples I/O

Fieldline Modular



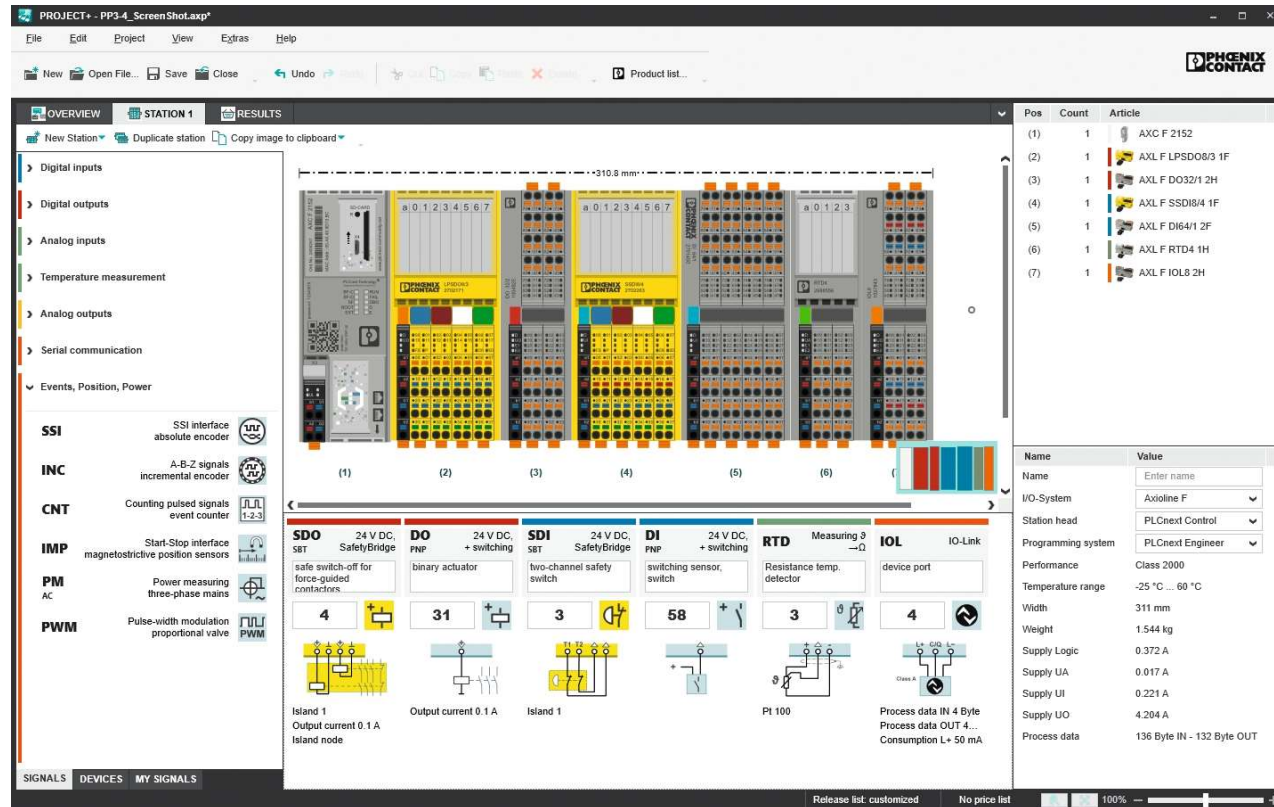
Software and Technologies

PROJECT+

Project+

is a configuration tool that supports you when creating an I/O station as part of the automation of a system, machine or property.

Project + 3: Planning for Axioline F and Inline I/O stations

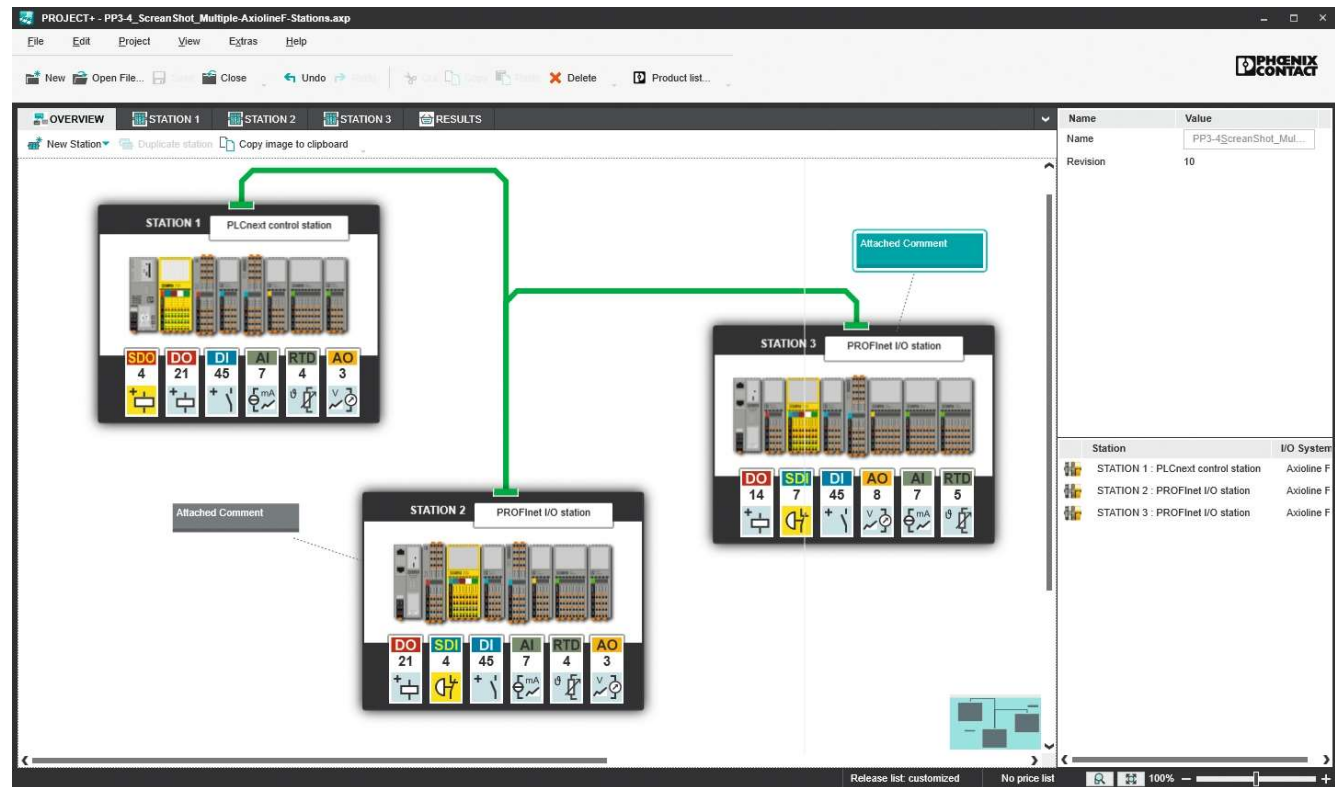


Software and Technologies

PROJECT+

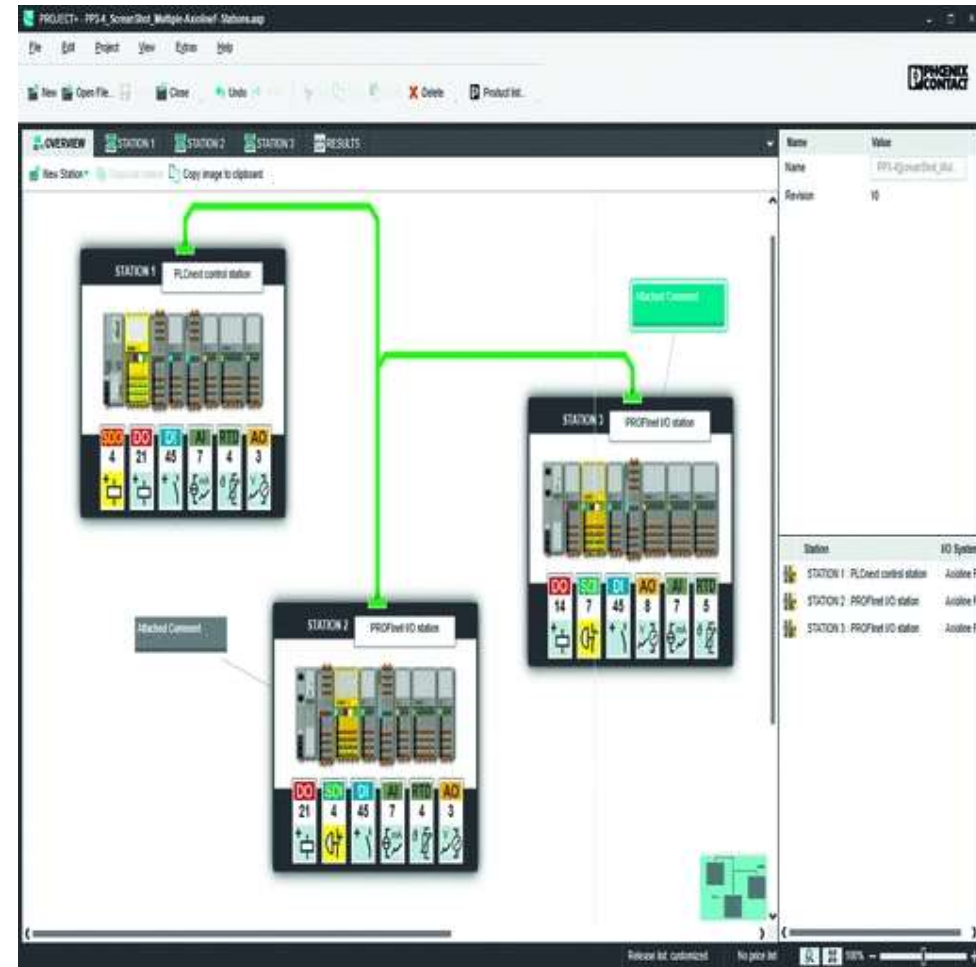
PROJECT+3

I/O Project Planning



Software

PROJECT+



STARTUP +

enables you to quickly and easily establish a connection to an Axioline F station, to configure the connected modules, and to check their wiring (I/O check).



Software

CONNECT+



The Connect+ software can be used to easily start up and maintain automation projects from Phoenix Contact. Connect+ can be extended with various plug-ins that can be tailored to devices and automation solutions from Phoenix Contact.

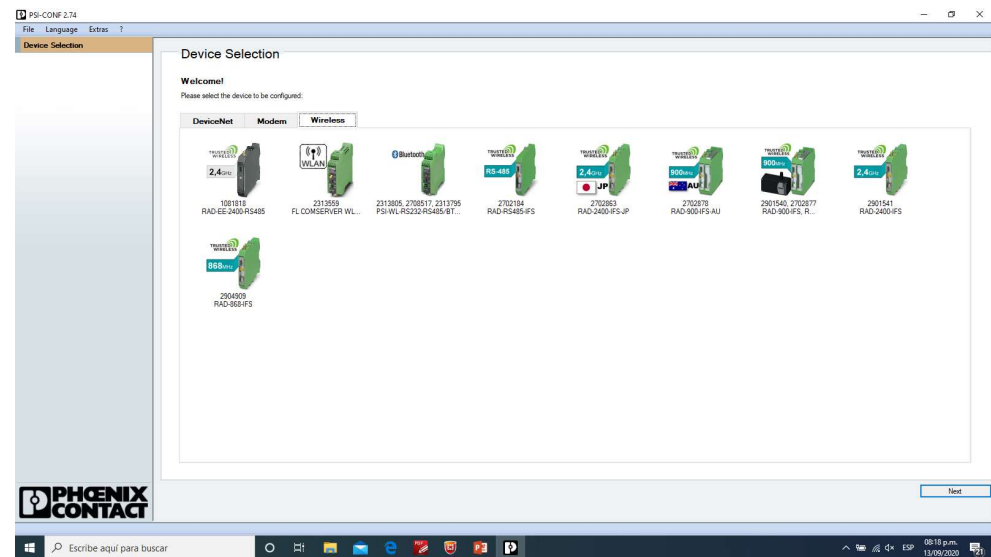
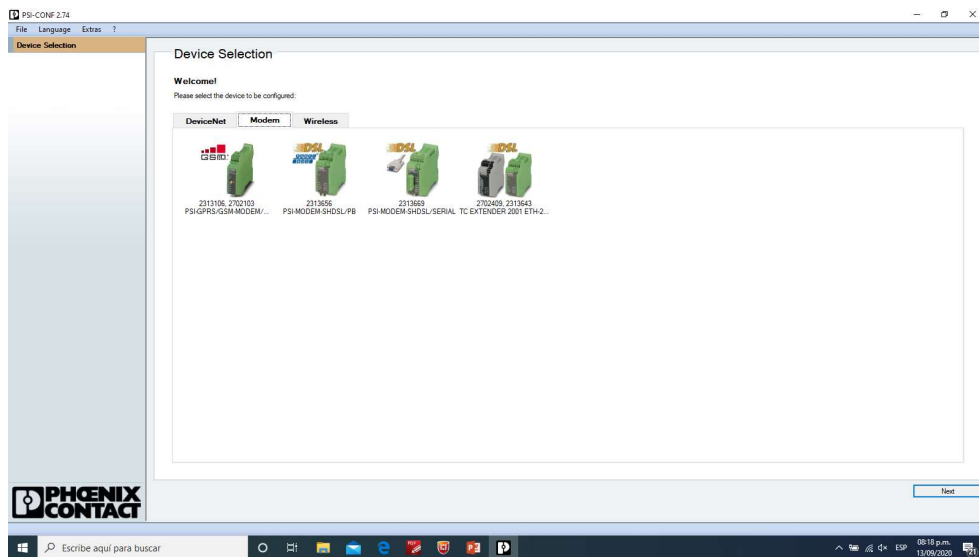
Benefit from the advantages of the free software tool:

- Easy initial configuration of controllers from Phoenix Contact
- Simple startup and parameterization of automation projects



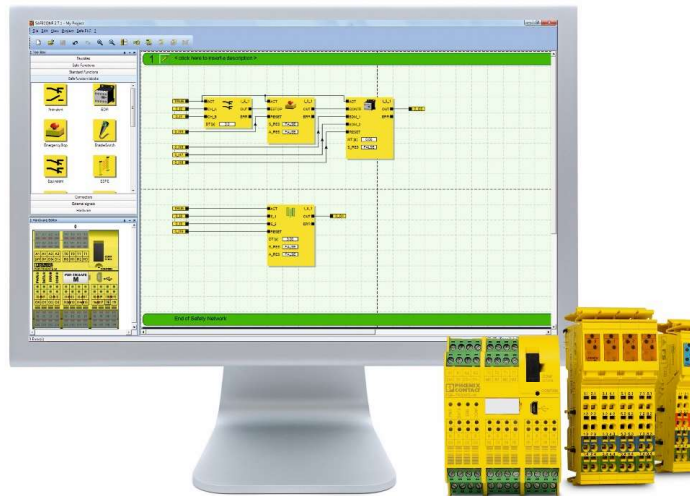
Software for Radioline,... Interface communication

PSI - CONF



Software Functional Safety

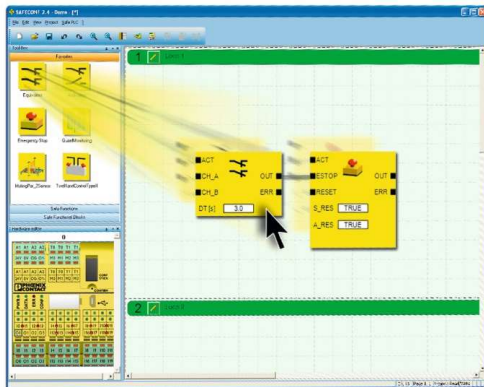
SAFECON



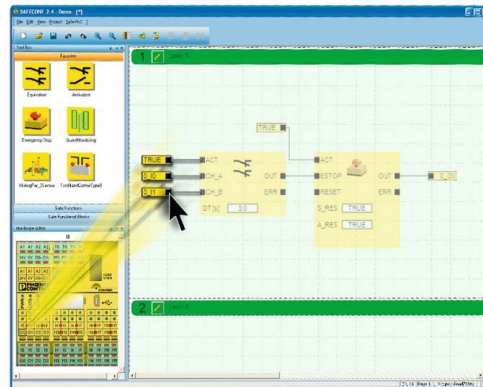
Software Functional Safety

SAFECON

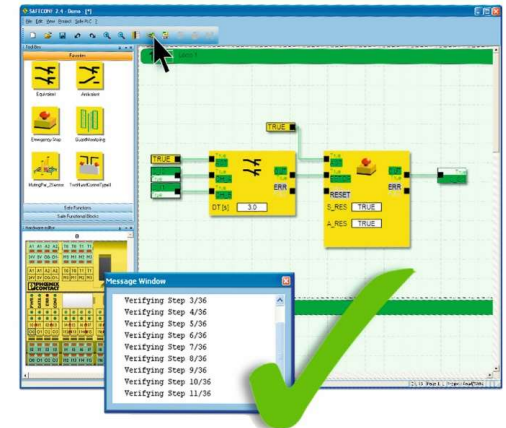
1



2

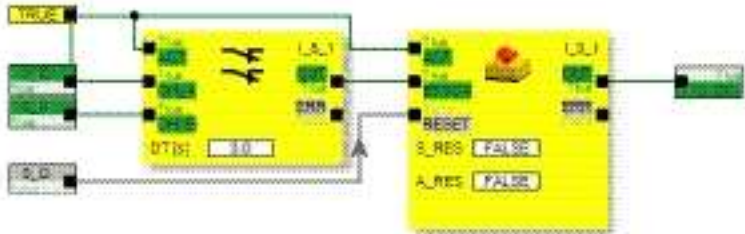
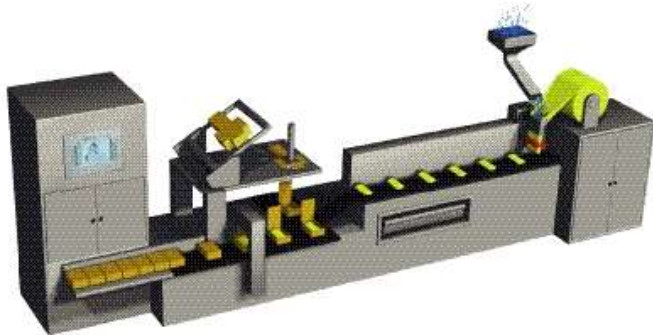
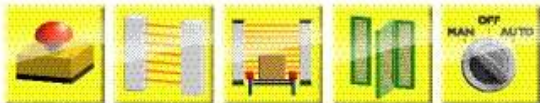


3



Software Functional Safety

SAFECON



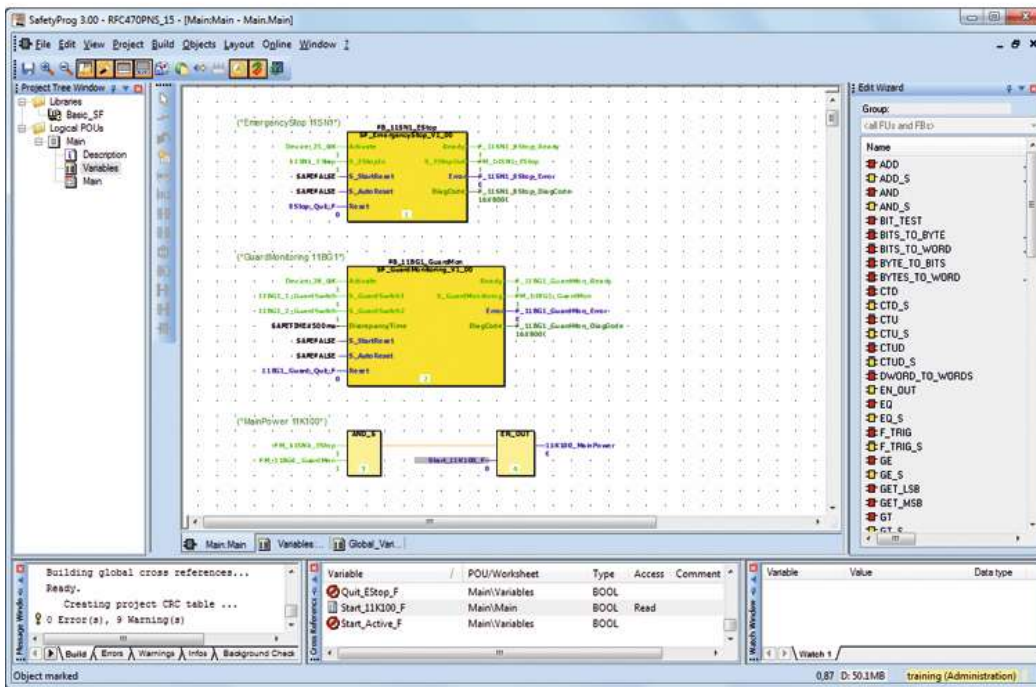
EasySim Safety

		Name	Value	Preset 1	Preset 2	Preset 3	Description
1	✓	R_0	True	True	True	True	Input 0
2	✓	R_1	True	True	True	True	Input 1
3	✓	R_2	True	True	True	True	Input 2
4	✓	R_3	True	True	True	True	Input 3
5	✓	R_4	True	True	True	True	Input 4
6	✓	R_5	True	True	True	True	Input 5
7	✓	R_6	True	True	True	True	Input 6
8	✓	R_7	True	True	True	True	Input 7
9	✓	R_8	True	True	True	True	Input 8
10	✓	R_9	True	True	True	True	Input 9
11	✓	R_10	True	True	True	True	Input 10
12	✓	R_11	True	True	True	True	Input 11
13	✓	R_12	True	True	True	True	Input 12
14	✓	R_13	True	True	True	True	Input 13

Set Preset 1 Set Preset 2 Set Preset 3 Export Module

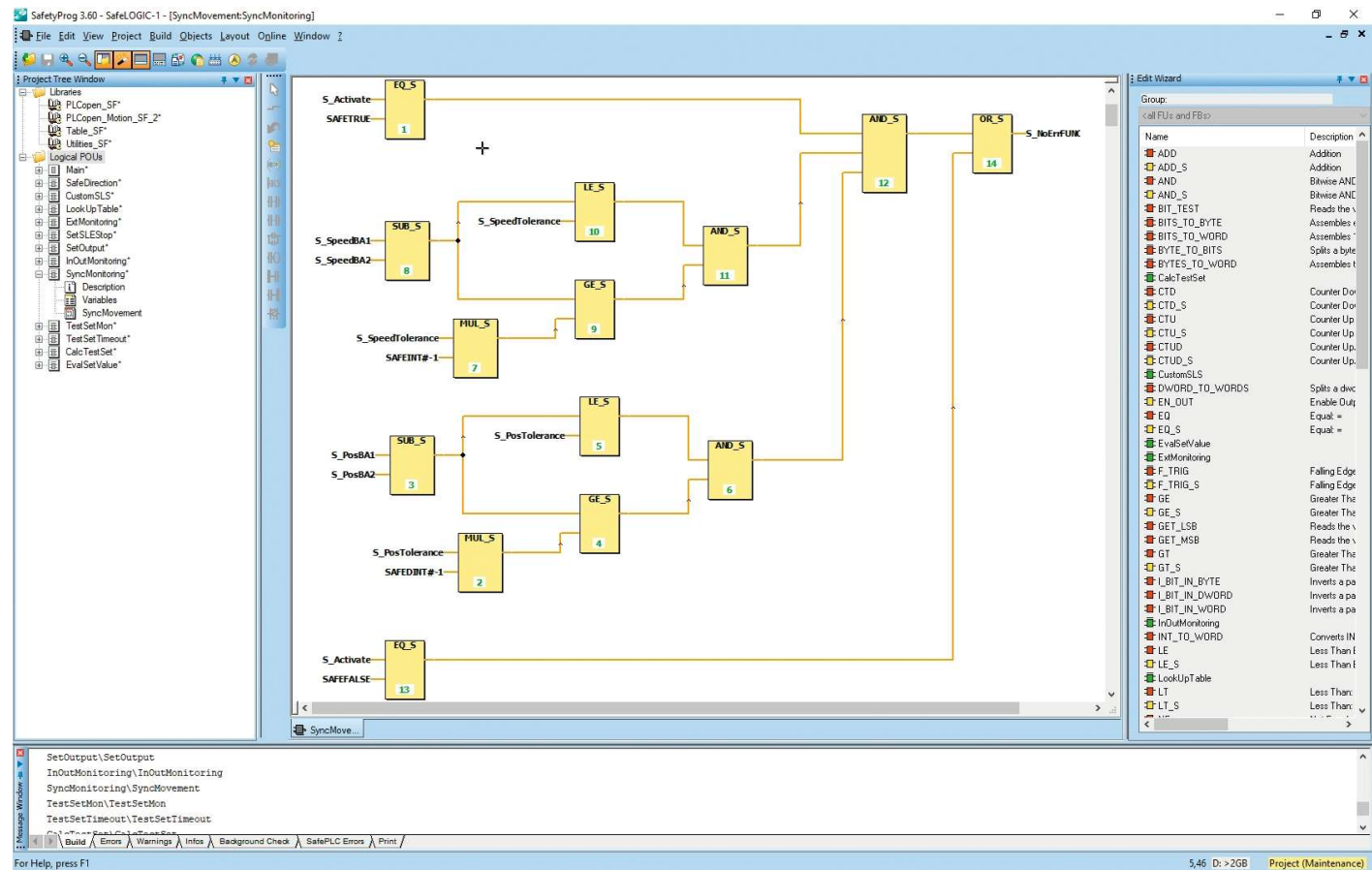
Software for Safety Controllers

SAFETYPROG



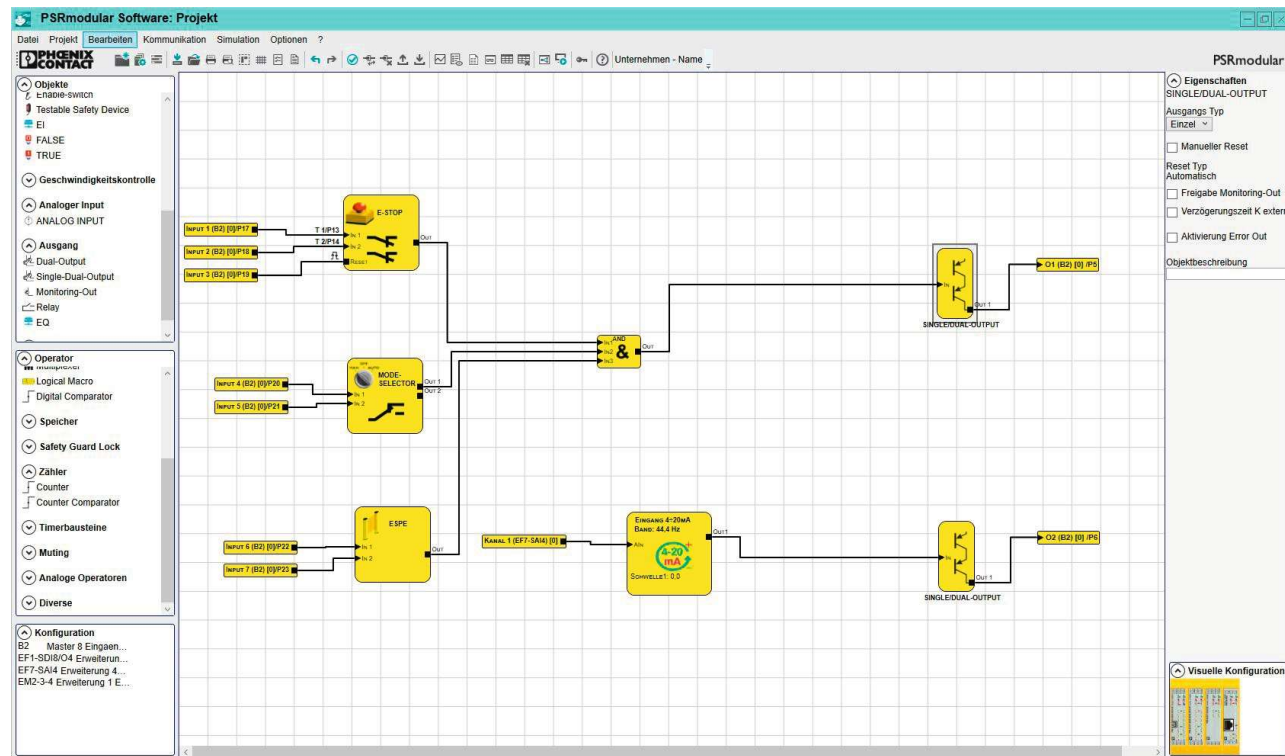
Software for Safety Controllers

SAFETYPROG



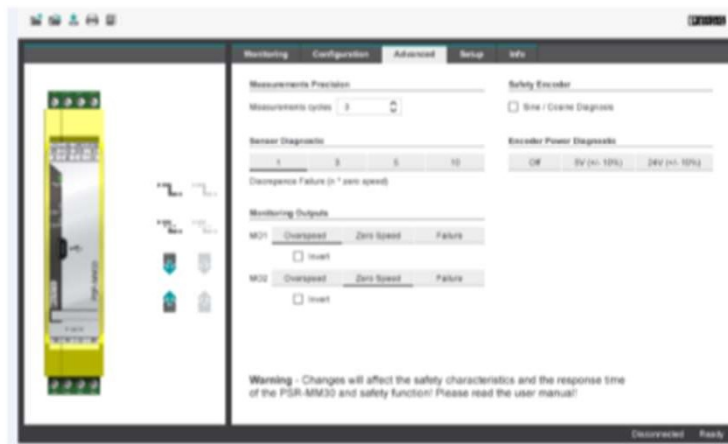
Software

PSRmodular Software

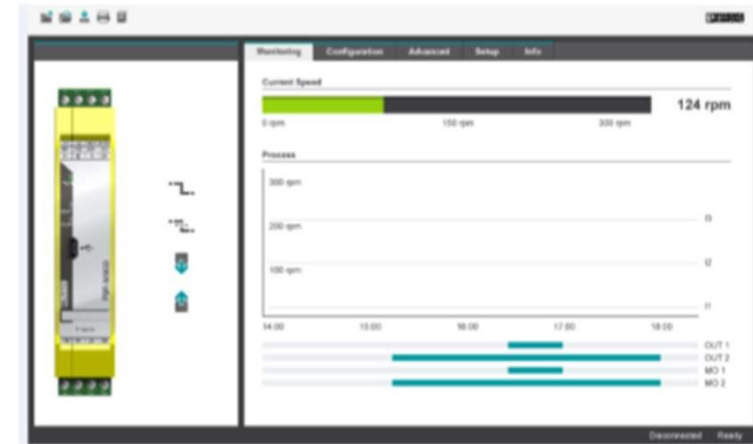


Software Safety PSRmotion

new



Easy configuration

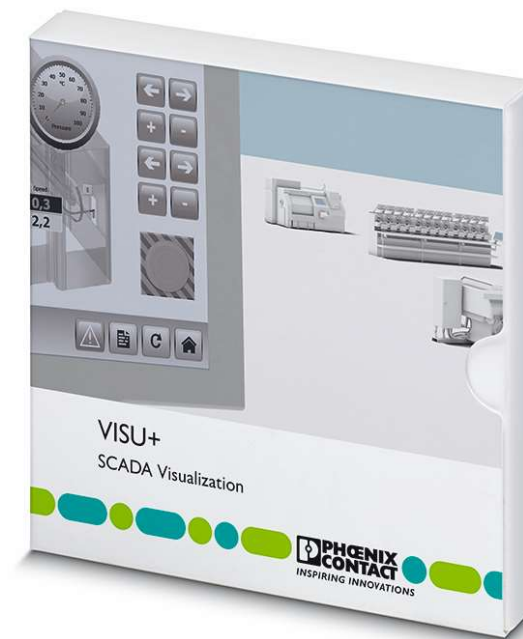


Online monitoring

Softwares de Visualización

VISU+ EXPRESS

VISU+

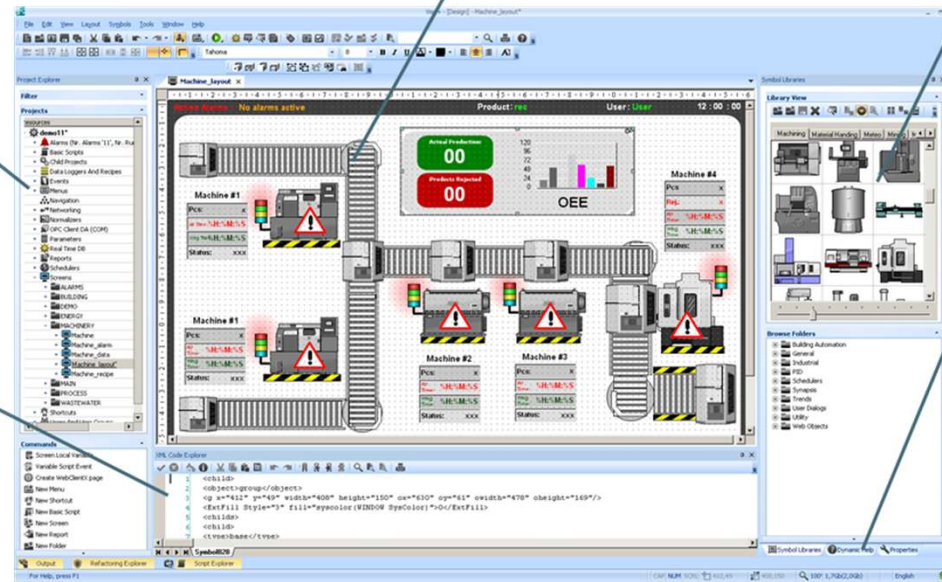


VISU+

Editor for the visualization pages

XML-Editor

Properties-Explorer
Comprehensive configuration options for objects and resources

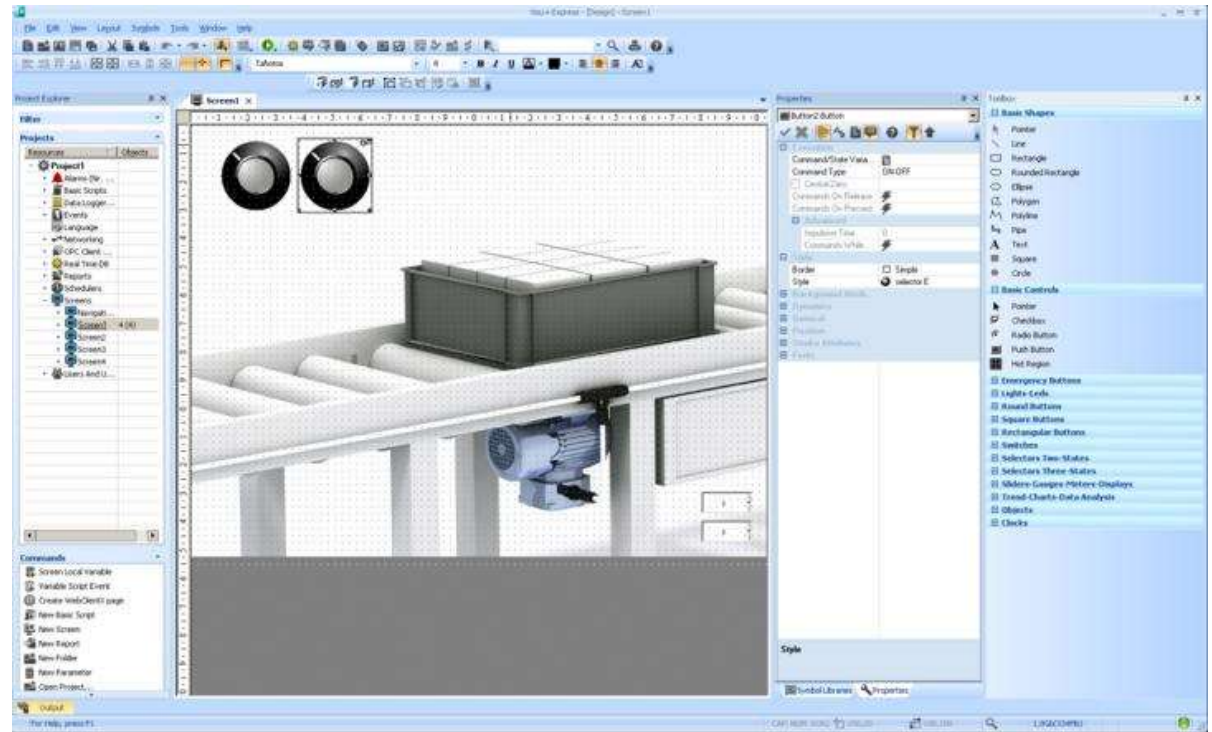


Effective engineering in a modern environment

Design Software

- EXPRESS is FREE
 - Free download
 - Search for 2402774
- Scalable
 - Derived from SCADA package
 - High quality graphics
 - Simplified user interface
- Advanced
 - Alarming
 - Trending
 - Data Logging
 - Recipe Handling
 - Remote Screen Access
 - ...

VISU+ Express
HMI Visualization



VISU+ / VISU+ Express – communication drivers



Your connectivity options!

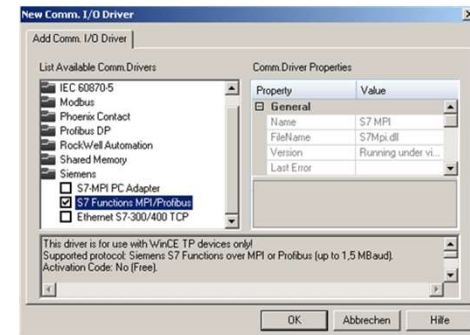
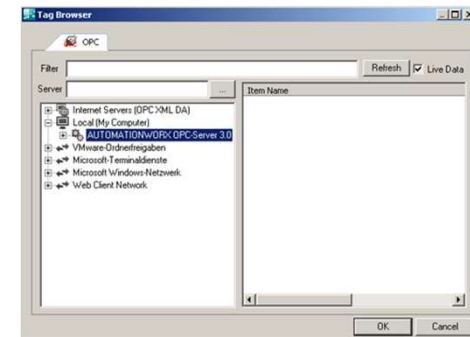
Softwares Visualización

VISU+

VISU+ | Connection to the PLC

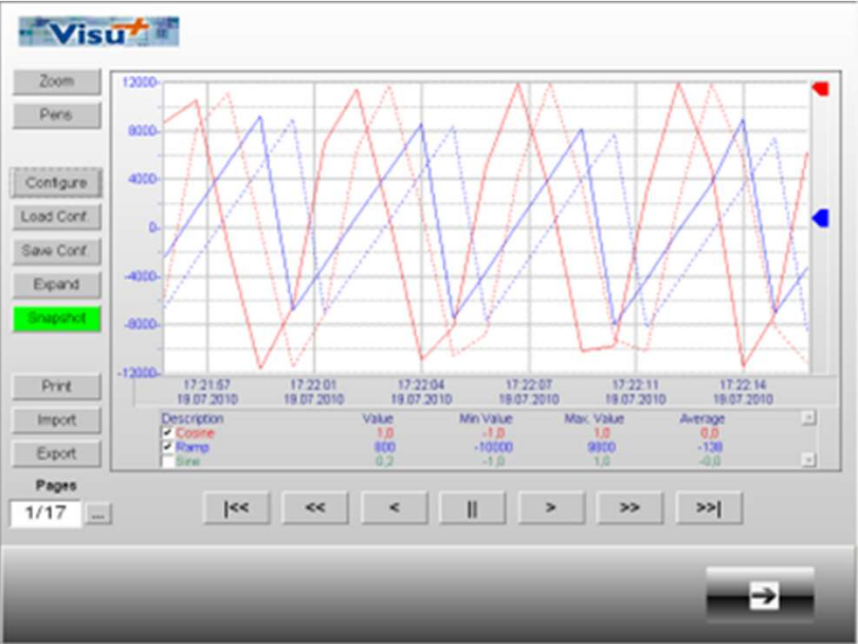
Various possibilities

- OPC Connection
 - In conjunction with the AX OPC Server
- Connection with a direct driver
 - Siemens S7 (TCP und MPI)
 - Allen Bradley (EthernetIP)
 - Profibus
 - ModBus TCP und RTU
 - CANopen
 - Phoenix Contact-PLCs



Softwares Visualización

VISU+



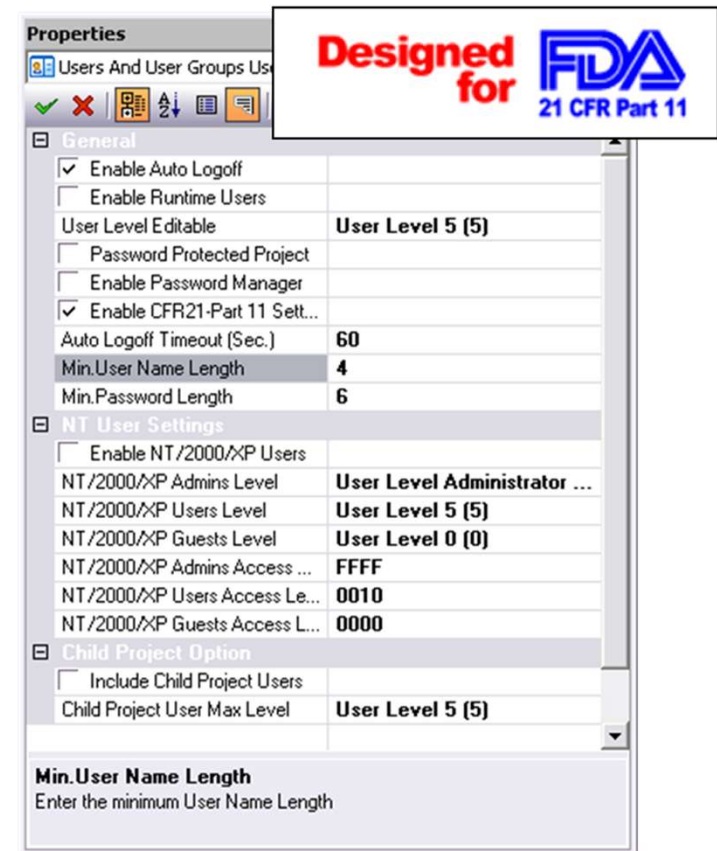
Softwares Visualización

VISU+

FDA 21 CFR Part 11

VISU+ supports FDA CFR21 Part11 functions, even on WinCE HMI's

- Tracing and Audit Trail management for recording every process data variation, value monitoring, complete range of information relating to user names, electronic signatures, previous values, motive and more.
- Security management. Users and passwords with access to commands at 1024 levels and/or 16 areas. Automatic Operating System Access Control functions.

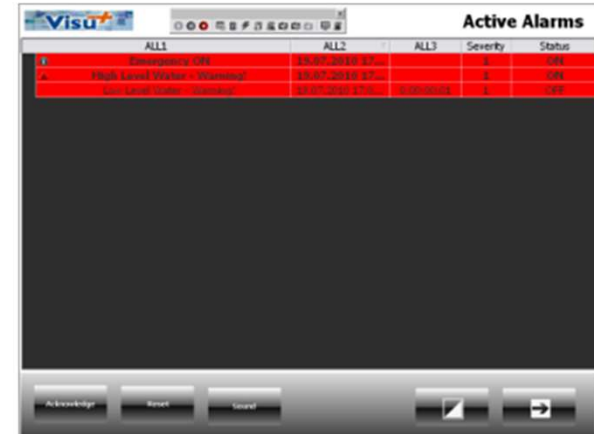


Alarm management

- Integrated event and alarm notification management on WinCE HMI devices.
- Up to 1024 alarm priorities
- Various filter options for the alarm representation
- Alarming and event handling are easily customizable with VBA
- Alarm up dimming and acoustic alarming integrated in HMIs



Event Text	Event Time	Duration
Low Level Water - Warning	13.07.2010 17:00:30	0
High Level Water - Warning	13.07.2010 17:00:32	0
Low Level Water - Warning	13.07.2010 17:00:33	0
Low Level Water - Warning	13.07.2010 17:00:33	255004
Unservice Water - Warning	14.07.2010 15:15:42	2000180



ALL1	ALL2	ALL3	Severity	Status
Emergency Off	15.07.2010 17:00		3	OK
High Level Water - Warning	15.07.2010 17:00		3	OK
Low Level Water - Warning	15.07.2010 17:00	10000000	3	OK

Software Visualization
Webvisit 6

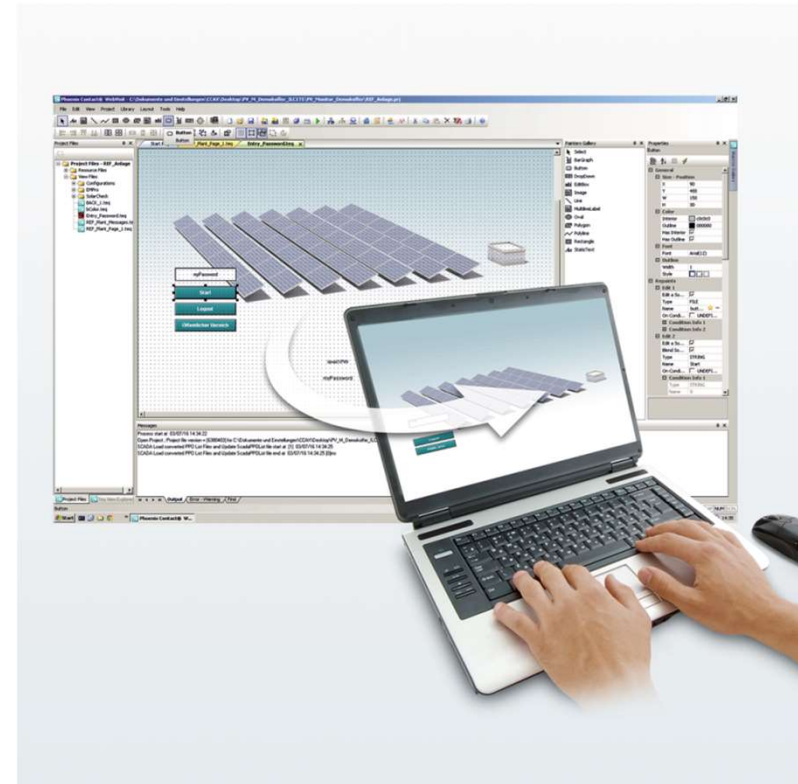
WEBVISIT
Web Visualization



Software Web development

Webvisit – your advantages

- ✓ Intuitive
- ✓ Can be used via standard browser
- ✓ Inexpensive
- ✓ Import directly from PC WORX
- ✓ For all controllers with an integrated web server



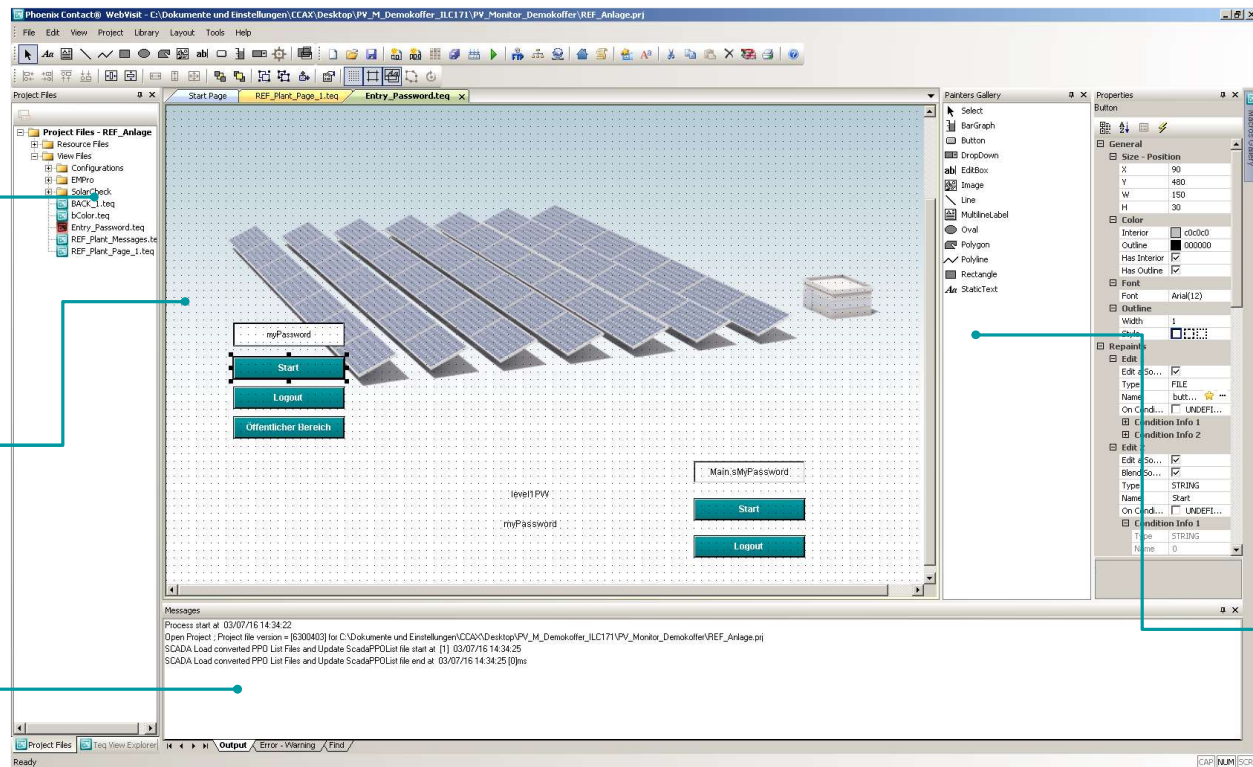
Software Development

Webvisit – At a glance

Project explorer
(visualization pages, objects,...)

Editor for the visualization pages

Output window

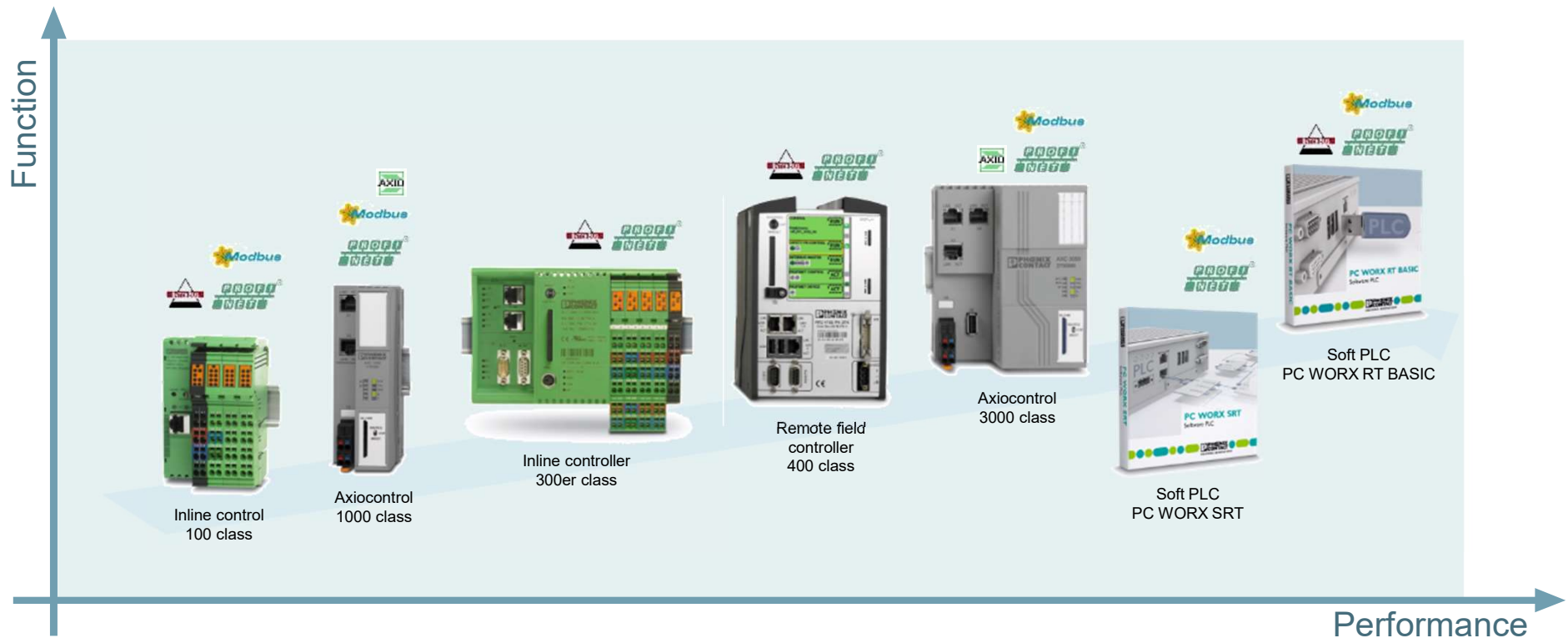


Macro gallery
(comprehensive system library)

Toolbox
(basic graphical elements)

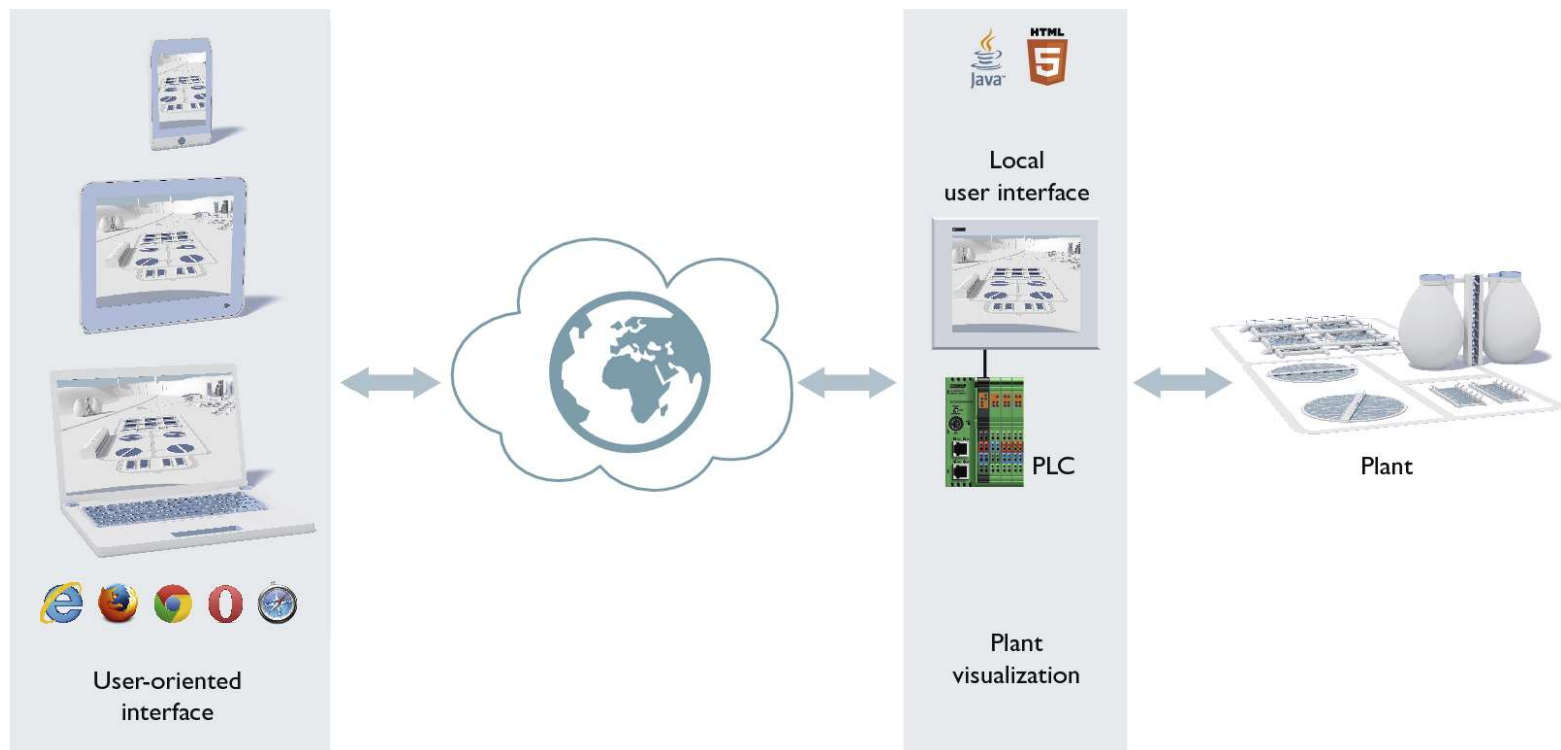
Software development for web server controller

Webvisit - Compatible controller



Software development

Webvisit - Topology



AUTOMATIONWORX Software Suite

A complete application in just a few steps

Creation

- Creating visualization pages using the Webvisit editor

Link

- Importing and linking variables from PC WORX, if required

Download

- Downloading the completed project to the controller

View

- Viewing the application with HMIs (MicroBrowser) or standard/mobile browser



Technology

PROFINET



Process Automation



- Oil & Gas & Energy Industries
- Chemical and Medial Industries
- Mines und Metal Industry
- Food & Beverage
-

Factory Automation



- Wind Turbines
- Assembly Machine and Textile Industry
- Automotive
- Automotive-Conveying
- Water / Wastewater and Recycling
- Shipbuilding
- Traffic and Railway
- Buildings
- Logistics, Transportation
-

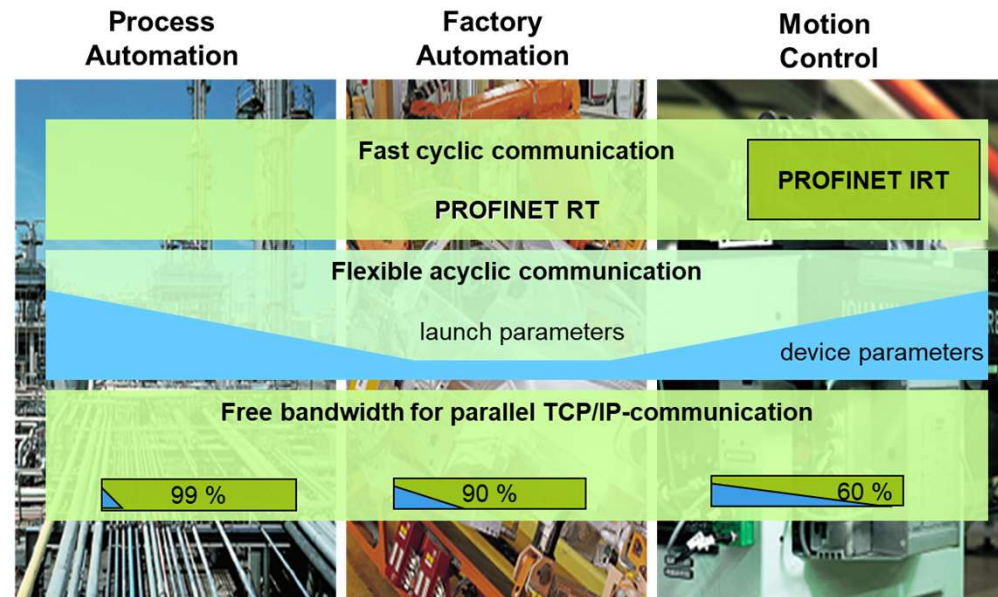
Motion Control



- Printing Machinery
- Machines for Wood, Ceramics and Glass Production
- Plastics
- Packaging
-

Technology

PROFINET Flexible and scalable communication



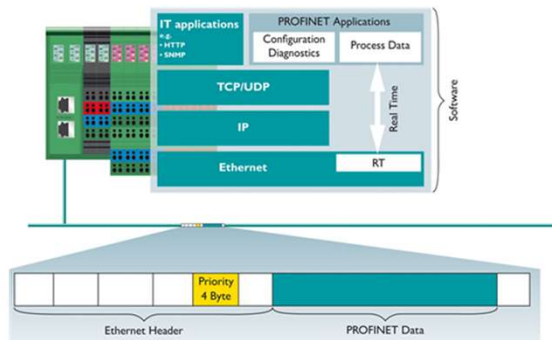
All requirements for communication are covered from Process Automation up to Motion Control

Technology

PROFINET Scalable technology

PROFINET RT

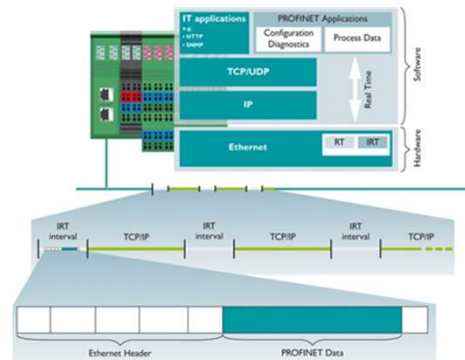
for all markets and applications



Update times $\geq 250 \mu\text{s}$
unsynchronized applications

PROFINET IRT

for motion control applications and synchronous IOs



Update times $\geq 32,5 \mu\text{s}$
synchronized applications

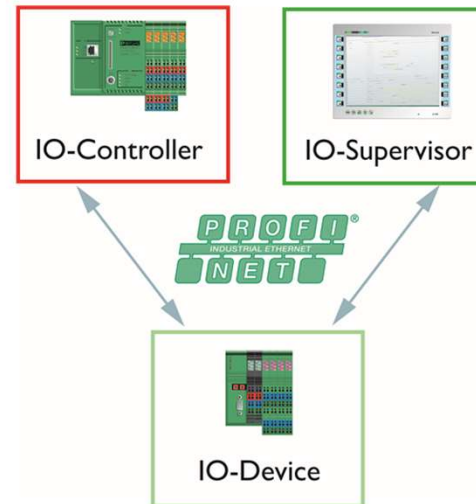
**Same Look&Feel for the user (TCP/IP, diagnostics,...)
Both technologies can be combined**

Technology

PROFINET Communication Partners

PROFINET IO-Controller:

- Starts communication and configures field devices
- Cyclic and acyclic data exchange with the IO- Device
- Receives alarms from the IO-Device



PROFINET IO-Supervisor:

- Parallel configuration
- Reading diagnostics

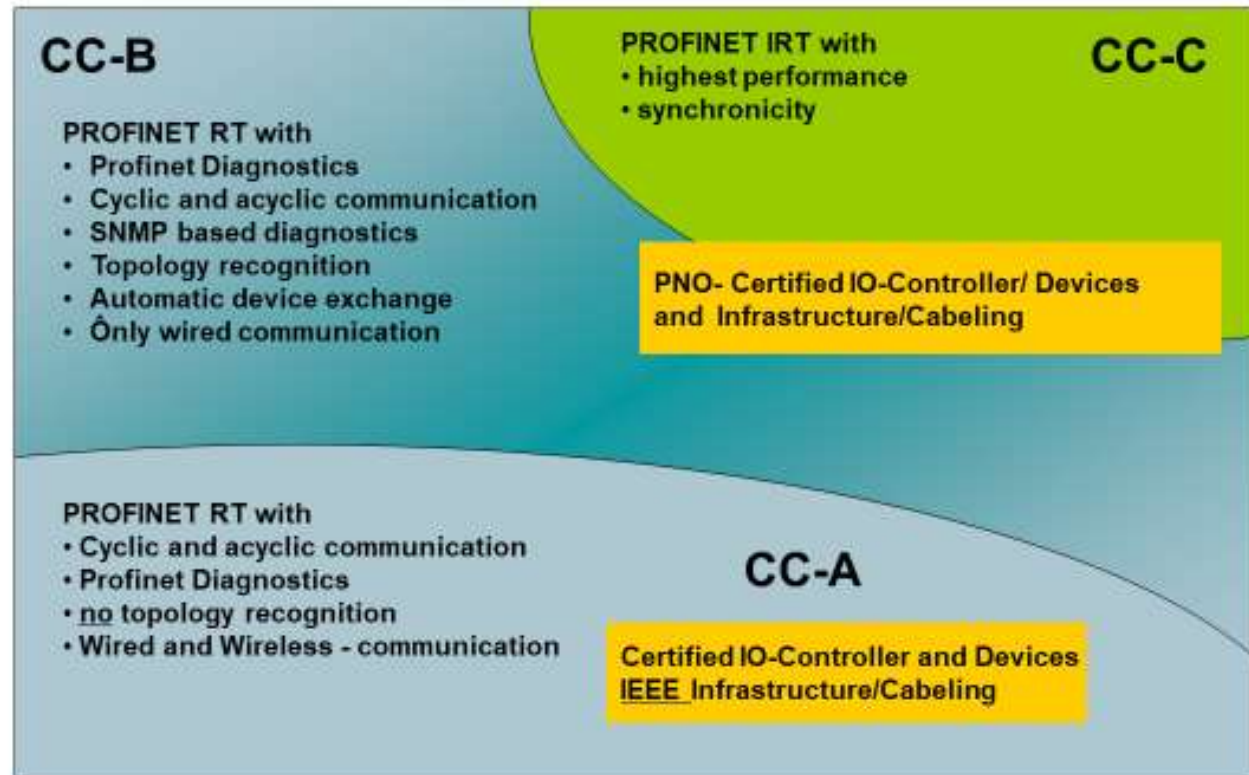
PROFINET IO-Device:

- Cyclic and acyclic data exchange with the IO- Controller
- Sends alarms to the IO-Controller

Technology

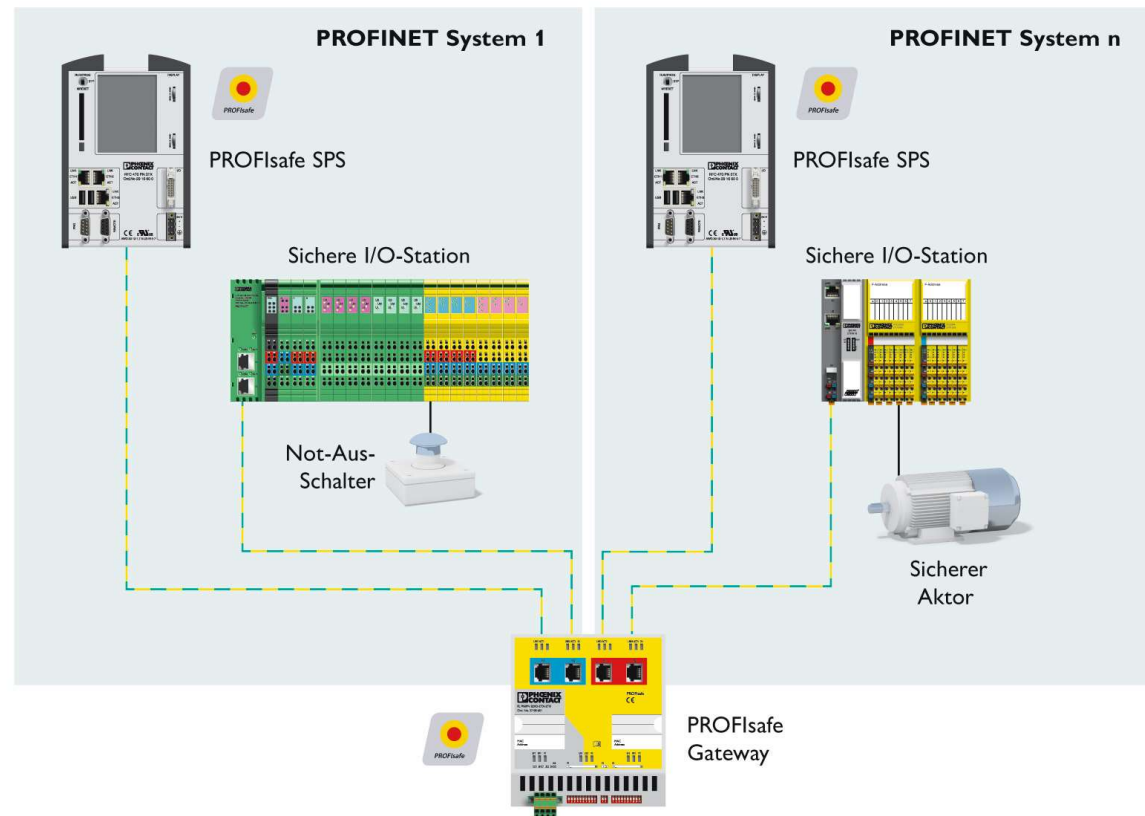
PROFINET

Conformance Classes



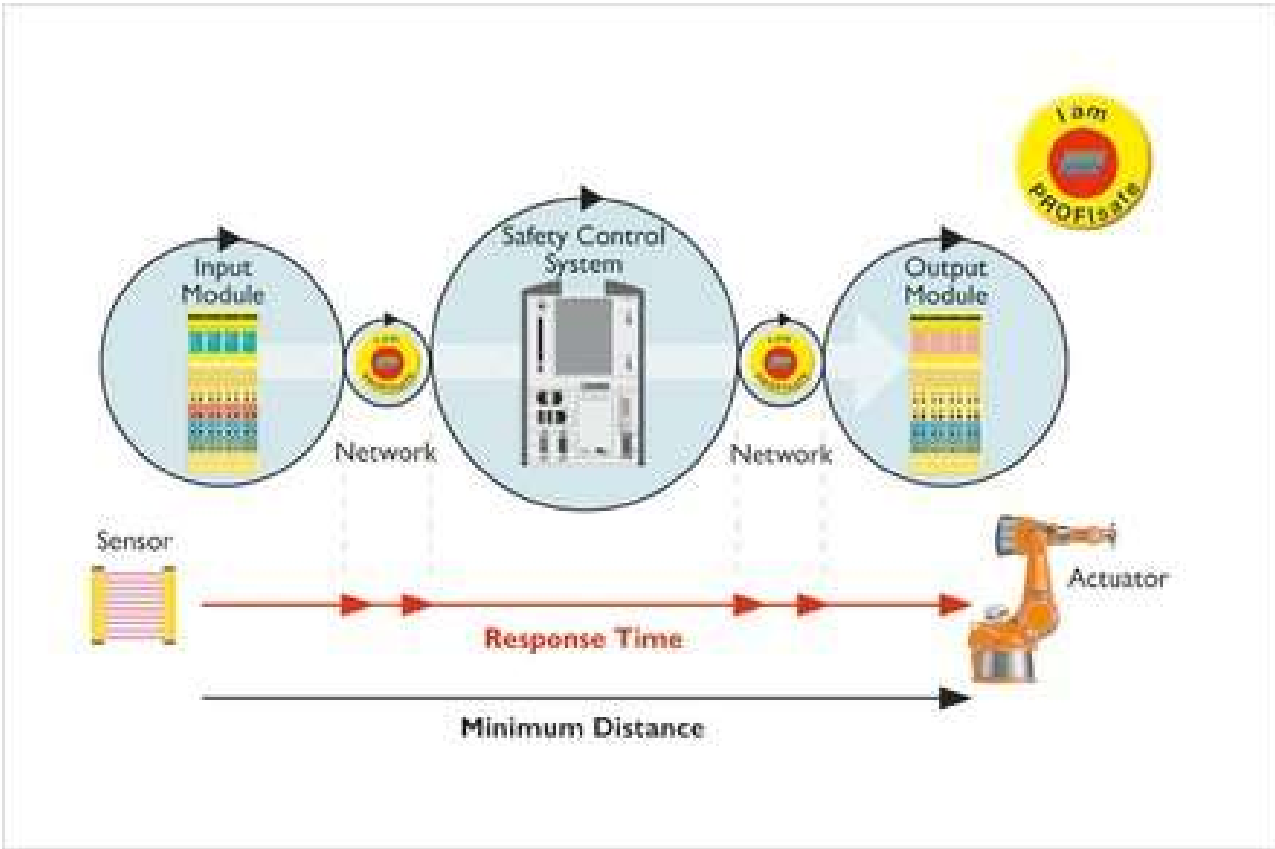
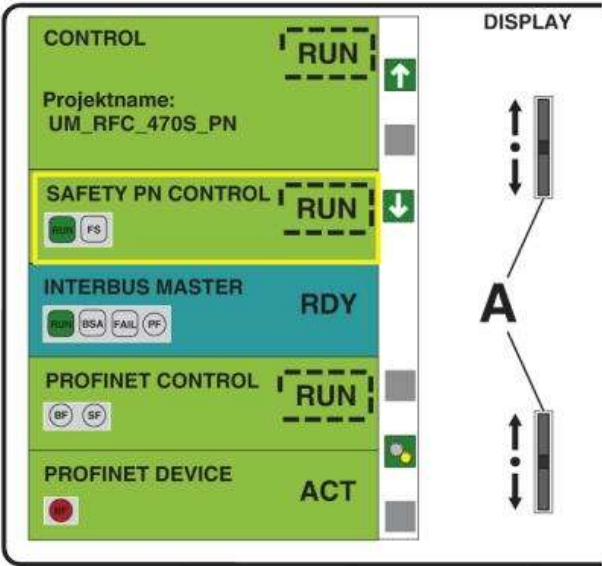
Technology

PROFISAFE

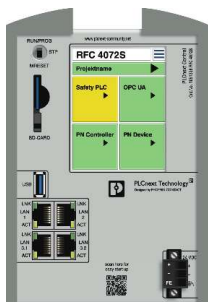


Technology

PROFISAFE



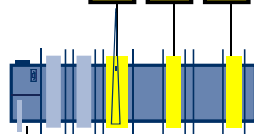
RFC 4072S
(F-Host)



Emergency Stop



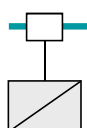
Safety I/Os



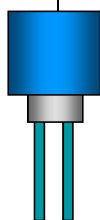
Standard I/Os



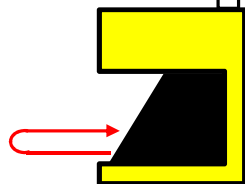
Standard and safety devices in common ethernet network



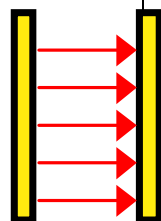
DP/PA



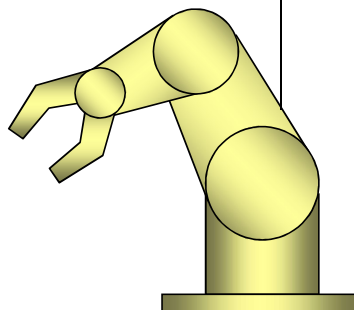
Limit switch



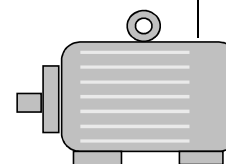
Safety
Scanner



Light curtain



Robot



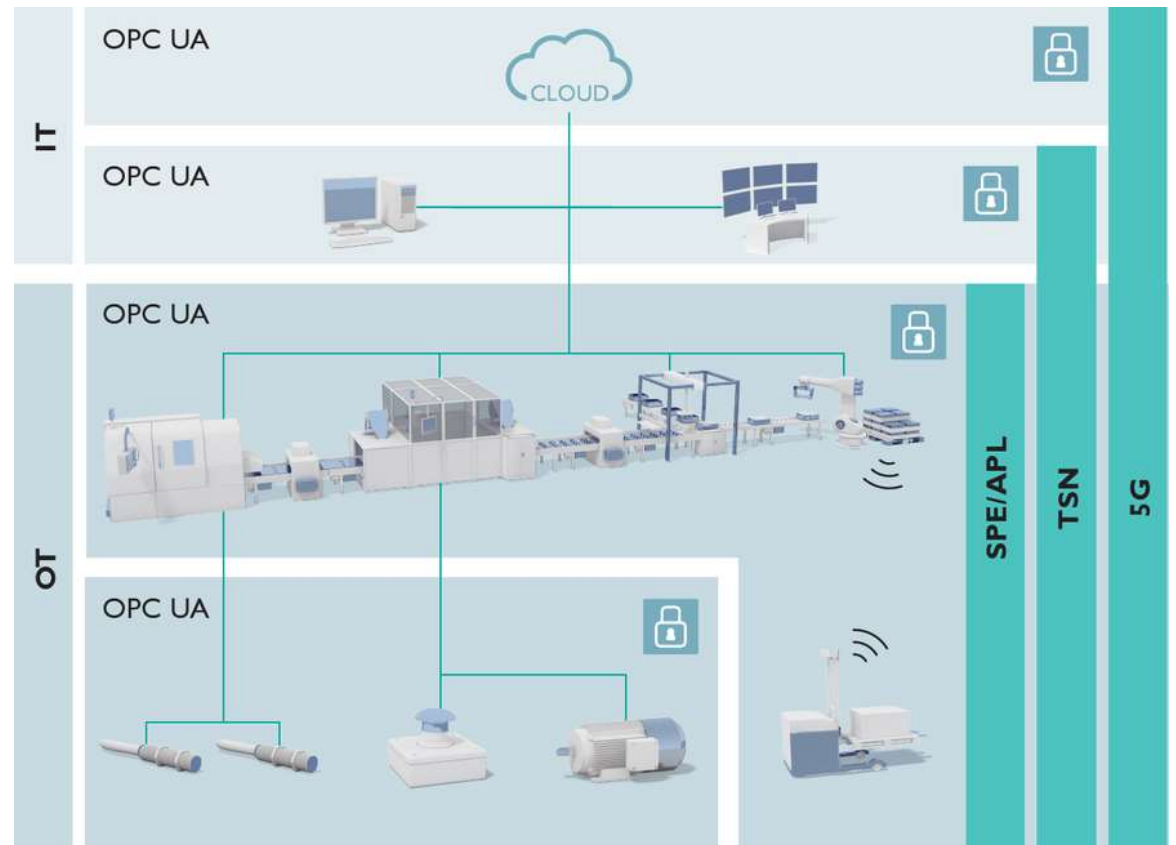
E Motors

Software and Technology initiative

OPC UA

The basic framework for the future of industrial communication technology is currently being developed across a large number of committees and standardization projects. New communication standards such as OPC UA, TSN, SPE, and 5G will be far superior to previous systems in terms of costs, data throughput, latency and determinism.

The new technologies TSN, SPE/APL, 5G, and OPC UA, are not to be considered as being independent of each other – rather, together they will form the communication of the future



Technology

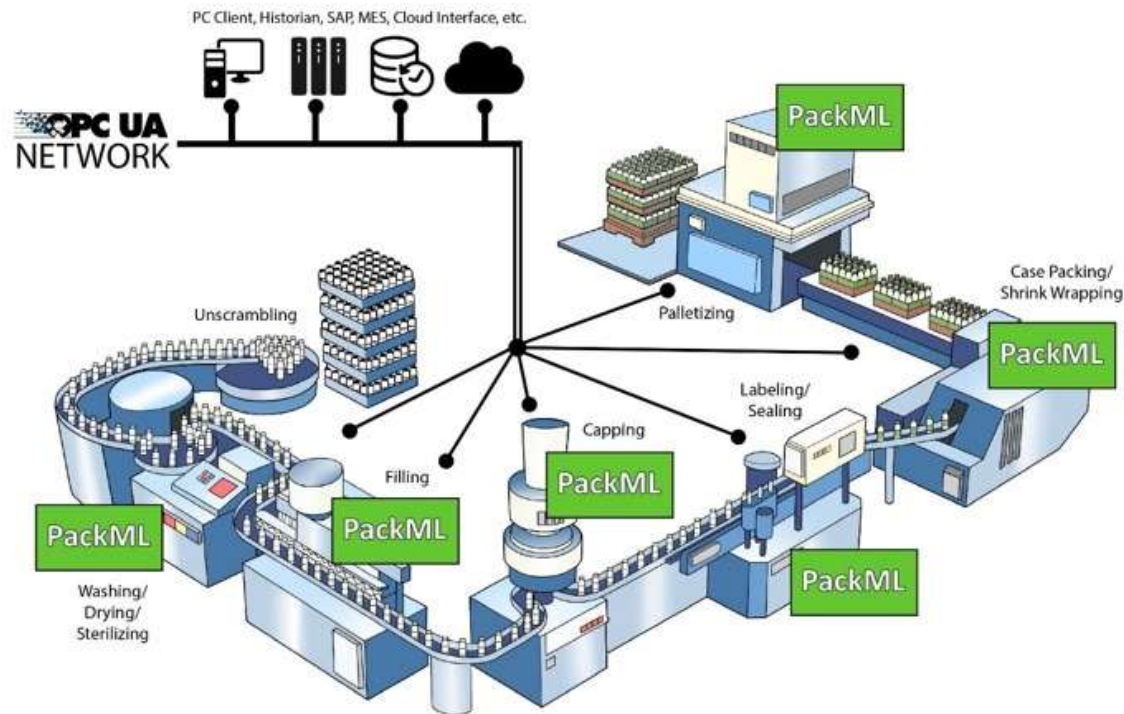
OPC UA

OPC UA is already used as the superordinate communication standard in systems. OPC UA is now being expanded through the addition of standardized application profiles in the field, for example for I/O, safety, and motion.



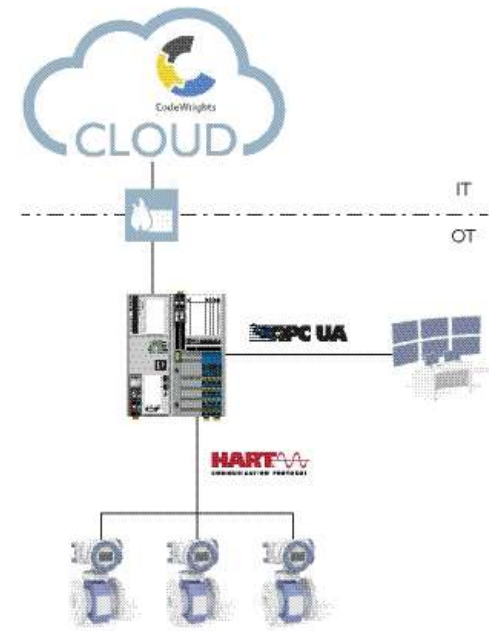
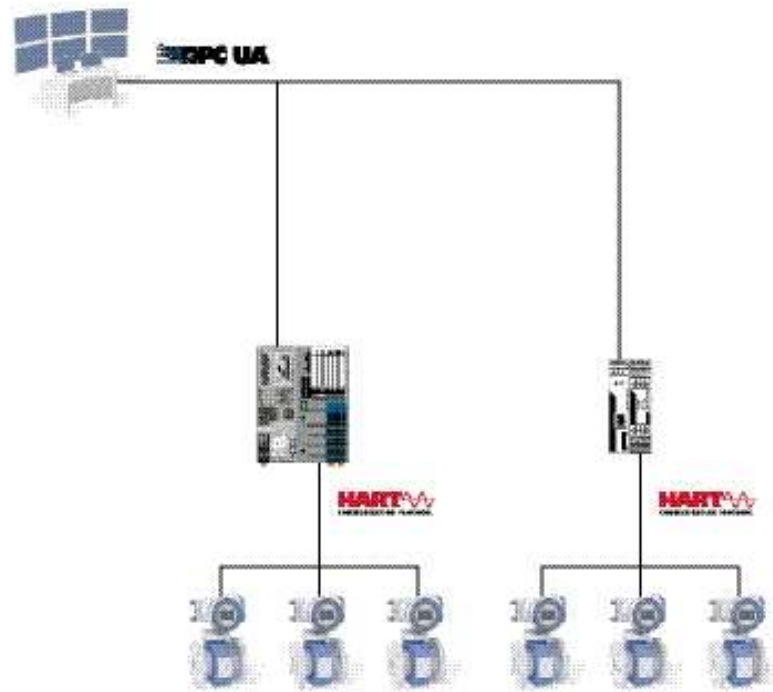
Technology

OPC UA Architecture



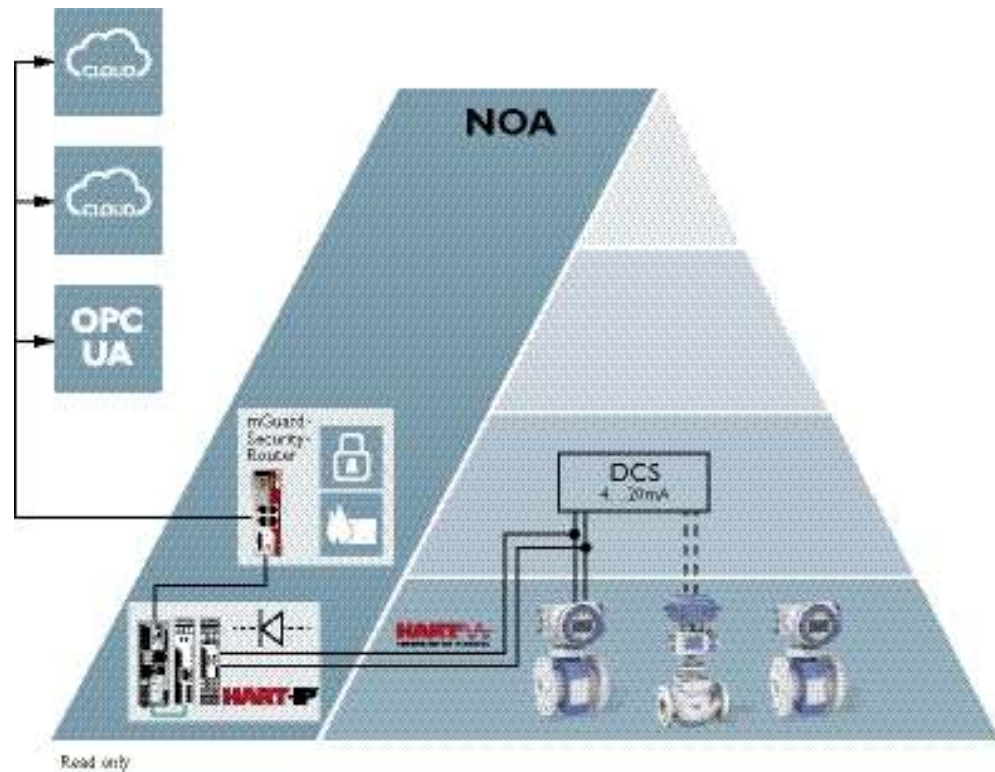
Technology

DIGITAL TWIN



Technology

DIGITAL TWIN NOA



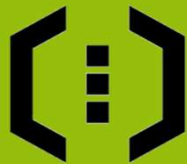
Ecosystem & PLCnext Store

PLCnext Technology 
Designed by PHOENIX CONTACT

The Open Ecosystem for Limitless Automation

PLCnext Technology 
enhance your automation thinking

PLCnext Control



Open Control Platform

PLCs in various performance classes including PLCnext Runtime System and accessories for PLCnext Technology

PLCnext Engineer



Engineering Software

Engineering tool for commissioning, configuring, and programming PLCnext Controls

PLCnext Store



Software Store for Automation

Apps for functional extension of PLCnext Control and PLCnext Engineer

PLCnext Community



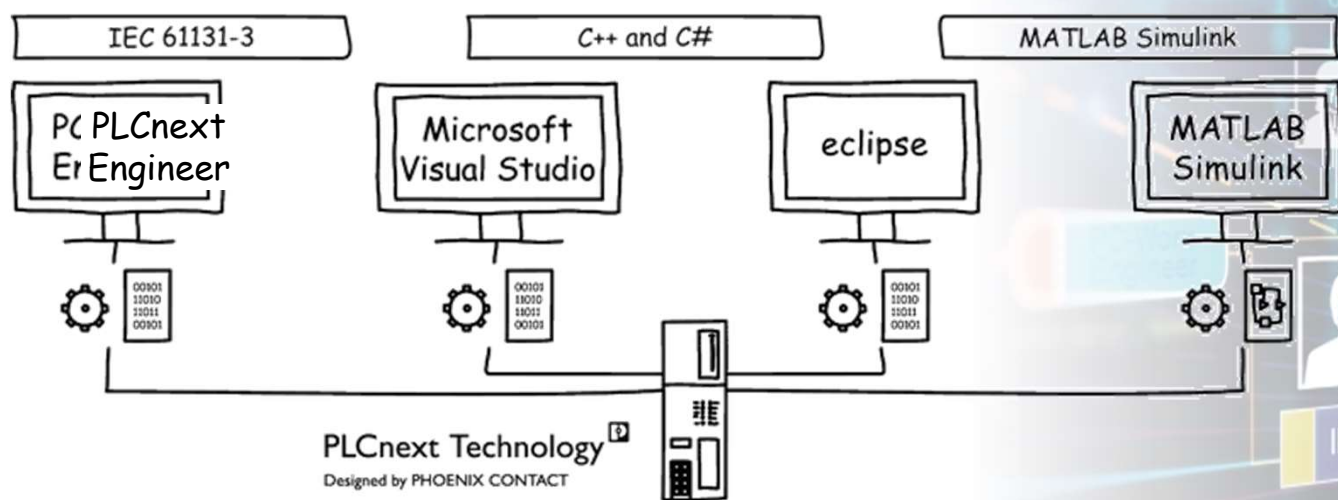
User Collaboration & Resources

Information, support, and helpful resources about PLCnext Technology including FAQs, forums, tutorials and a GitHub presence

 **PHOENIX
CONTACT**

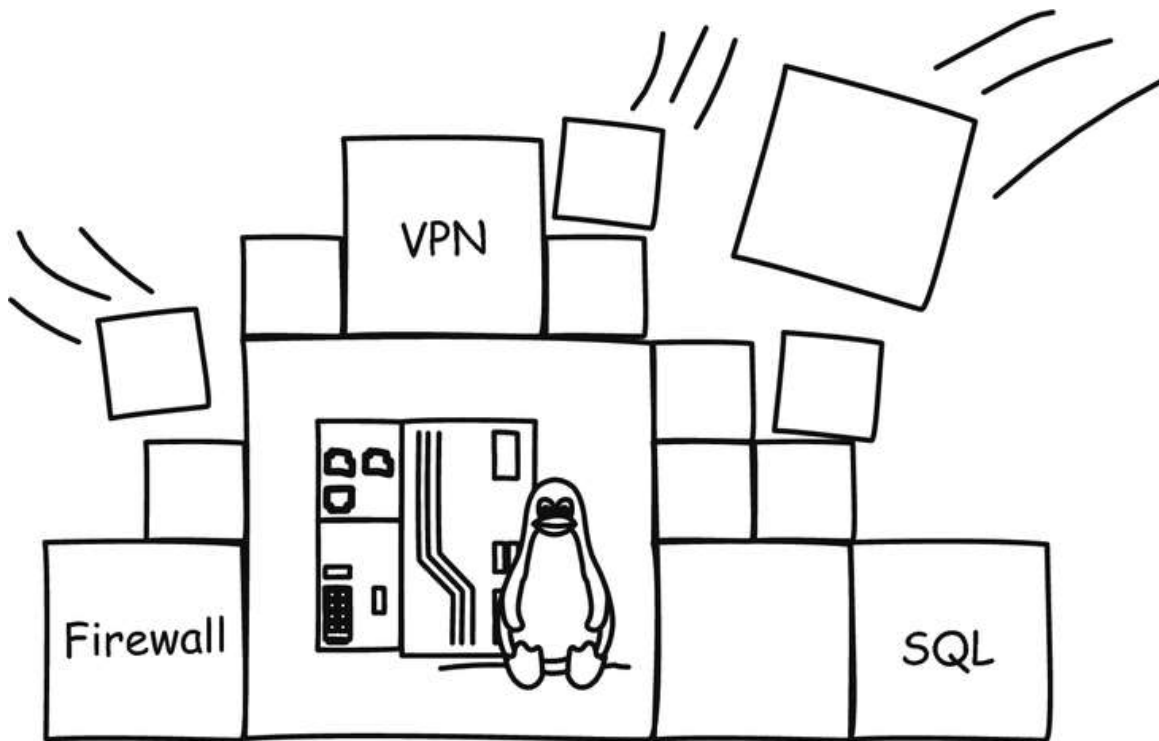
enhanced development

Convenient Engineering & Application Development



With PLCnext Technology, several developers from different generations, with different skill sets and expertise can work on one controller program, in parallel and yet independently, using different programming languages.

Flexibility of Linux plus the Reliability of a PLC



- **PLCnext Technology is based on Linux...**
 - Open source Linux Packages
- **... but as performant as a “classic” PLC!**
 - Easy task management
 - Precise synchronization
 - Cycle-consistent data exchange
 - No Linux knowledge needed

Typical Application Scenarios for PLCnext Technology

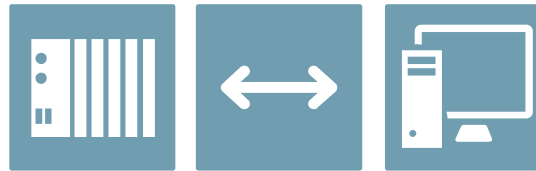
PLC Applications



PLCnext Benefits

- OPC UA
- Cloud Connection
- Code Generation
- Automation Modules
- PLCnext Engineer
- Security

PLC + PC Applications



PLCnext Benefits

- High Level Languages
- Realtime and Non Realtime
- Cost Efficiency

IOT Applications

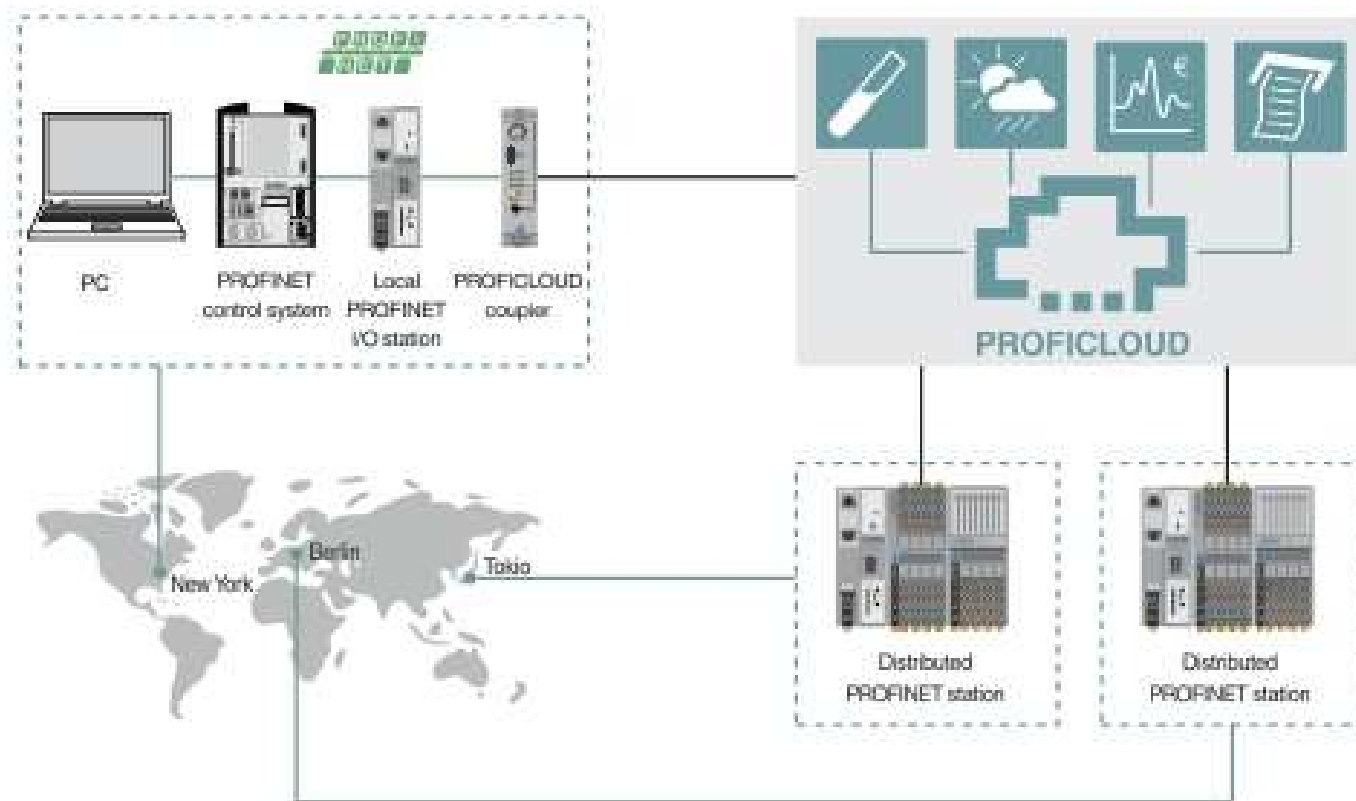
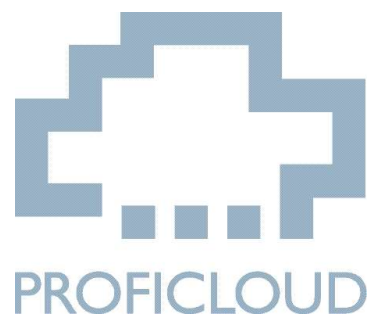


PLCnext Benefits

- Open Source
- Raspberry PI
- Edge Gateway
- Linux
- PLCnext on IPC
- Industrial PLC Hardware and IOs

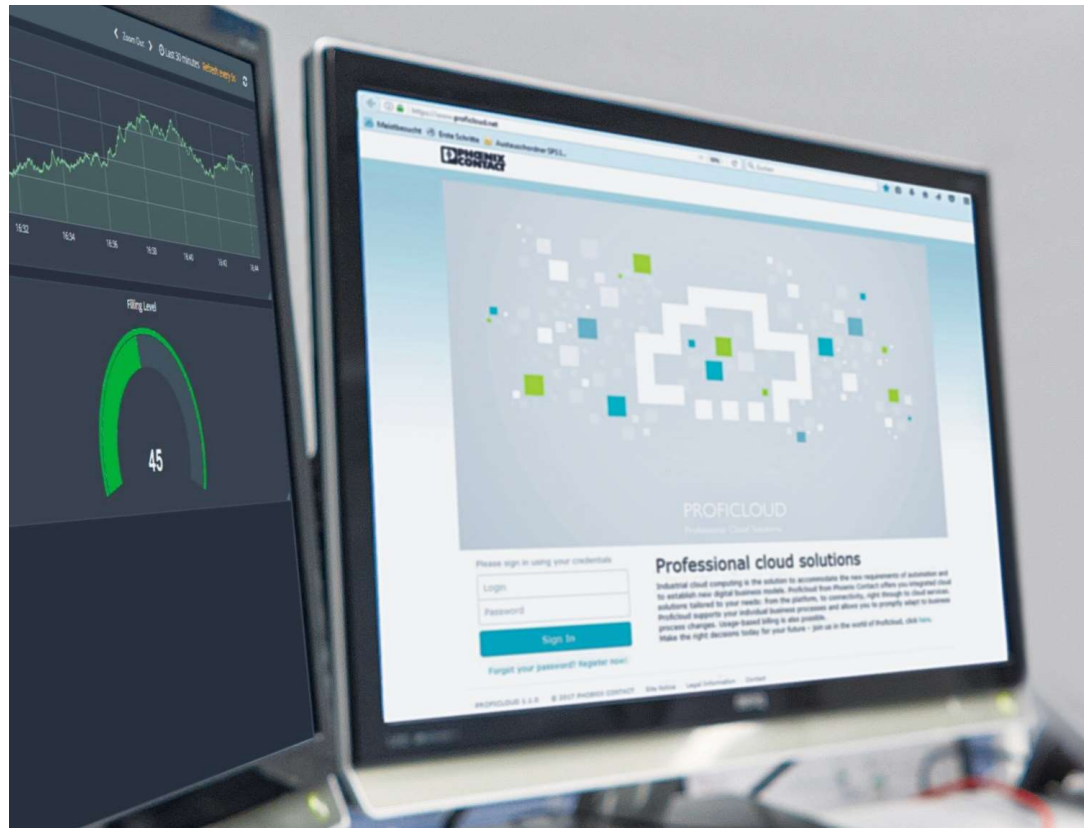
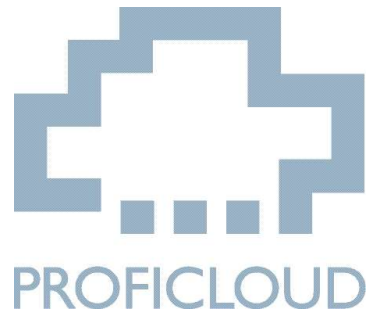
Technología

PROFICLOUD



Technología

PROFICLOUD

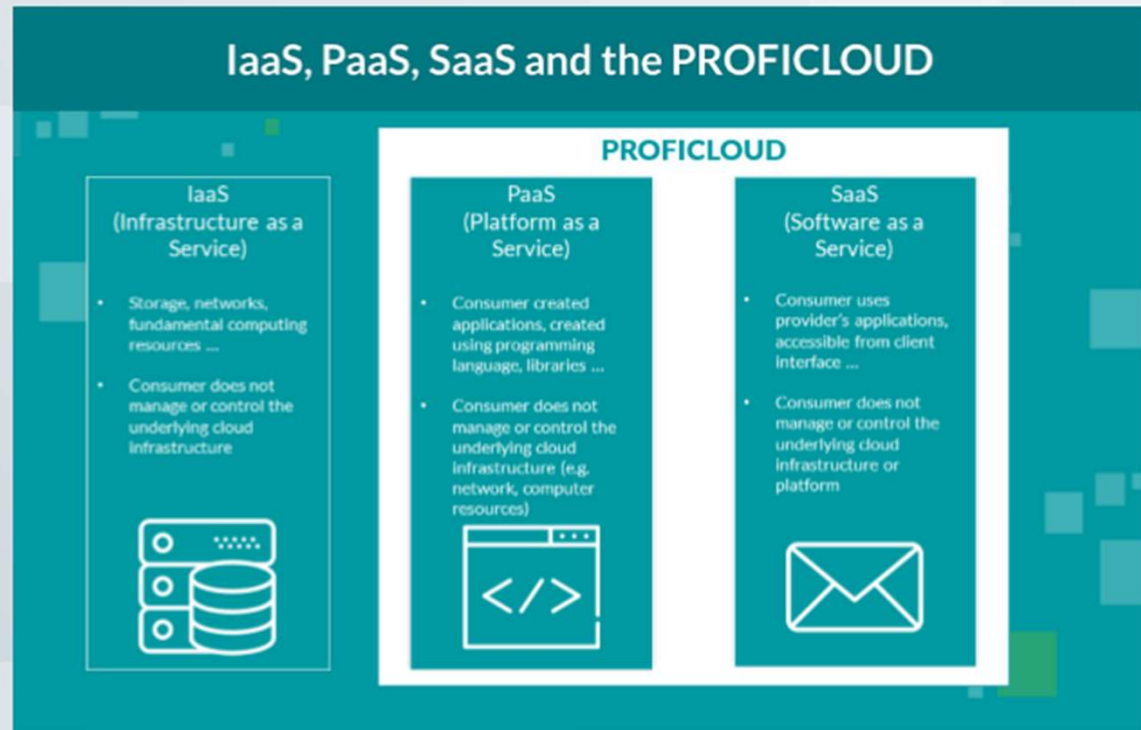


Technology

PROFICLOUD

1. What is the Cloud? What does Cloud mean?

Cloud computing is the concept of offering services over the internet. When it comes to these services, there are three general levels:



Technology

PROFICLOUD

IaaS (Infrastructure as a service)

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).

PaaS (Platform as a service)

The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.

SaaS (Software as a service)

The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.



Which of these cloud layers does the Proficloud offer?

Proficloud offers both PaaS and SaaS. Our customers can't "rent" Proficloud servers to do whatever they want with them - that would be IaaS. We also don't offer Dropbox-like functionality, like using Proficloud as file storage, for Documents, Images or Videos for example.

Technology

PROFICLOUD Advantages of CLOUD



Technología

PROFICLOUD



Technology

PROFICLOUD Example



Technology

PROFICLOUD Example



**ImpulseAnalytics**

[ImpulseCheck devices](#)

[Account](#)

[Journal](#)

[Control API](#) new

ImpulseCheck devices / ImpulseCheck G37 EG

b952d1f7-4fcb-4a78-8c04-3e3094ee0916 Online

ImpulseCheck G37 EG

Description: Endurance Test G37 EG

Location: PHOENIX CONTACT GmbH & Co. KG
Flachmarktstrasse 8
D-32825 Blomberg
G37 EG Prüffeld 1

Contact: Max Mustermann

Arrester: FLT-SEC-T1+T2-3S-350/25-FM ⚠

Status	Sensor channel	Protection path	Plug type	Installation date	transient overvoltage count
●	1	L1/N	FLT-SEC-T1-350/35-P / VAL-SEC-T2-350-P	2018-11-22 14:30:00	2957
●	2	L2/N	FLT-SEC-T1-350/35-P / VAL-SEC-T2-350-P	2018-11-22 14:30:00	0
●	3	L3/N	FLT-SEC-T1-350/35-P / VAL-SEC-T2-350-P	2018-11-22 14:30:00	2847
●	4	PE/N	FLT-SEC-P-T1-N/PE-350/100-P	2018-11-22 14:30:00	3131

[Surge Current List](#) [Transient Overvoltage List](#)

Search

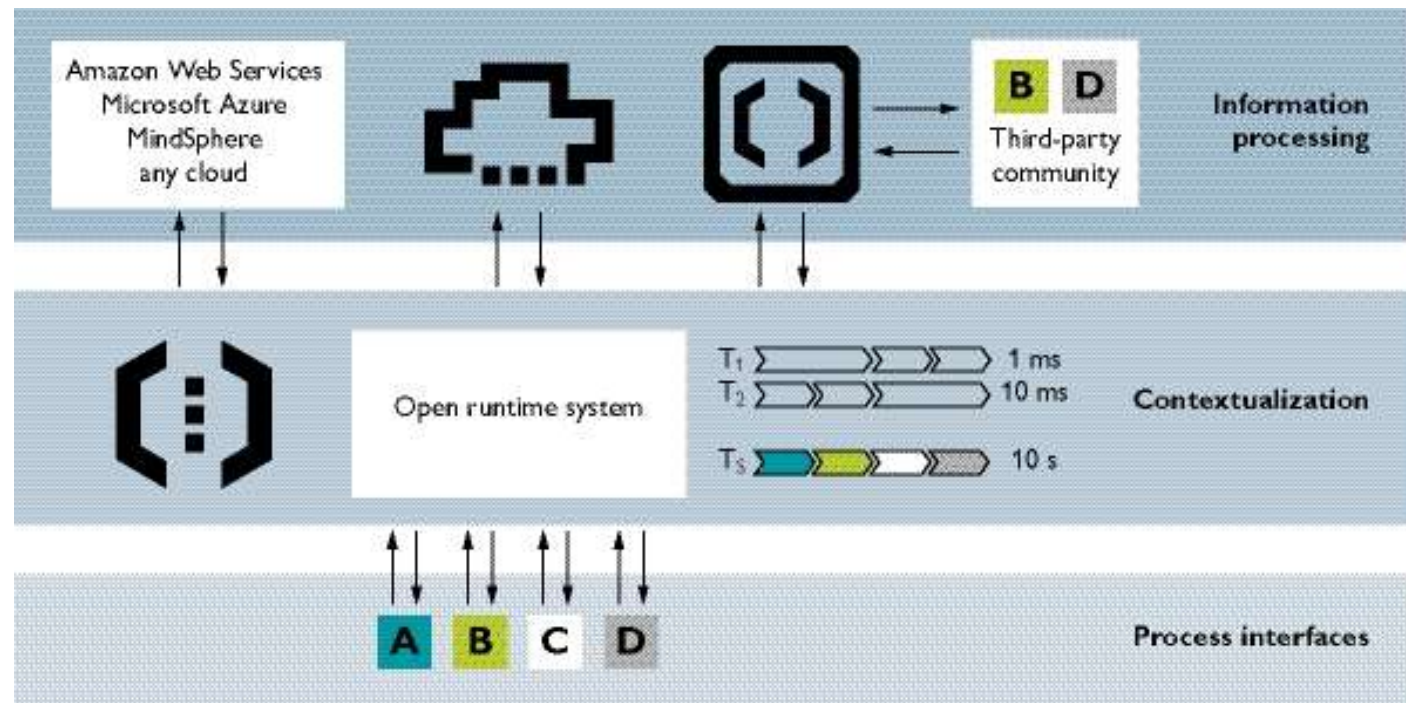
Show 25 Entries

[First](#) [Previous](#) 1 [2](#) [3](#) [Next](#) [Last](#)

Timestamp	Information	Actions
2019-02-19 11:56:21	Amplitude (kA): 237.5 (PE) Charge (C): 46.7 (PE) Spec. Energy (kA*s): 2586.2 (PE)	 
2019-02-19 11:54:45	Amplitude (kA): 240.1 (PE) Charge (C): 376.4 (PE) Spec. Energy (kA*s): 54072.6 (PE)	 
2019-02-19 11:53:24	Amplitude (kA): 247.7 (PE) Charge (C): 33.5 (PE) Spec. Energy (kA*s): 2784.8 (PE)	 

Technology

PROFICLOUD



Technology

PROFICLOUD Remote Services



Technology

SMART Services

DEFINITION	DEVICE MANAGEMENT SERVICE	SMART DEVICE SERVICES	SMART SOLUTION SERVICES
	Minimal standard for all PROFICLOUD-compatible products	Standardized value-added service for different industries / applications	Industry or application-specific value-added service
	Standardized, application-independent device information in real time	Direct linkage to one or more PROFICLOUD-capable products	Combination of Smart Device Services
	Fulfillment of minimum requirements for industrial products in the digital age	High data value added and additional customer willingness to pay	

Technology

Smart Services

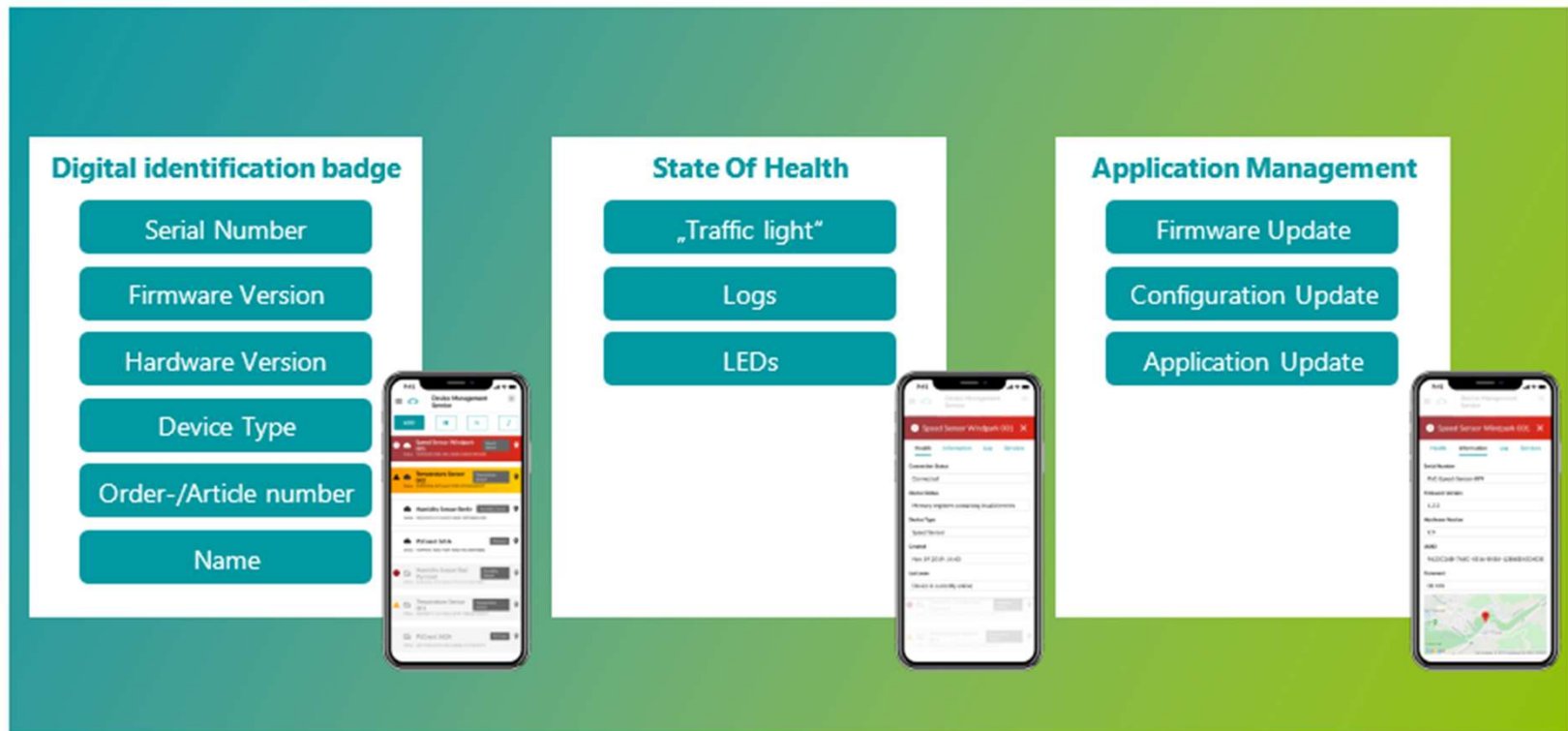


Device Management Service

The screenshot displays the PROFICLOUD Device Management Service interface. On the left, a sidebar contains navigation options: 'Device Management' (selected) and 'Time Series Data'. The main header shows 'Device Management Service' and 'Device Overview'. Below this, there's a search bar and an 'ADD SERVICE' button. The central panel features a large red card for 'PLCnet 362A Bad Pyrmont Building 4 Total' with a 'View Control' button. Below this card, there are tabs for 'HEALTH', 'INFORMATION', 'SERVICES', 'LOG', and 'FIRMWARE UPDATE'. The 'HEALTH' tab is active, showing 'Connection Status' (Online), 'Device Status' (Running out of memory (RAM)), and 'Notifications' (Temporary update available). Below the health section, there are several device cards: 'Temperature Sensor 002' (orange), 'EMpro Bad Pyrmont Building 4 Total' (white), 'Energy_Measurement_20032' (white), 'Humidity Sensor Bad Pyrmont' (white), and 'PLCnet 362A' (white). Each card includes a 'View Control' button and a 'View' button. On the right, a map shows the location of the devices in the OESDORF area.

The screenshot displays the PROFICLOUD Device Management Service interface, showing a list of devices. The left sidebar is identical to the previous screenshot. The main header shows 'Device Management Service' and 'Device Overview'. Below this, there's a search bar and a 'STATUS' dropdown. The central panel lists several devices with their status and a 'View Control' button. The devices listed are: 'Speed Sensor Windpark 001' (red), 'PLCnet 362A' (red), 'Temperature Sensor 002' (orange), 'Humidity Sensor Berlin' (white), 'Humidity Sensor Bad Pyrmont' (white), 'PLCnet 362A' (white), 'Temperature Sensor 001' (white), 'العدادات لوج التوربين' (white), 'GPS Local Test' (white), and 'Pressure Sensor' (white). On the right, a map shows the location of the devices in the OESDORF area.

Device Management Service



Technology

E-Mobility

Market trends and market potential

Customer behavior – refueling vs. charging



From present to future



Perspectively charging



- Nearly any location – integration to everyday life
- Decentral charging
- Side effect while everyday life
- Battery level not enough for planned distance

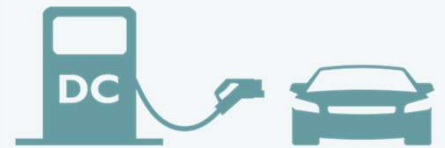
@ night
@ work
@ supermarket
@ shopping
@ restaurant
@

Applications and standards on e-mobility

Charging infrastructure – configurations



Charging modes, standards and power classes

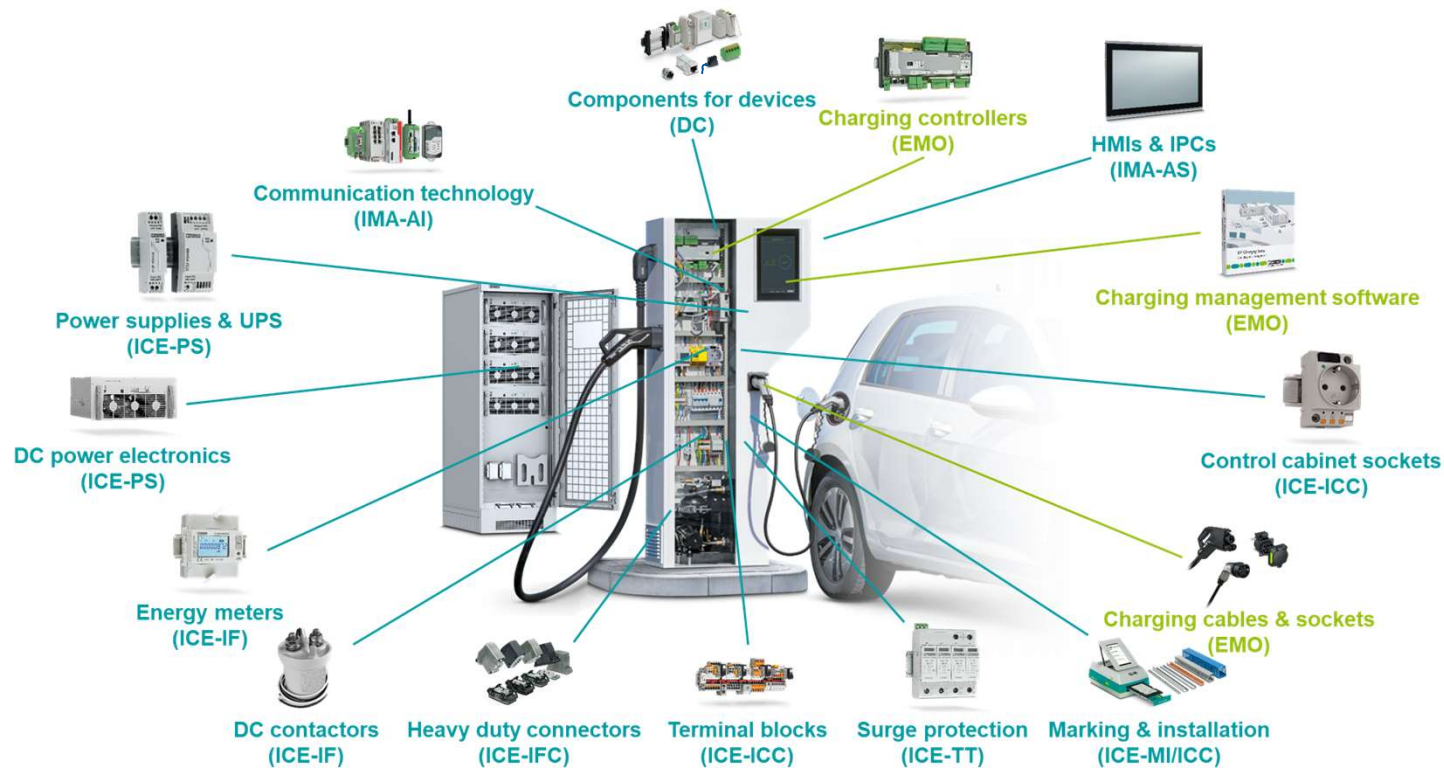
AC charging			DC charging
2,3 kW; 3,7 kW; 11 kW; 22 kW; 43 kW			50 kW; 150 kW; 350 kW; 500 kW
Charging mode 2	Charging mode 3, case B	Charging mode 3, case C	Charging mode 4
			

Charging standards



Product portfolio PHOENIX CONTACT

A complete portfolio for charging infrastructure



Technology

IIoT

INDUSTRIAL INTERNET OF THINGS

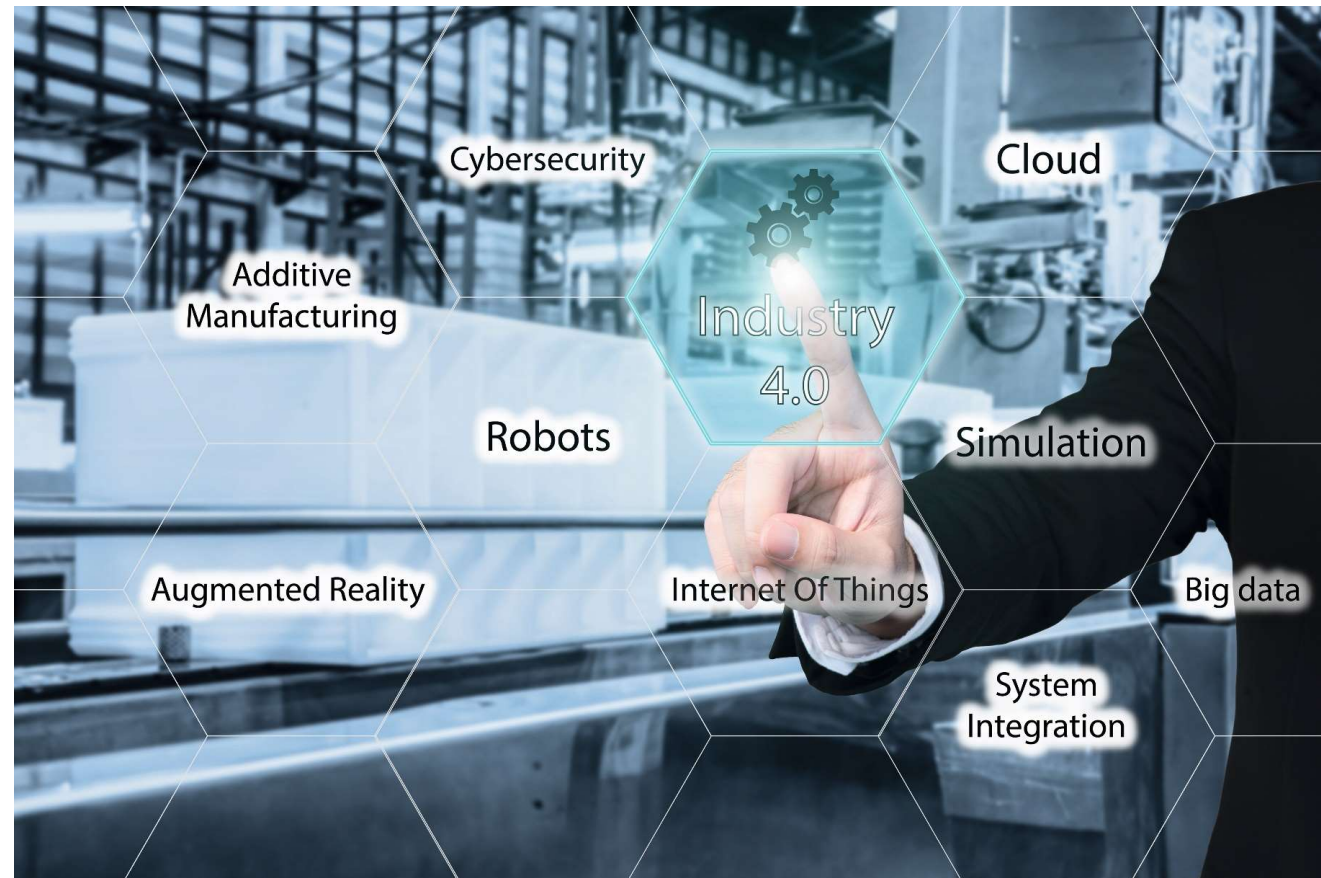


Figure 1: The first step in creating an IIoT application is to make sure that your devices – both legacy and new – can communicate with each other, so that you are getting the most out of all of your data.

Speaking a common language: Getting your devices ready for IIoT

Technology

Industrie 4.0



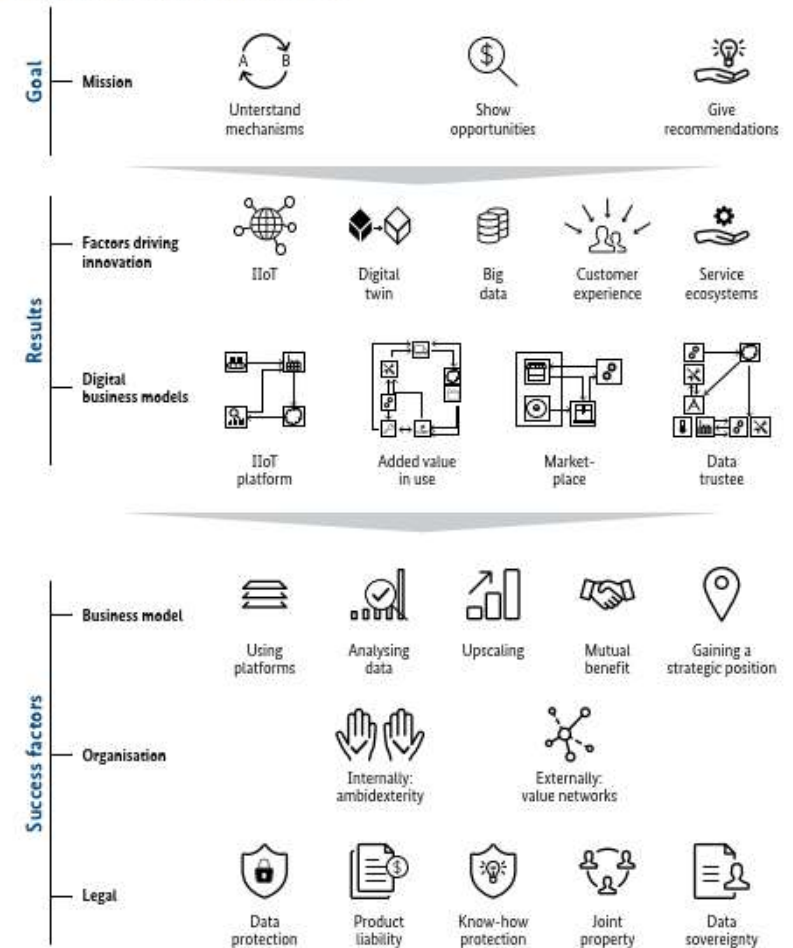
PLATTFORM Industrie 4.0



Plattform Industrie 4.0

Through Industrie 4.0, Germany has created a globally recognized brand. Numerous countries have built their strategies for the transformation of production on German standards. For example, Industrie 4.0 has inspired China to seek an “initiative to completely enhance Chinese industry” with its ‘Made in China 2025’ plan. In addition, 20,000 publications about Industrie 4.0 have been published in German-speaking countries alone since 2014, with well over 100,000 published internationally.¹ Authors include ministries, scientific and research institutions, academies, associations, companies, consulting firms, trade unions and foundations. A remarkable achievement!

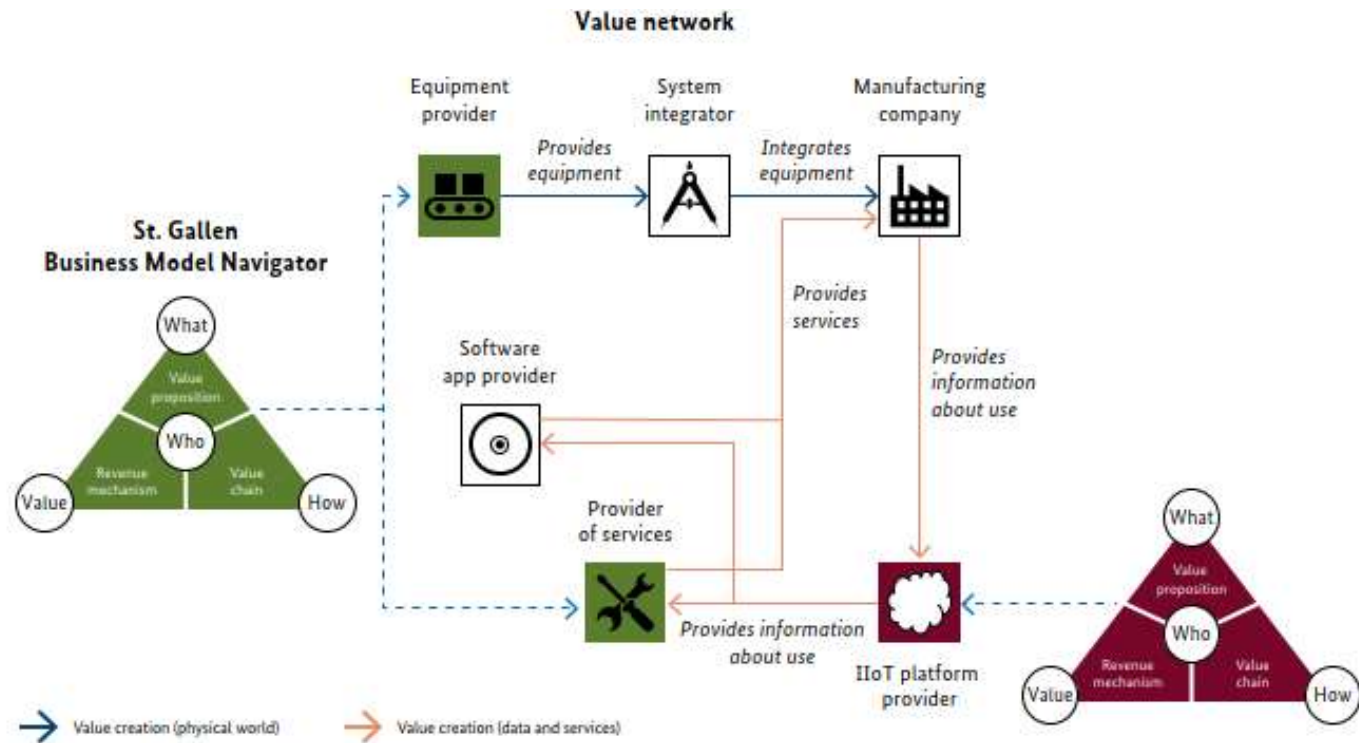
Figure 1: Digital business models for Industrie 4.0



Source: Plattform Industrie 4.0

Technology

Plattform Industrie 4.0



Source: Plattform Industrie 4.0

Webinar IMA Septiembre 2020

Panorama y guía de selección de Software y Tecnologías



Fecha	14 Septiembre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratuito

Descubra y conozca las herramientas de software de manera general para parametrización, configuración, programación, diagnóstico, monitoreo, visualización web, configuración y diagnóstico de buses de campo, soporte y configuración de interfaces de comunicación, configuradores especiales de conectividad así como un panorama general de las tecnologías actuales que se desarrollan hacia la digitalización inteligente en los campos de la automatización.

Panorama y guía de selección desde Softwares para programación, configuración, diagnósticos de controladores, herramientas de softwares para red, configuradores OPC, planeación de estaciones de automatización para las líneas de controladores y sus sistemas E/S, diversas formas de parametrizar desde radios, equipos de seguridad, visualización HMI, SCADA así como una panorama general de las principales tecnologías como PROFINET, OPC UA, Digital TWIN, PLCnext Technology, SMART Business, Tecnologías E-Mobility, IIoT, y Plataforma Industrie 4.0

Webinar IMA 2020

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