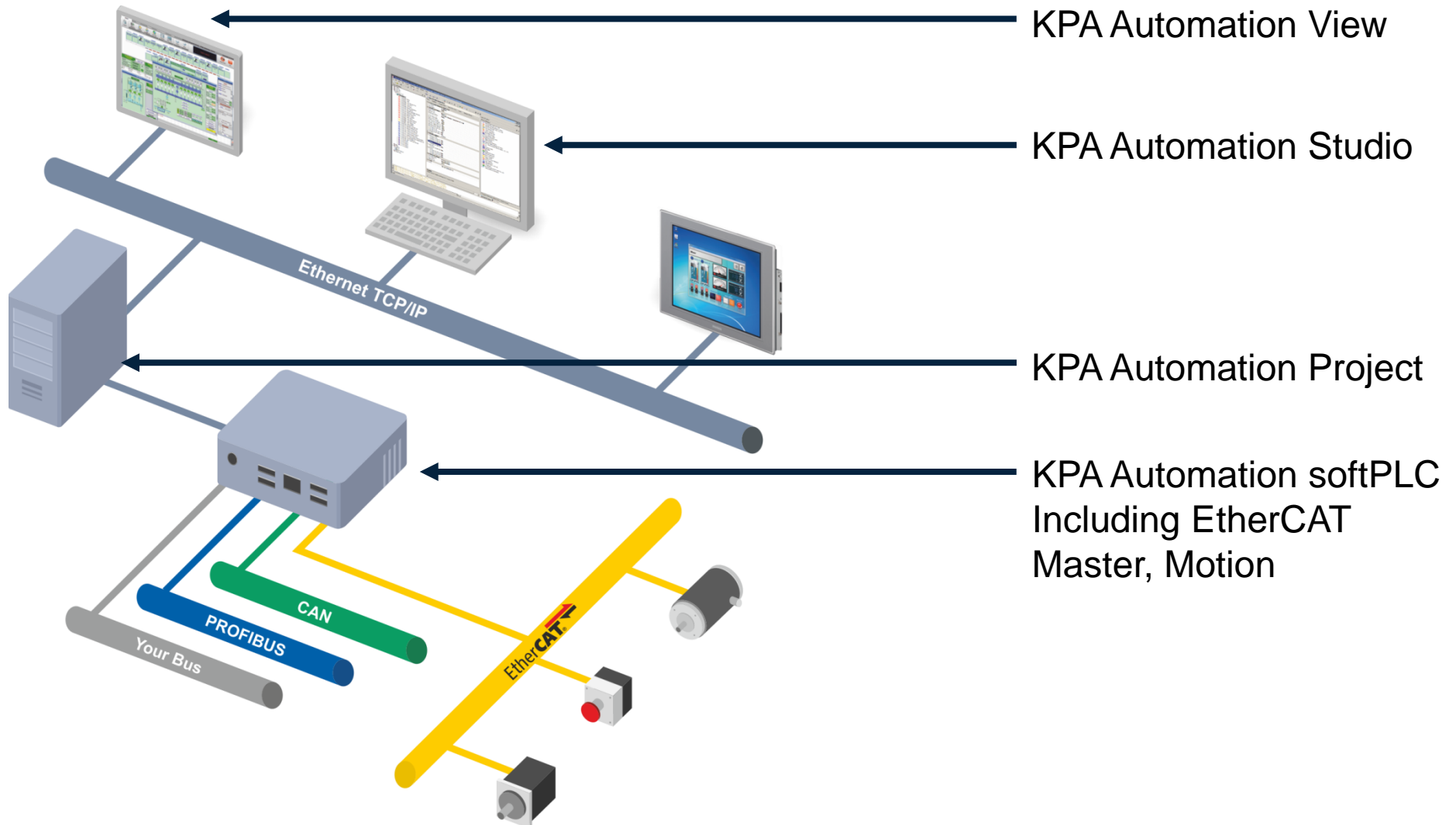
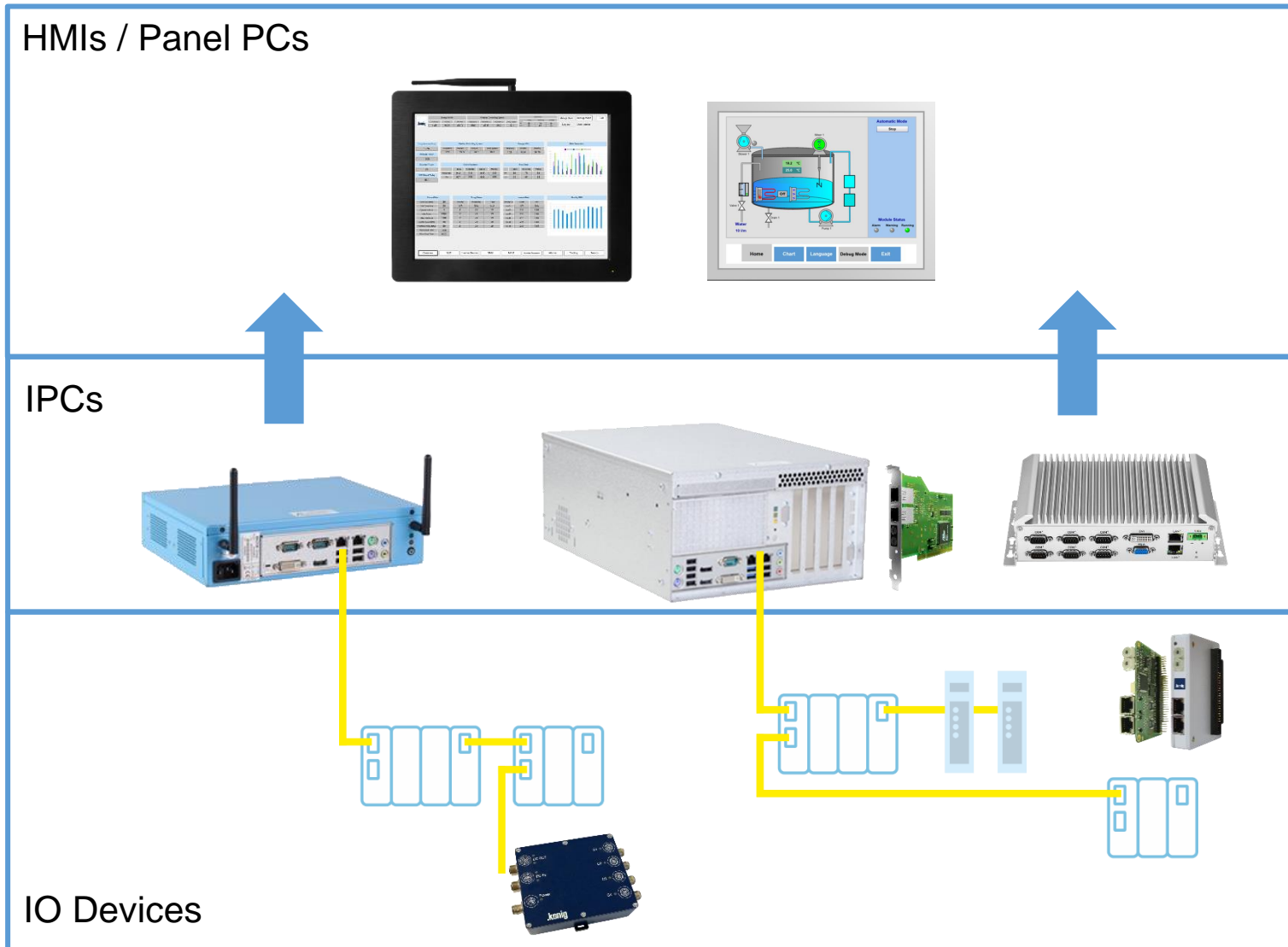


KPA Automation platform

KPA Automation platform • software overview



KPA Automation platform • hardware overview



KPA Automation platform

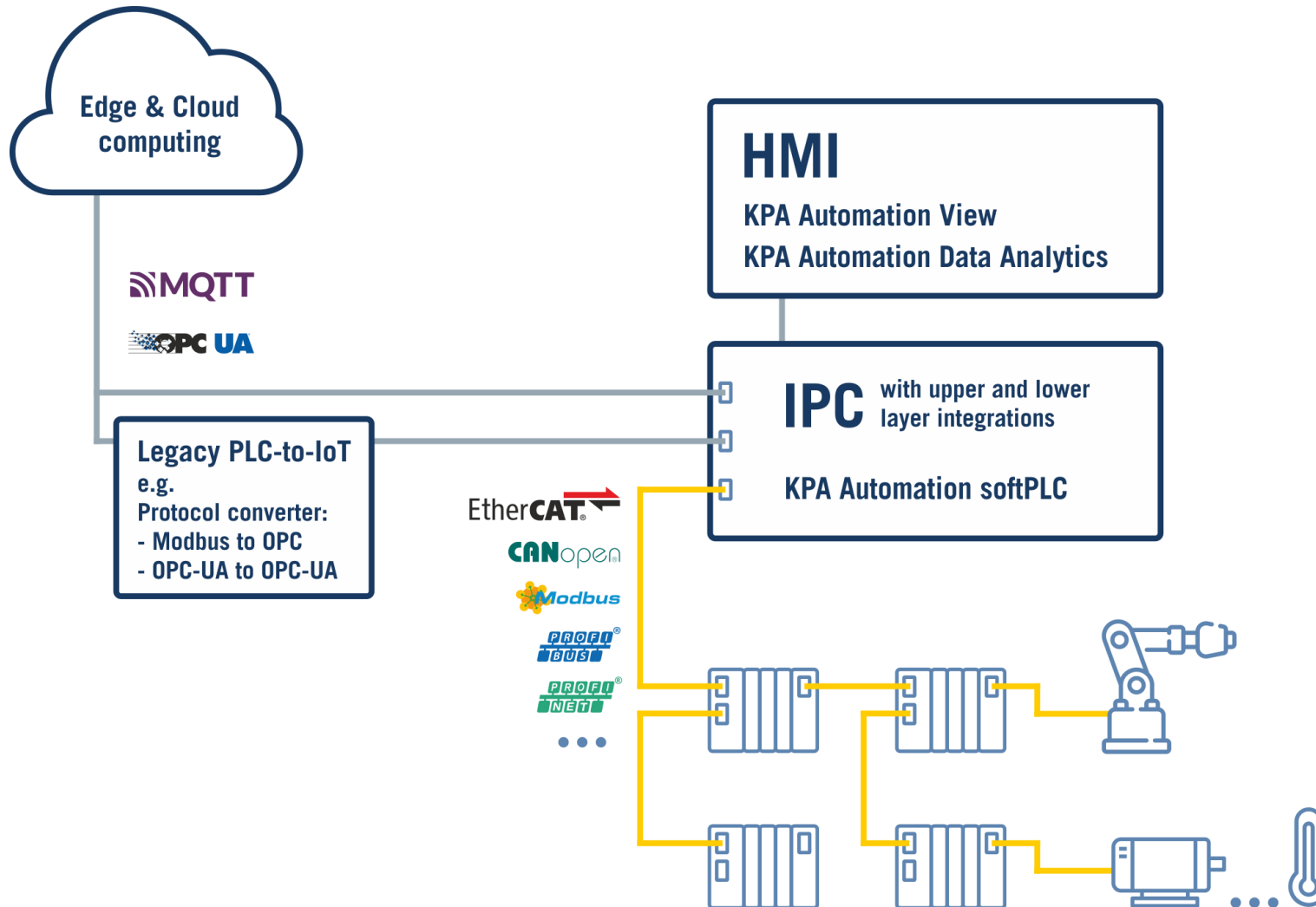
KPA Automation softPLC

KPA Automation softPLC (based on Straton)

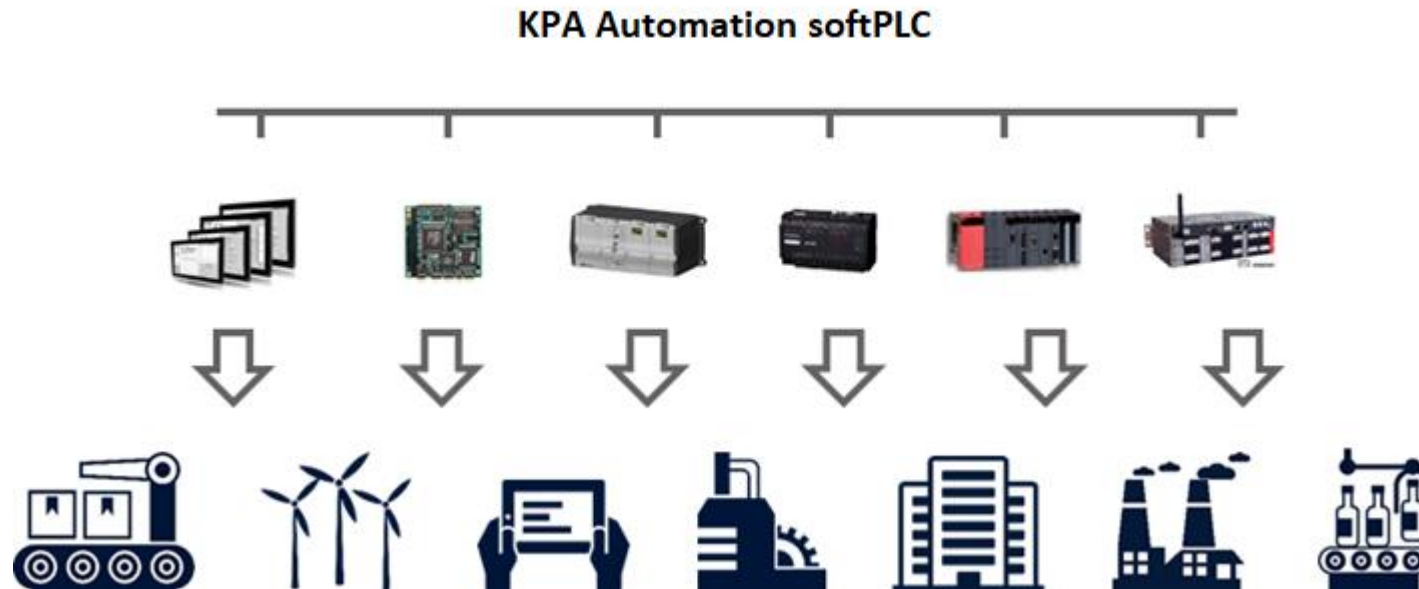
KPA is provider for complete Control System solutions based on KPA Automation platform

- One source for Hardware and software (all preinstalled):
 - IPC, IO's
 - Operation systems
 - PLC Software and drivers
- Better support, better price
- Openness, better support

KPA Automation platform • softPLC • overview



KPA Automation platform • softPLC • all in one



KPA Automation softPLC Runtime → make any device as PLC

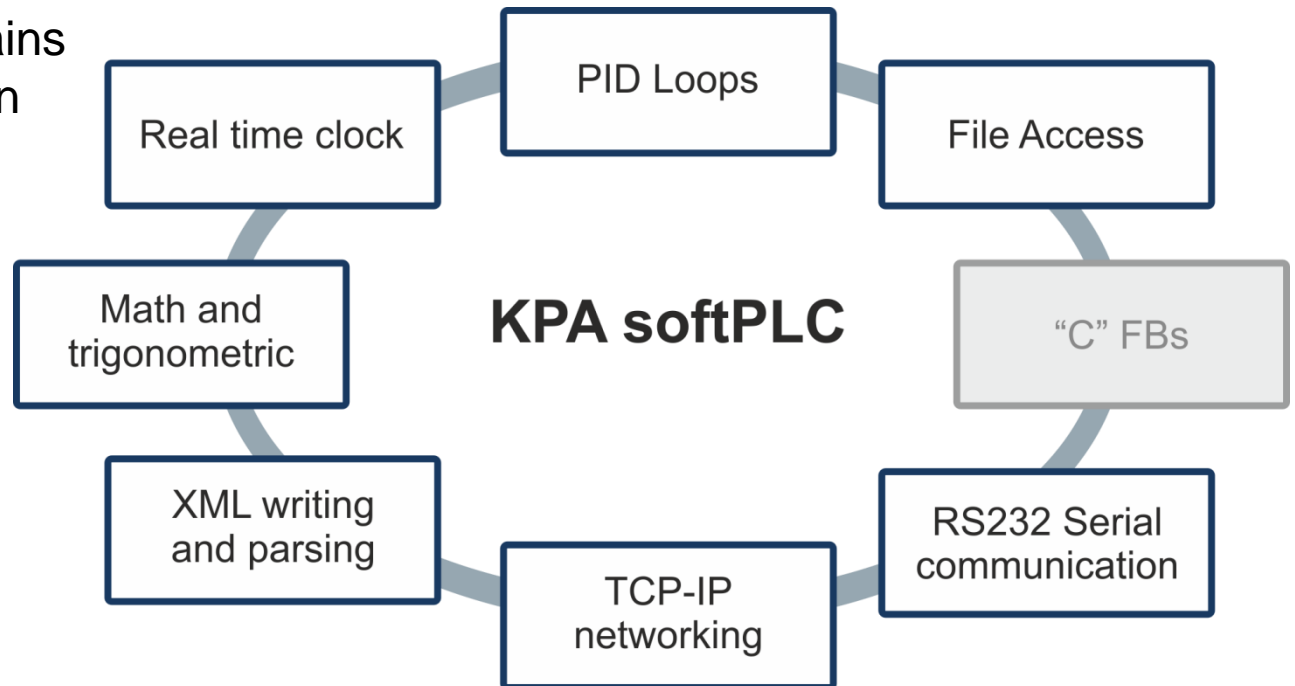
- Any CPU: x86, x64, arm, FPGA, ...
- Any OS: Windows, INtime, Linux, Xenomai, QNX...
- Any Fieldbus: EtherCAT, Modbus, OPC-UA, ...
- Any I/O device

KPA Automation softPLC Runtime

- Modular development environment based on IEC61131
- Operation System via tiny abstraction layer
- Build-in drivers, own drivers
- Build-in functions and function blocks, own functions
- Remote communications
- Graphical configuration of communications
- Expert in different protocols and service assistance
- JSON/MQTT data publishing
- Build-in editors for EtherCAT, Motion, OPC-UA, Modbus Master and other drivers
- Various set of PLC Tools

KPA Automation softPLC Runtime

- Extensive range of FBs with ability to add more
- Vast range of FBs, over and above IEC61131-3 standard:
 - TCP-IP functions
 - XML functions
 - File operations, Retains
 - Serial communication



KPA Automation platform • softPLC • all in one

KPA Automation softPLC Editor & Runtime / IEC 61131-3

- FBD
- SFC
- LD
- ST
- IL

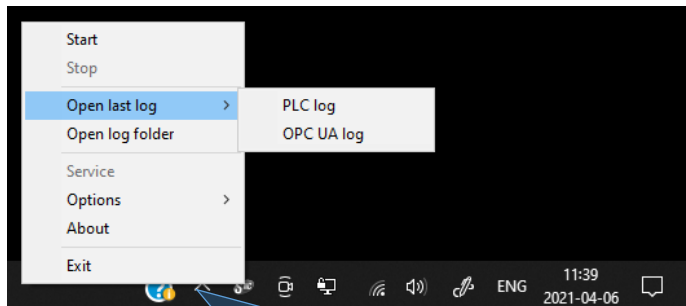
The screenshot displays the KPA Automation softPLC Studio interface. The main window shows a ladder logic diagram for a program named 'LedSlowBlinkLD - Main'. The diagram consists of three rungs (R1, R2, R3) connected in series. Rung R1 contains a timer block (TimerVar) and a sine wave block (SinValue). Rung R2 contains a timer block (TimerVar) and a DAC output block (OutVoltage). Rung R3 contains a timer block (TimerVar) and a DAC output block (OutVoltage). The DAC output block in Rung R2 is labeled 'Set the DAC output voltage to 5.0 V in OutVoltage variable (read only)'. The DAC output block in Rung R3 is labeled 'OutVoltage := 32767 / 10.0 * 5.0 = 16384'. The ST editor window shows the following code:

```
1 | (*Flowing Slow LED blink*)
2 |
3 | (*Set the DAC output voltage to 5.0 V in OutVoltage variable (read only)*)
4 | (*OutVoltage := 32767 / 10.0 * 5.0 = 16384*)
5 |
6 | (*Before program starting, the cycle time was set equal to 5 ms*)
7 |
8 |
9 | (*Calculate DAC output voltage*)
10 | DAC_OutValue := ANY_TO_INT(SIN(TimerVar) * OutVoltage);
11 | TimerVar += 0.01;
12 | (*Reset TimerVar*)
13 | IF TimerVar >= 3.14 THEN
14 |     TimerVar := 0.0;
15 | END_IF;
16 |
```

KPA Automation platform • softPLC • all in one

KPA Automation softPLC Studio & Runtime –
debugging, commissioning and support

- Full Simulation
- Break points, Watch, Monitoring, Charts
- Program & variables locking
- 3rd Party Tools for monitoring and debugging

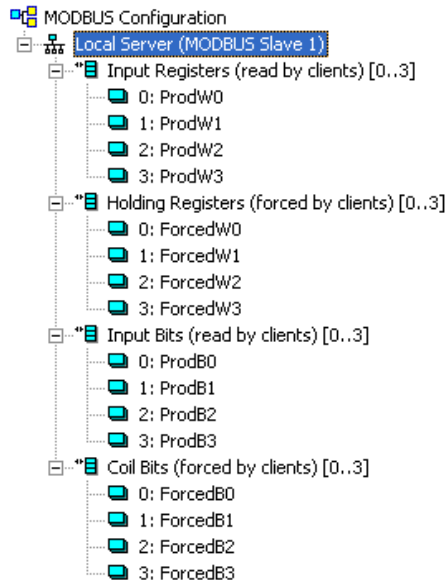


- Windows service
- Logs, & traces
- Options



KPA Automation softPLC Studio & Runtime – Fieldbuses

- MODBUS Master/Slave
- CAN / CANOpen
- ...



KPA Automation platform • softPLC • all in one

KPA Automation softPLC Studio & Runtime – Fieldbuses

- EtherCAT

The screenshot displays the KPA Automation softPLC Studio interface. The main window shows a project named 'LedSlowBlinkLD' with a configuration tree on the left and a 'Symbol' table at the bottom. The configuration tree includes a 'KPA EtherCAT Master' and several 'Slave' nodes (Slave 1, Slave 2, Slave 3, Slave 4, Slave 5). The 'Slave 2 (EL3001)' node is selected, and its properties are shown in a table:

Name	Value
Name	Slave 2 (EL3001)
Art-No	Slave 2 (EL3001)
Physical Address	1002

The 'topology - KPA Automation softPLC Studio - EtherCAT' window is open, showing the 'Master "master"' configuration. The 'Connection settings for master server' are:

- Host name: localhost
- Port number: 5000

The 'Master parameters' are:

- Master name: master
- Network card: 6.Realtek PCIe GbE Family Controller
- Redundancy card: Not used
- Initial master state: INIT
- Basic cycle time (µs): 1000
- Mailbox cycle time (µs): 5000
- Auto recovery timeout: 100
- Process image display: 1000
- Statistics display period: 1000

The 'Slaves library' window is also open, showing a list of available slaves. The 'Studio Output' window at the bottom shows 0 errors and 0 warnings.

KPA Automation platform • softPLC • all in one

KPA Automation softPLC & Runtime – Fieldbuses

- OPC UA

The screenshot displays the KPA Automation Straton Studio - SolarPlantST interface. The main workspace shows a project tree with folders for Exception programs, Programs, and Sinus. The IO Drivers panel lists various AE-Conditions and Inverter0 parameters. The Global variables panel shows variables like fbChartirradiance and fbHeaderData. The Servers panel shows the configuration for the KPA OPC UA Server. The Events panel displays a list of events with columns for Time, Severity, Server/Object, SourceName, Message, EventType, and Active. The Build panel shows the build process and application data. The bottom status bar shows the current state of the software.

Name	Value
Name	KPA OPC UA Server
Max Sessions	3
Max Subscriptions per...	5
Max Monitored items...	200
Max Publish requests...	10
Max Data changed...	10

Name	Type	Dim.	Attrib.
fbChartirradiance	fb_ChartIrradiance		
fbHeaderData	fb_HeaderData		
fbOverviewData	fb_OverviewData		
fbChartWind	fb_ChartWind		
fbChartTemperature	fb_ChartTemperature		

Time	Severity	Server/Object	SourceName	Message	EventType	Active
15:28:34.615	100	opc.tcp://192.1...	Server		RefreshStartEventType	Inactive
15:28:34.615	100	opc.tcp://192.1...	Server		RefreshEndEventType	Inactive
15:28:41.017	100	opc.tcp://192.1...	muchWaterConditionSource	The alarm was enabled	OffNormalAlarmType	Inactive
15:28:41.017	100	opc.tcp://192.1...	muchWaterConditionSource	AE-Conditions/Alarms/muchWaterConditionSource.AnalogHigh	OffNormalAlarmType	Inactive
15:28:41.017	100	opc.tcp://192.1...	Server		RefreshStartEventType	Inactive
15:28:41.017	100	opc.tcp://192.1...	Server		RefreshEndEventType	Inactive
15:45:12.172	100	opc.tcp://192.1...	Server	The alarm was acknowledged	OffNormalAlarmType	Inactive
15:45:12.172	100	opc.tcp://192.1...	Server		RefreshStartEventType	Inactive
15:45:12.172	100	opc.tcp://192.1...	Server		RefreshEndEventType	Inactive

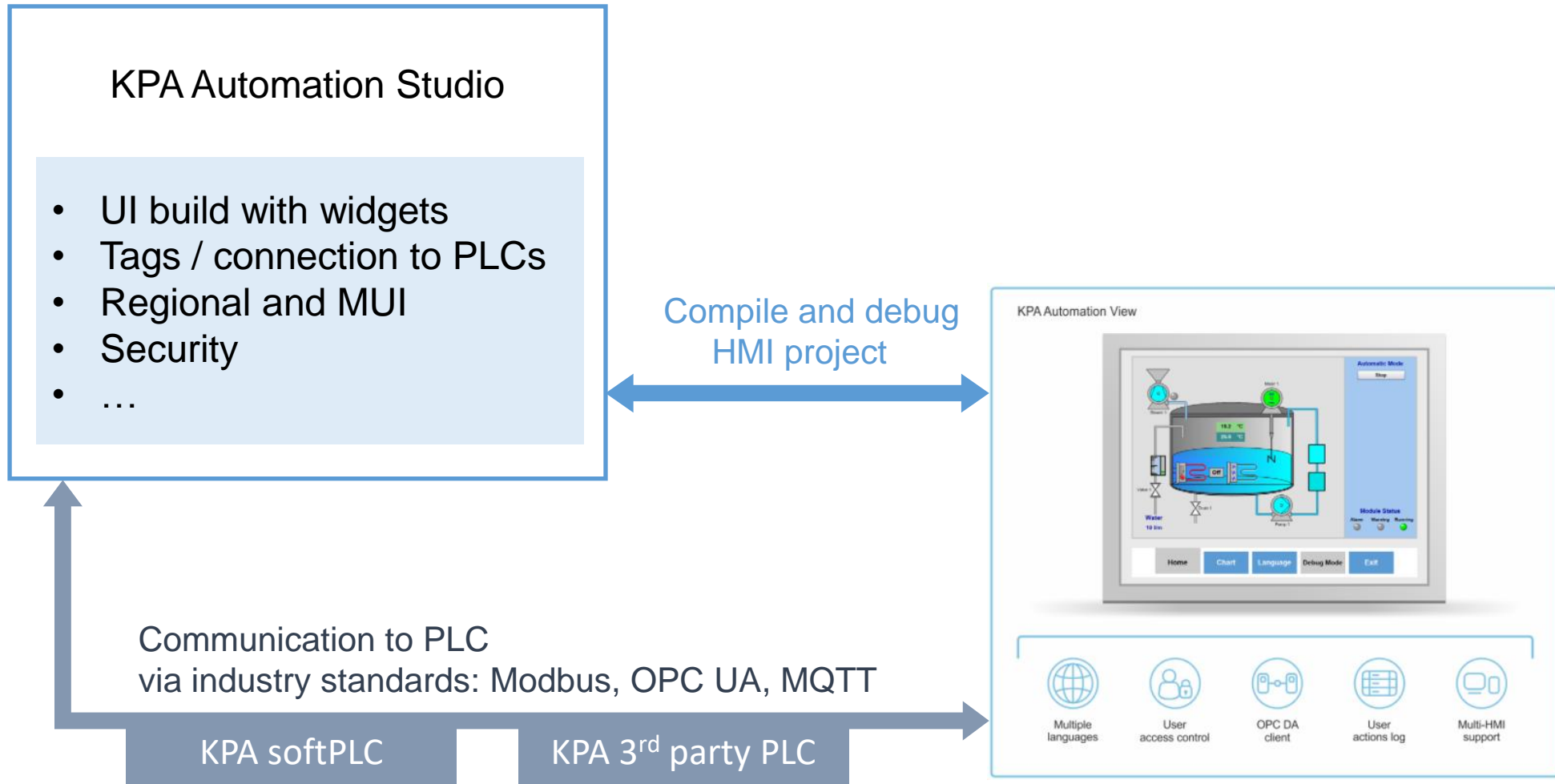
Name	Value
ConditionId	NotSet
NameSpaceUri	0
IdentifierType	String
Identifier	AEConditionsAlarms/muchWaterConditionSource.AnalogHigh
ActiveState	yes, 'Acknowledged'
ActiveStateId	True
ActiveStateId	yes, 'Inactive'
ActiveStateId	False
BranchId	NotSet
NameSpaceUri	0

```
Build
fb_MFM
fb_SMB
fb_SMB: (2): Warning: loop instructions may block the target cycle
fb_SMB: (1): Warning: loop instructions may block the target cycle
fb_UniTTest
Building application data...
Complex data types definition = 3002 bytes
< Call stack depth = 3 >
< 21 BOOL/SINT, 0 INT, 306 DINT/REAL, 0 LINT/LREAL, 2 TIME, 1 STRING, -CRC = dlc9159e >
On Line Change is disabled
```

KPA Automation platform

KPA Automation View

KPA Automation platform • View • Overview



KPA Automation platform • view • design time

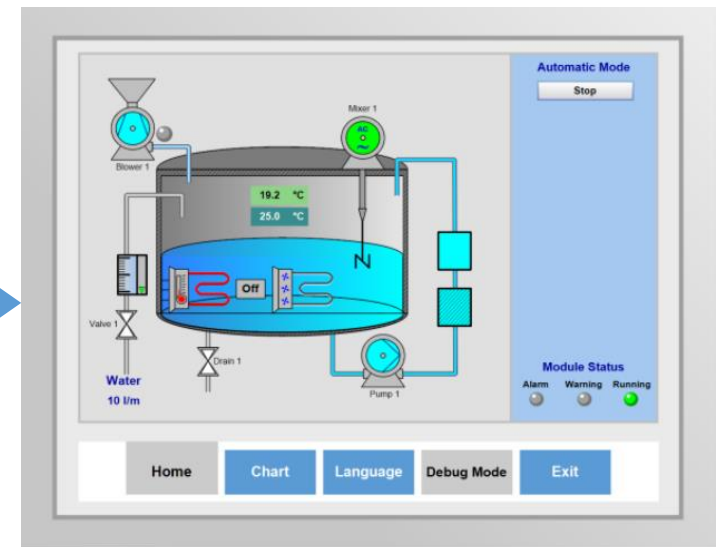
KPA Automation based solutions ensure the following possibilities:

- Hierarchical architecture with object-oriented design
- Hierarchical user access and permissions system
- Quality Control and Quality Assurance with reports, alarms and events
- Report system with relevant historical data acquisition, storing and retrieving
- Multilanguage support including major European and Asian languages
- Alarms & events, customizable reporting system
- Thin and thick clients support

KPA Automation Studio

- UI build with widgets
- Tags / connection to PLCs
- Regional and MUI
- Security
- ...

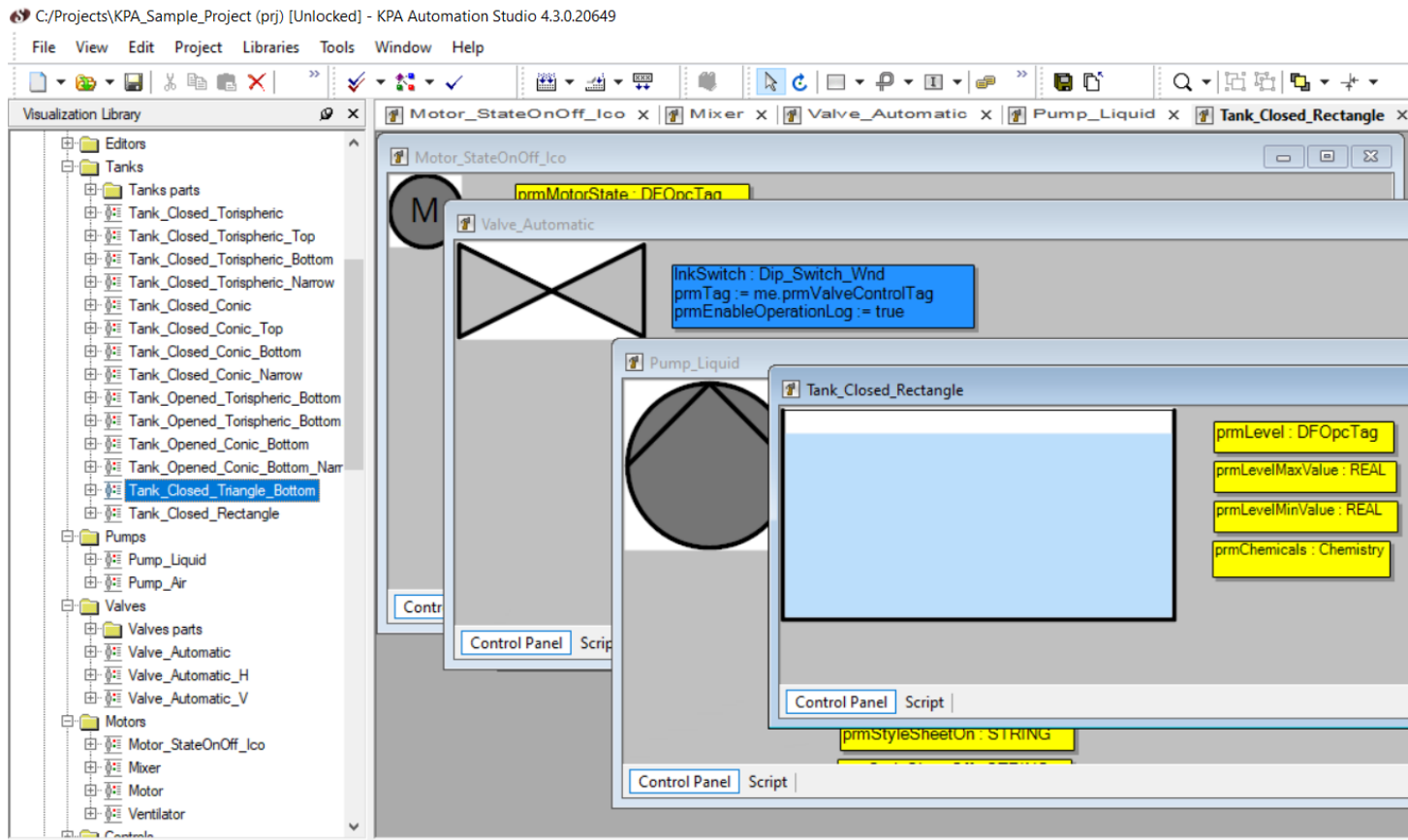
Compile and debug
HMI project



KPA Automation platform • view • design time

UI build with widgets:

- Basic primitives: Value input, Value indicator, circular, rectangles, ...
- Extended Widgets: Tanks, Pumps, Valves, ...



KPA Automation platform • view • design time

UI configuration:

- Screens
- Connections to tags

C:/Projects/KPA_Sample_Project (prj) [Unlocked] - KPA Automation Studio 4.3.0.20649

File View Edit Project Libraries Tools Window Help

Visualization Configuration Start_Page_Overview x Screen_Overview x

Screens

- Start_Page_Overview
- Page_SLD
- Page_SMB
- Page_MFM
- Page_Inverter_Parameter
- Page_Cooling
- Page_Trends
- Page_Inverter_Rooms
- Page_Inverter_Rooms2
- Page_SMB2

Start_Page_Overview

Energy MWH Weather

Yesterday Weekly Monthly Irradiance Ambient t °C

Screen_Overview

Energy Generated Today

0

Instance Power

0

Exported Today

Weather Controlling System

Irradiance Ambient t °C Module t °C

0 0.0 0.0

Global Radiation

Control Panel Script

Property Browser

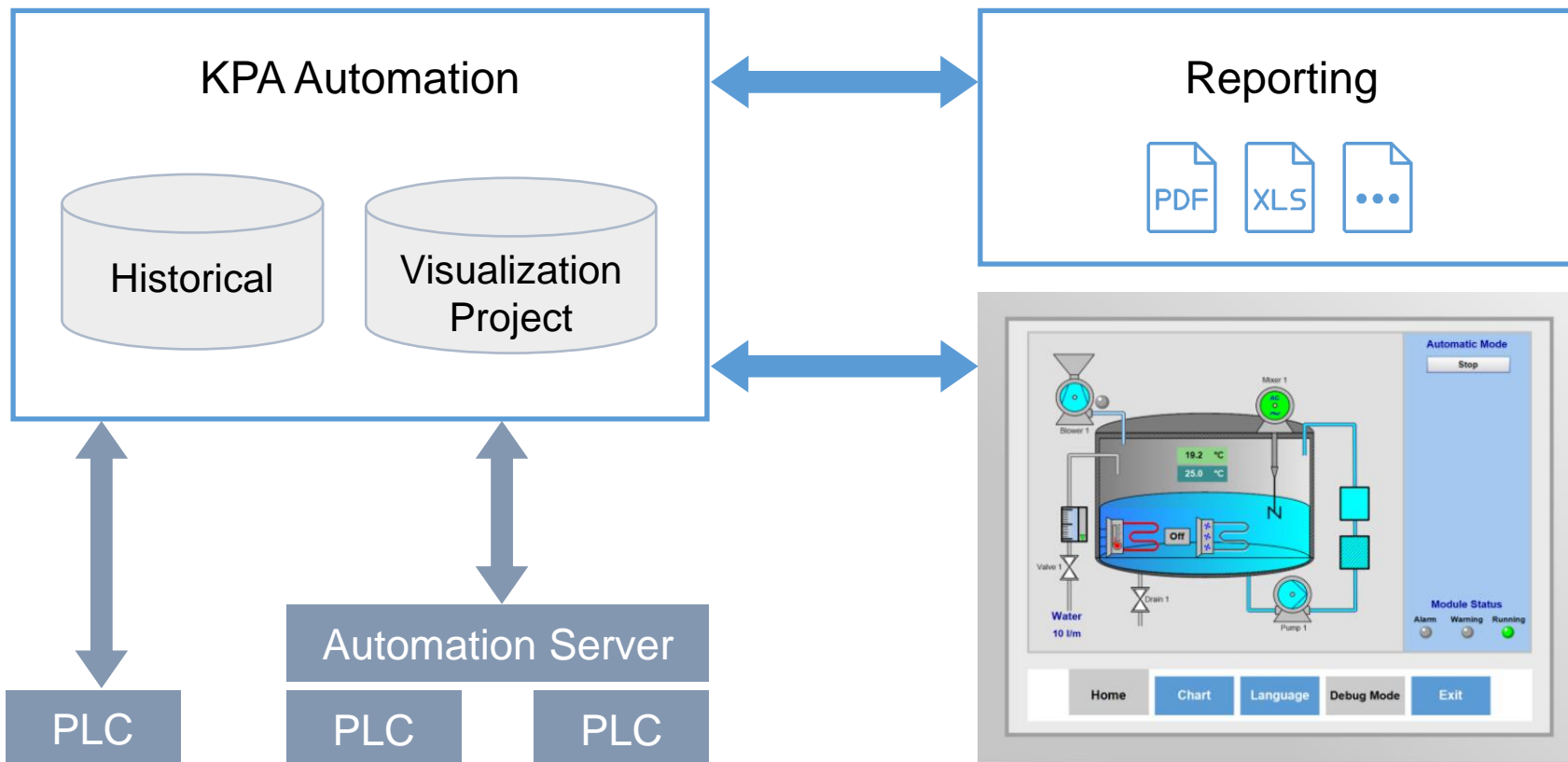
IndicatorIrradiance1 - [ValueIndicator]

Name	Value
name	IndicatorIrradiance1
stylesheet	INDICATOR_NUMERIC_BASIC
state	0
style	0
enabled	True
security	{...}
tabIndex	65535
location	{...}
visible	True
alwaysOnTop	False
transparent	False
cursor	Default
tooltipStyle	None
tooltip	
boundrect	{...}
pen	{...}
brush	{...}
textStyle	{...}
logfont	{...}
linkedObject	OpcManager.GetOpcTagByUn("opc.tcp://localhost:62541//Root_Objects.?
linkedType	Object
precision	0
isFixed	True

KPA Automation platform • view • design time

KPA Automation based solutions ensure the following possibilities:

- Data Analytics - Data storage, historical data acquisition and reporting system
- Alarms and events
- OPC DA/OPC UA, Modbus, and further via KPA Automation Server



Contacts



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Thank you for your attention
