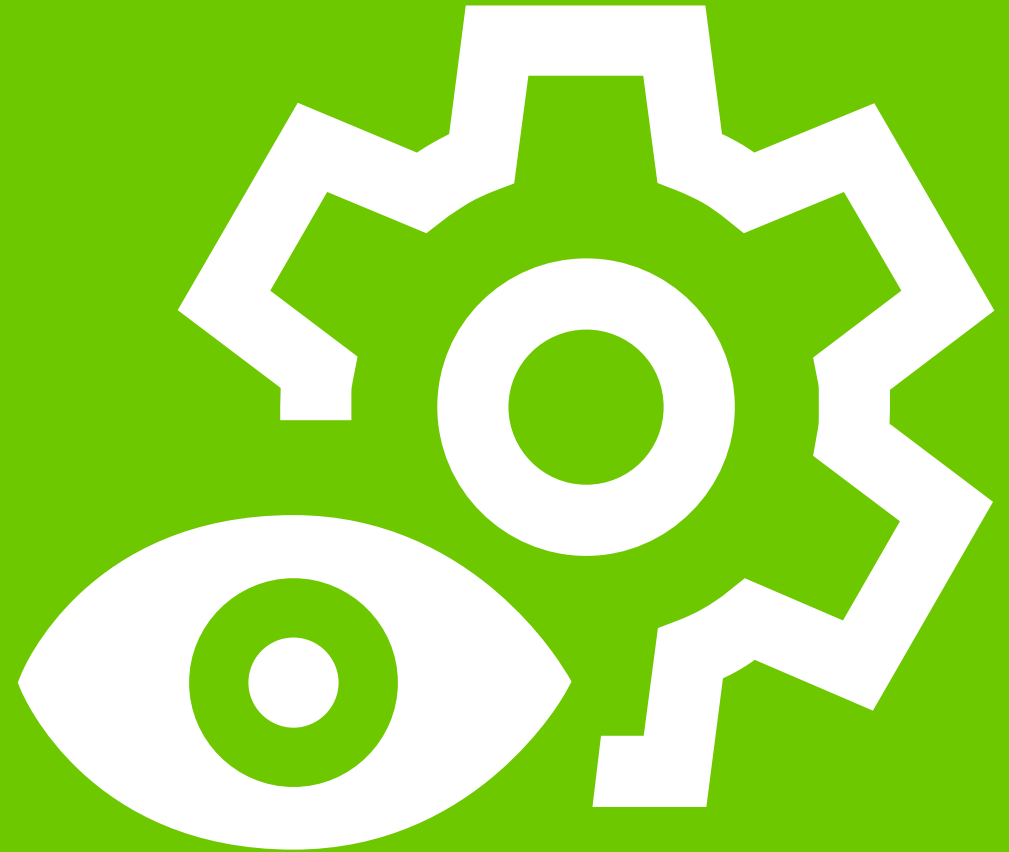


Innovative Lösungen



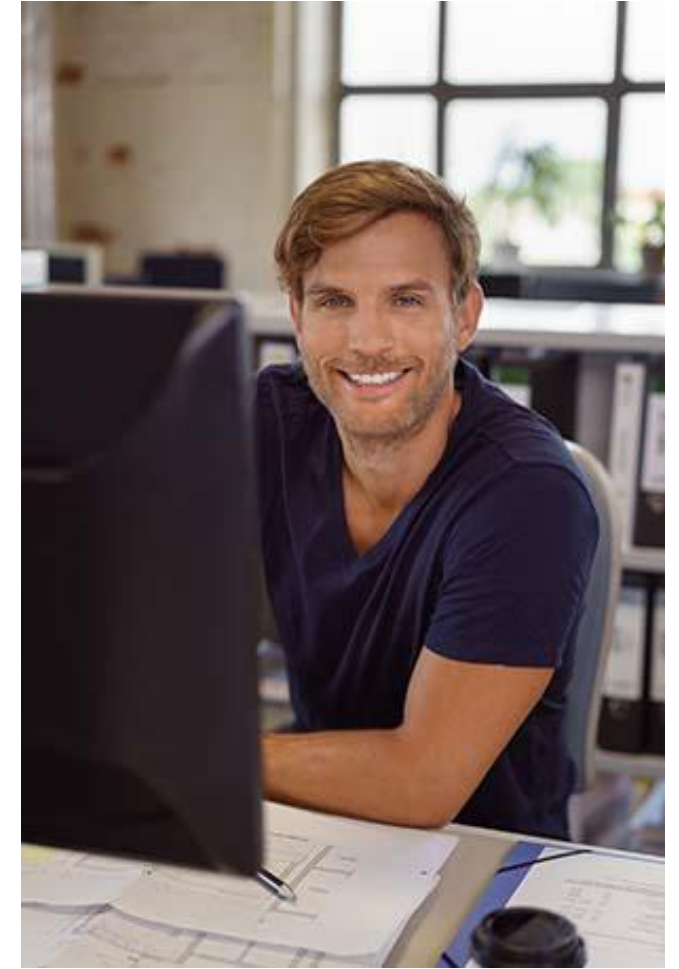
PLC Visualization



PLC Visualization

Benefits

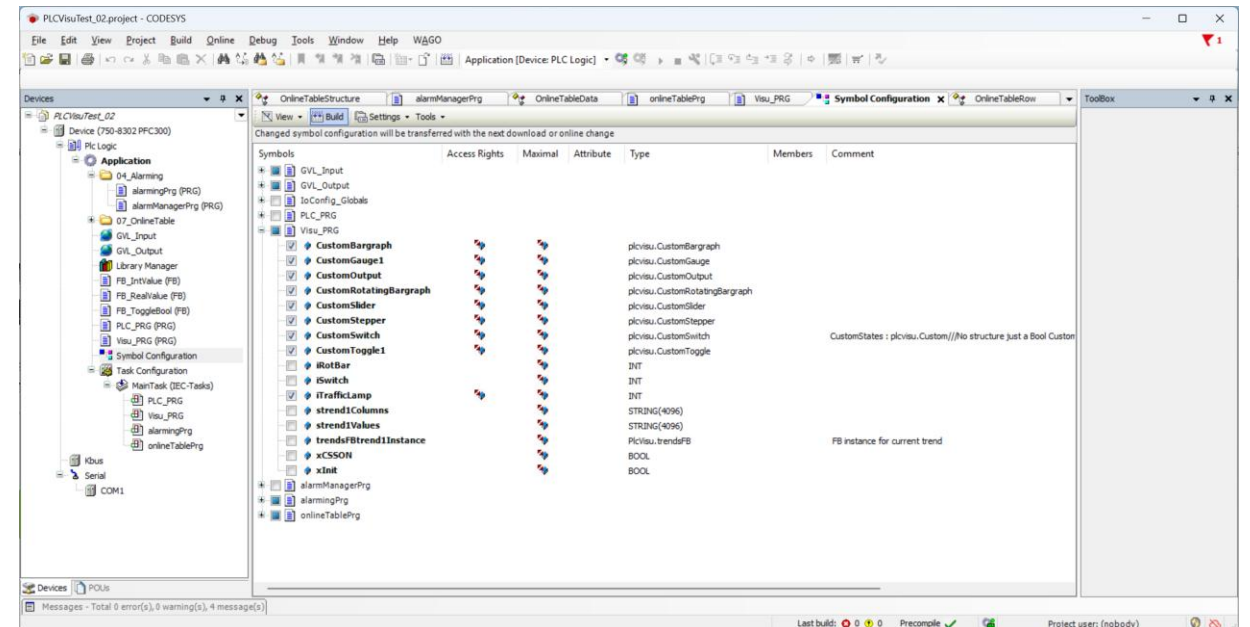
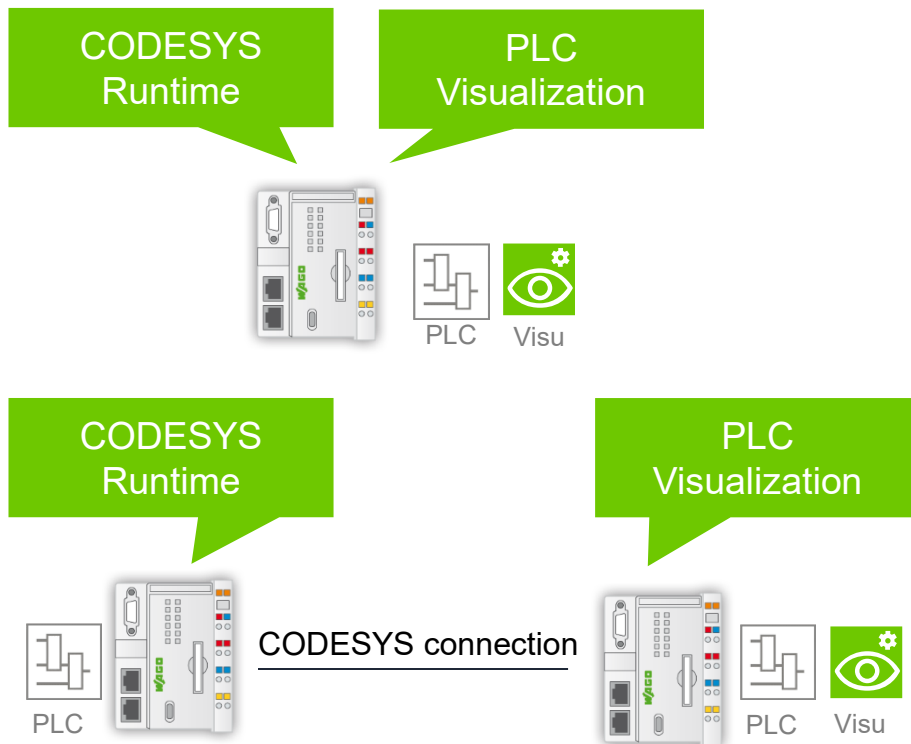
- **Web-Based:** Access your application directly through your browser with no setup or plugins required, enhancing usability.
- **Highest flexibility:** Use benefits like Cascading Style Sheets (CSS) to quickly change the design of a complete application.
- **Easy Usability:** Effortlessly design your projects with our intuitive drag-and-drop WYSIWYG Editor, eliminating the need for technical expertise.
- **100% yours:** Use your own SVG controls according to your application
- **Responsive Design:** One Visu for different device formats



What kind of protocols or connections are supported?

- The PLC Visu offers a direct CODESYS connection.
- One PL Visu can handle multiple connections

Use Symbol configuration + instance of a function block as connection.

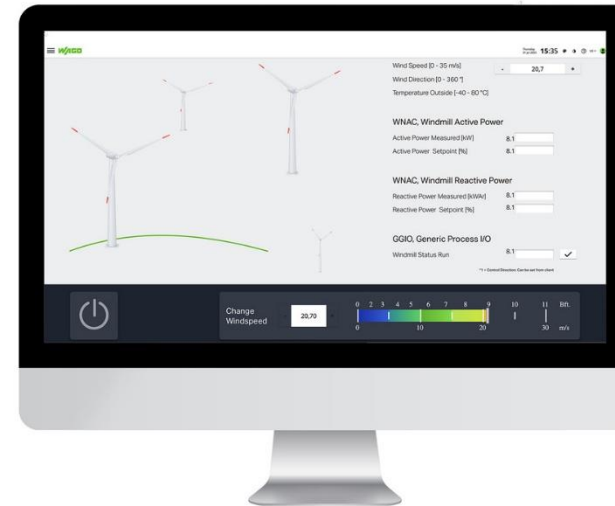


Applications

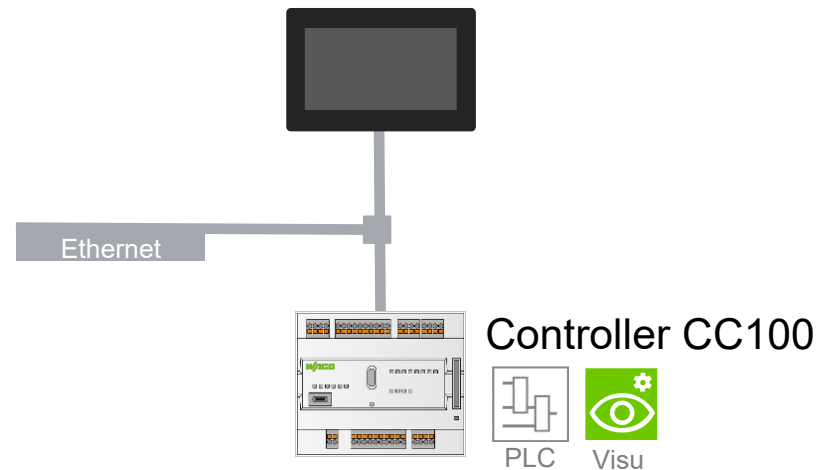
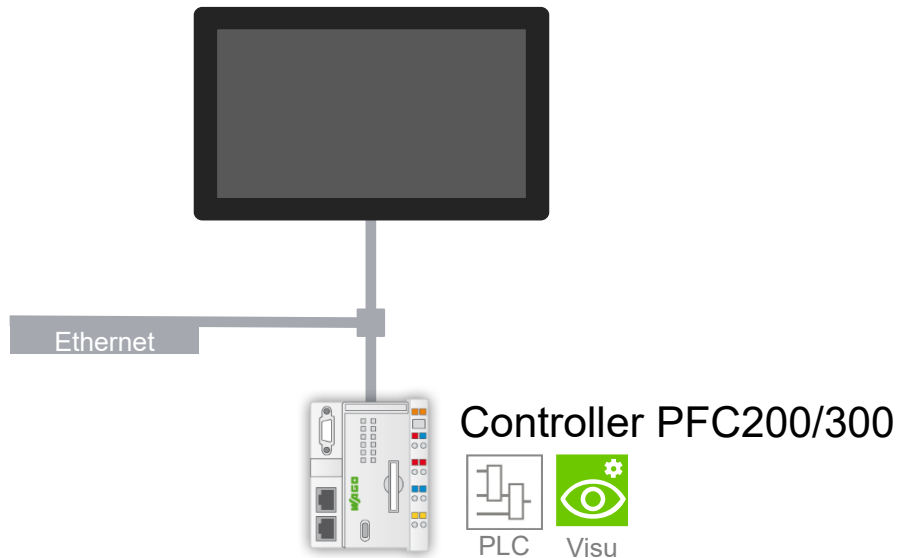
PLC Visualization is a versatile tool that can be adapted to a wide range of industries and applications. Its features, such as trends, bar graphs, gauges, and alarms, offer crucial insights and control for businesses across sectors like manufacturing, energy, and others. Whether you're visualizing a production process, monitoring energy consumption of a machine, or showing KPIs of filling process, PLC Visualization provides the flexibility and clarity needed to enhance operational efficiency and drive innovation. Every industry can benefit from its capacity to deliver real-time data analysis.



Application Examples



Where to install?



Using the Web Based Management, simply install PLC Visualization directly on the PFC 200/300 or CC100.

What to install?

2 IPK files

- 32Bit version for PFC200 + CC100
- 64Bit version for PFC300

64 Bit version



Controller PFC300

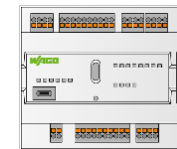


PLC



Visu

32 Bit version



Controller CC100



PLC



Visu



Controller PFC200



PLC Visu – Further Features

Supported Features & Functionality

- Editor with SVG-Support
- CODESYS Data Connection
- User Management
- Alarming
- Trends & Traces
- CSS and JS-scripting integration

PLC Visualization

New performant and secure web based visualization platform

Runtime license – every controller where PLC Visualization is installed requires a license.

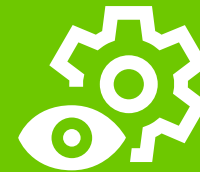
Article number: 2759-0209/0211-1000 (anonymous licence)

Price: 40,-

Supported devices:

- WAGO PFC 200
- WAGO PFC 300
- WAGO CC 100

PLC Visu	
Processor	64bit or 32bit (different IPKs for installation)
Operating System	Linux
Supported Browsers	Chrome, Firefox, MS Edge, Safari (current versions)



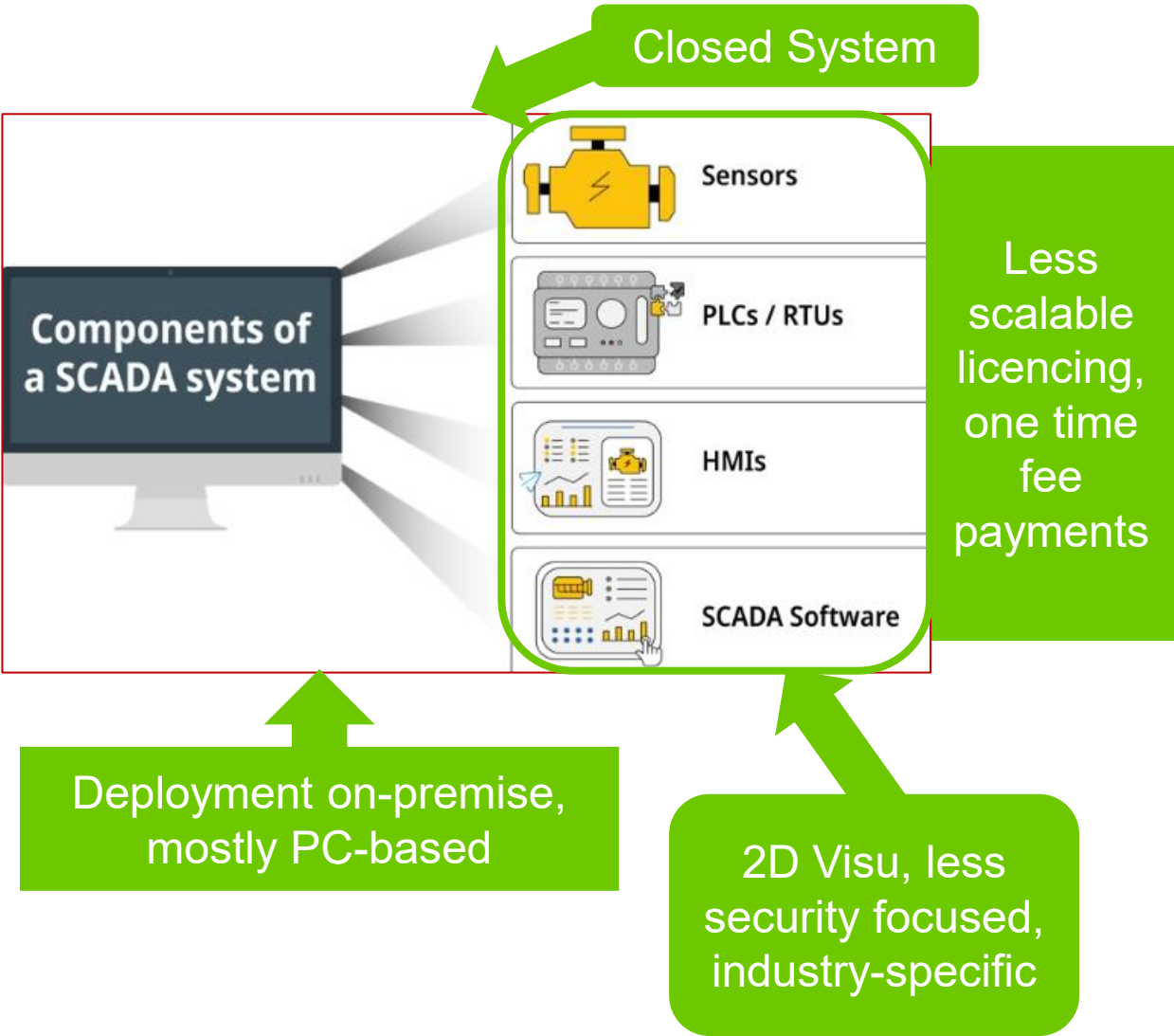
**Available
since Dec 25**



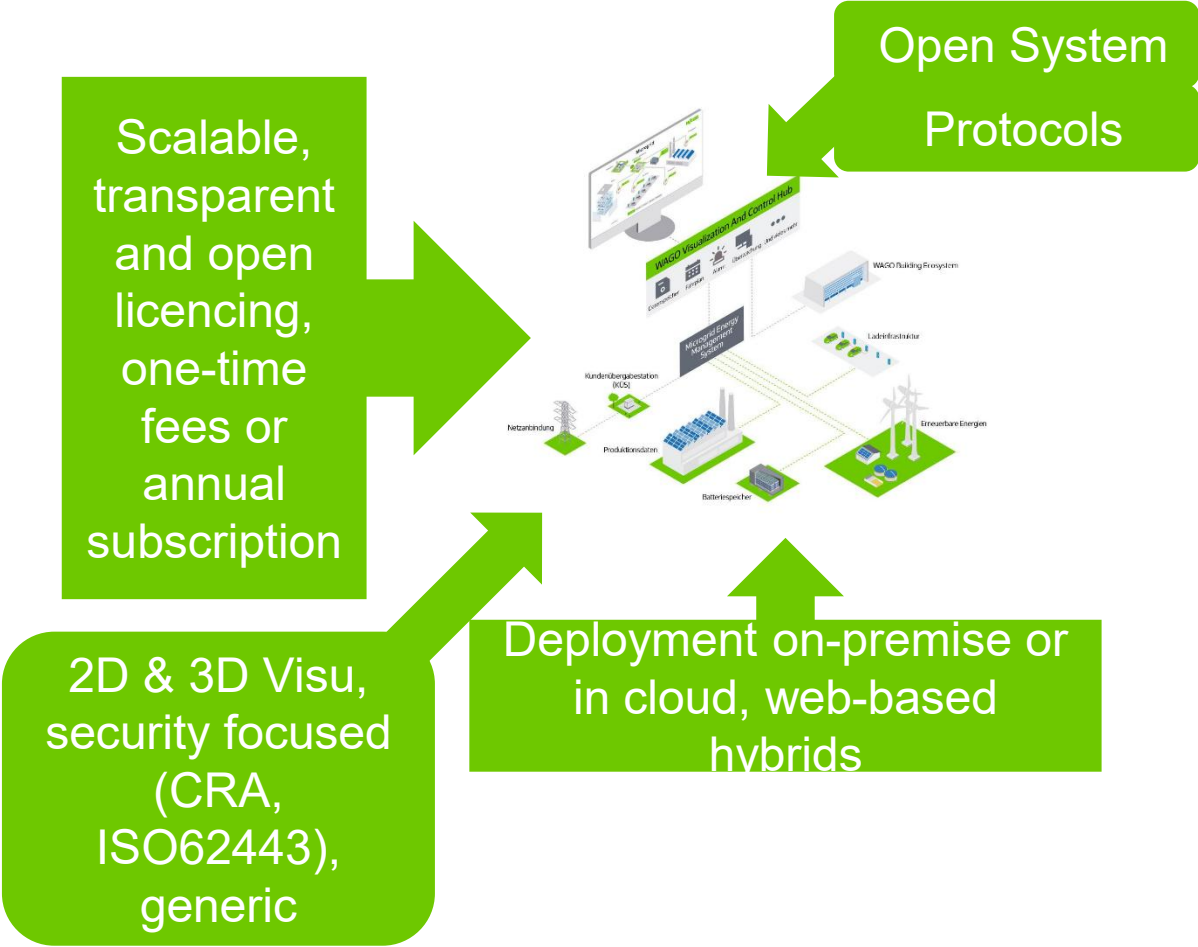
Visualization And Control Hub



Traditional SCADA



WAGO VC Hub





Target Markets and Applications

Markets	Building Automation	Energy Automation	General Automation
			
	<i>WAGO Building Cloud Services EDM</i>	<i>WAGO Visualization And Control Hub MEMS</i>	<i>WAGO Visualization And Control Hub EDM / MEMS</i>
General Requirements / Markets	ESG-Reporting BACnet-Communication Graphic Packages (Building-specific) Visualization Entity-Control HVAC Heating/Cooling Microgrid	Telecontrol Protocols MQTT/OPC UA - Communication Graphic Packages (Energy-specific) Visualization Load Management Grid Connection Renewable Energies Energy Supplier Microgrid (EV Charging, Sub-Station, Storage..)	MQTT / Modbus - Communication Graphic Packages Visualization Digital Twin Entity-Control Process, Factory Marine, Railway, Automotive Microgrid

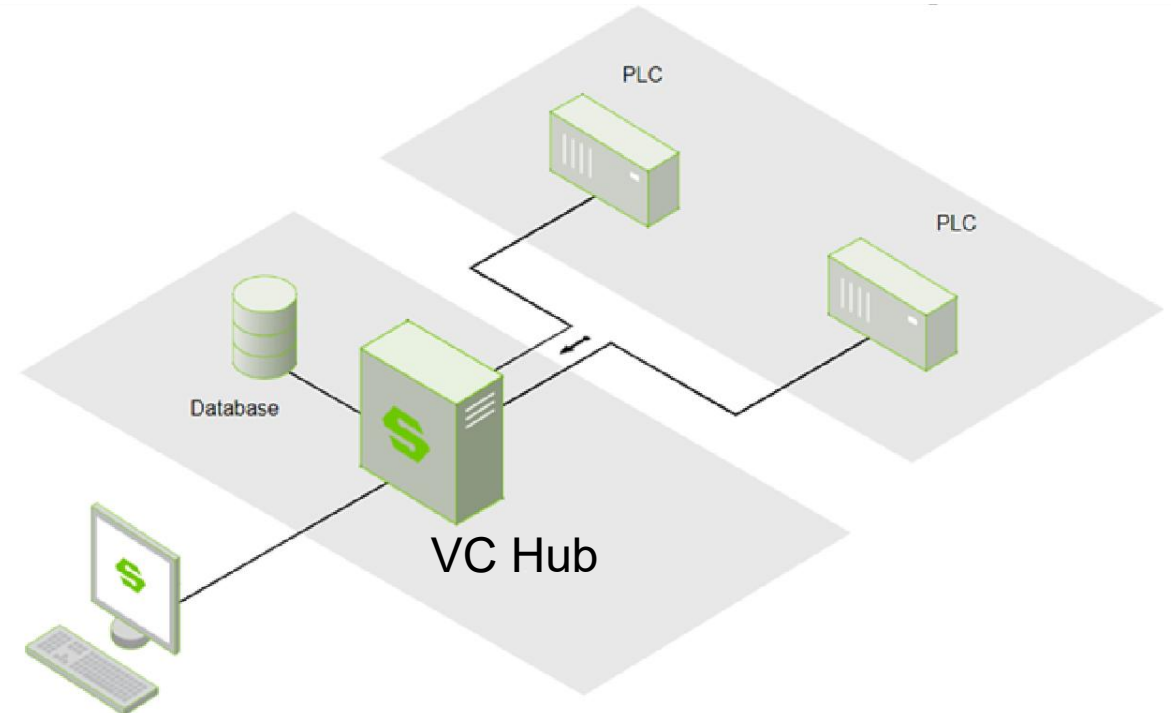


Product Market Fit: WAGO VC Hub

Price Index		Energy	General	Building	
High Price & Performance	M1	Grid operators	Large companies with numerous locations	Skyscrapers, ...	Not a target market, as it is too saturated
Medium Price & Performance	M2 (Performance MPP)	Municipal utilities, large PV ground-mounted systems, wind farms	SMEs with few locations		Target market
	M3 (Mass MPP)				
Low Price & Performance	M4	Small PV systems, small wind farms	Small companies	Kindergartens	

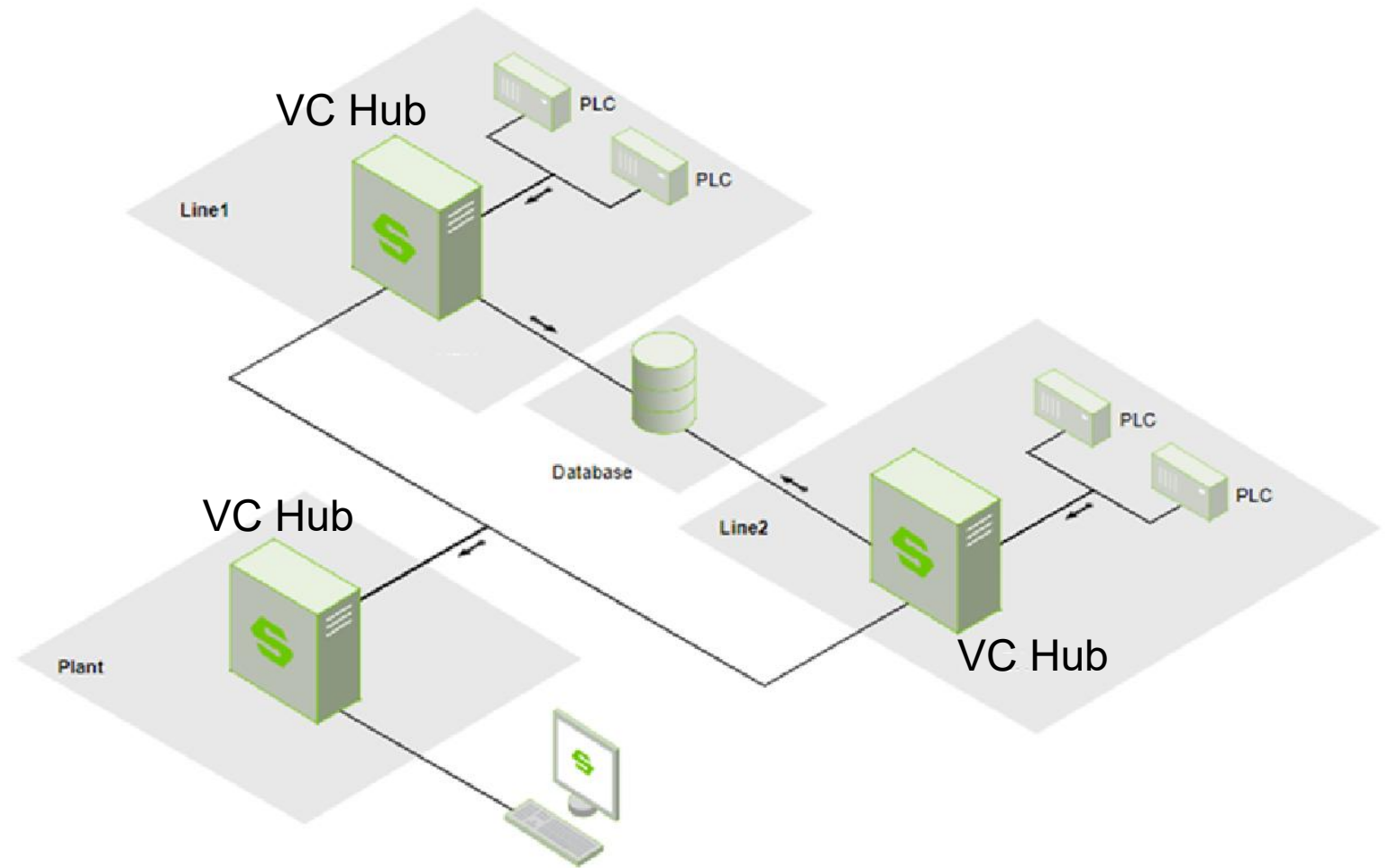
Einzelne Installation

- Installation On premise oder in der Cloud
- Kompatibel mit Windows oder Linux Betriebssystemen
- Verwendet interne SQLite DB oder stellt eine Verbindung zu einer externen Datenbank her
- Externe Datenbanken können lokal oder auf einem separaten Computer installiert sein



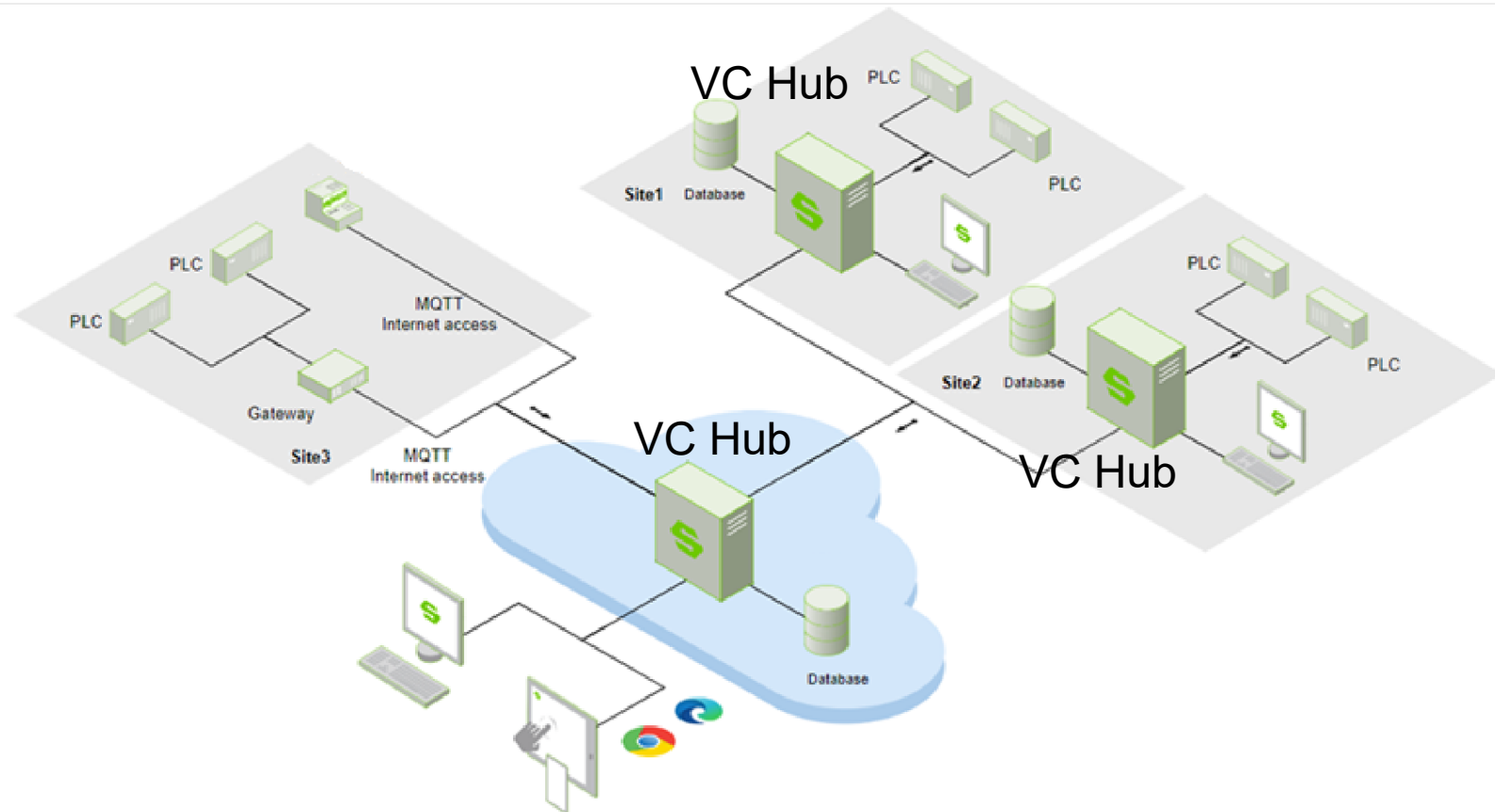
Multi Installation

- Die einzelnen Installationen können separate Datenbanken verwenden oder eine gemeinsam nutzen
- Installationen verschiedener Betriebssysteme können miteinander verbunden werden
- Eine Installation kann auf die Datenstruktur (Tags) einer anderen zugreifen sowie auf Echtzeitdaten, historische Daten und Alarmer



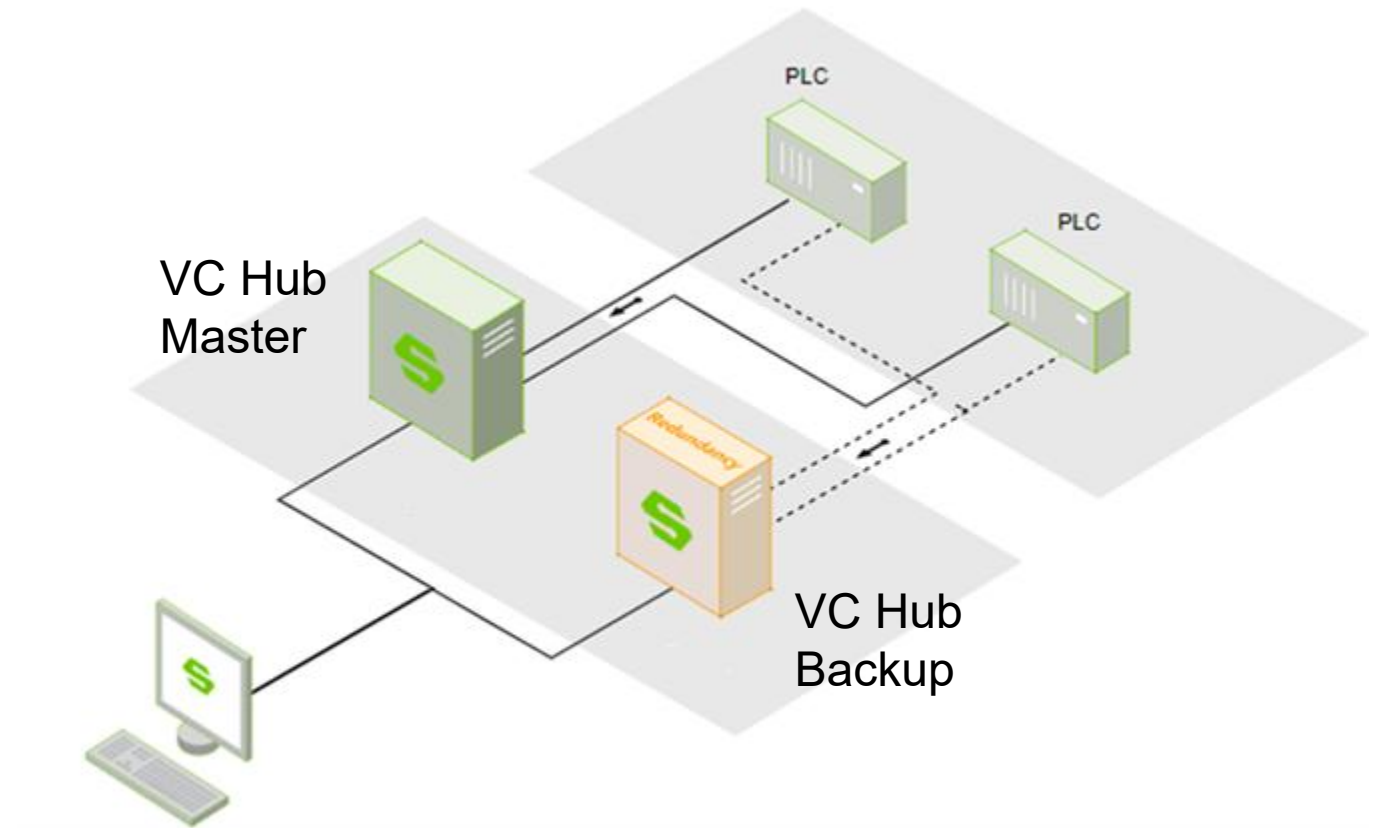
Hybride Installation

- Verbindung von lokalen und Cloud-Installationen
- Zugriff auf Daten Tag-Struktur, Echtzeit-, Verlaufsdaten und Alarmer zwischen den Installationen
- Datenübermittlung mittels MQTT-Protokoll über das Internet an die Cloud-Installation



Redundanz

- Jede Installation kann eine Backup-Installation haben
- Sowohl primäre als auch Backup-Knoten müssen identisch konfiguriert sein



Kommunikationsprotokolle

- Modbus TCP/RTU
- OPC UA
- MQTT – WAGO Protocol
- MQTT – Native Protocol
- MQTT – Sparkplug B
- Siemens Ethernet S7
- IEC60870-5-104





System Requirements

Recommended hardware configuration

- x86 64bit, 4 cores
- 16 GB RAM
- SSD with at least 10G free space (pending in the database)

Supported Operating Systems

- Linux (support for popular distributions, tested with Debian and Ubuntu)
- Windows 10/11
- Windows Server 2019/2022

Supported Browsers

- Google Chrome (aktuelle Version)
- Microsoft Edge (aktuelle Version)
- Safari (aktuelle Version)
- Firefox

About Databases

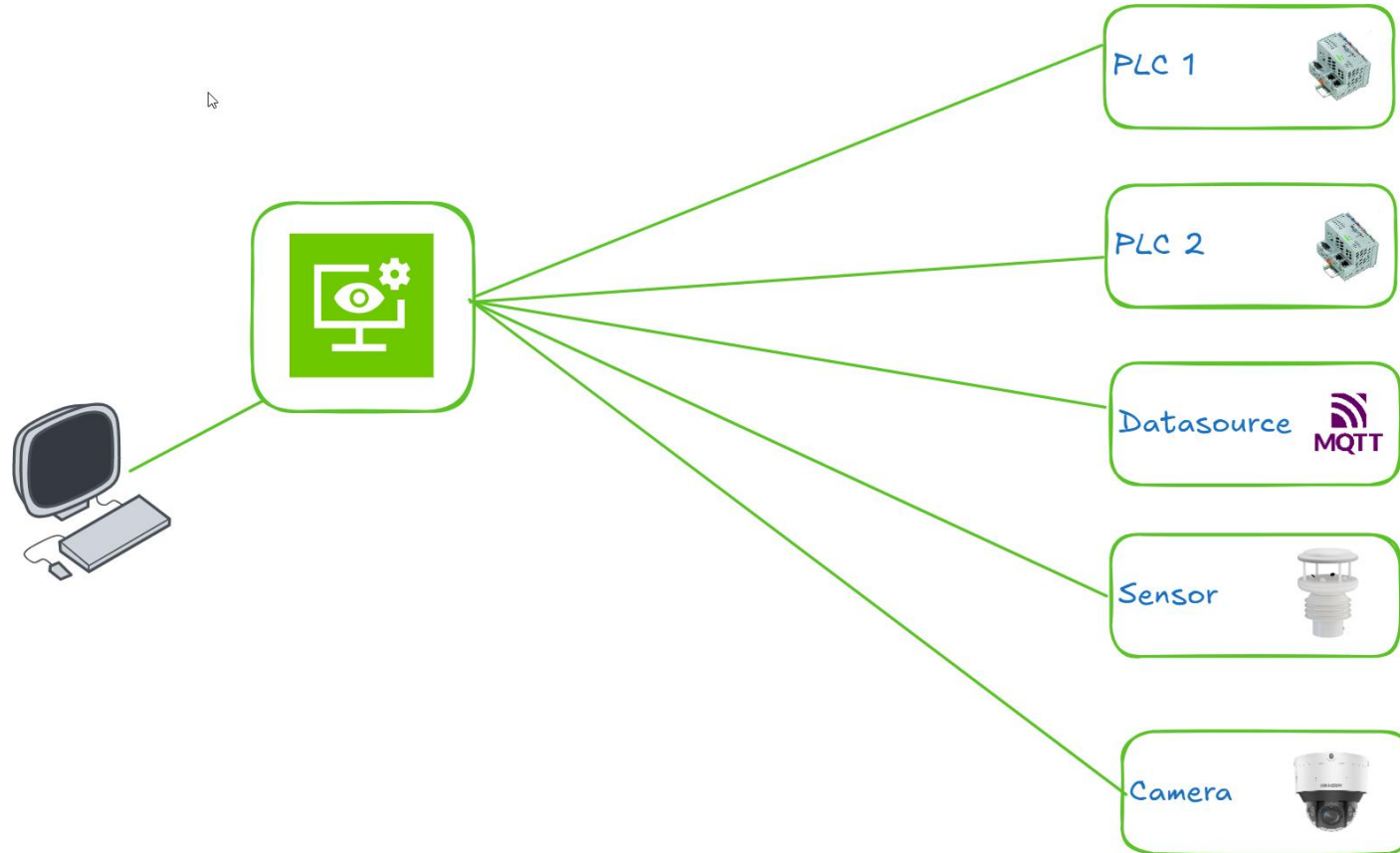
Regardless of the installation location, the database can be operated:

- On-premises at the same device
- On-premise at a separate device
- At the customer IT-Infrastructure
- In the cloud.



Possible System Structures

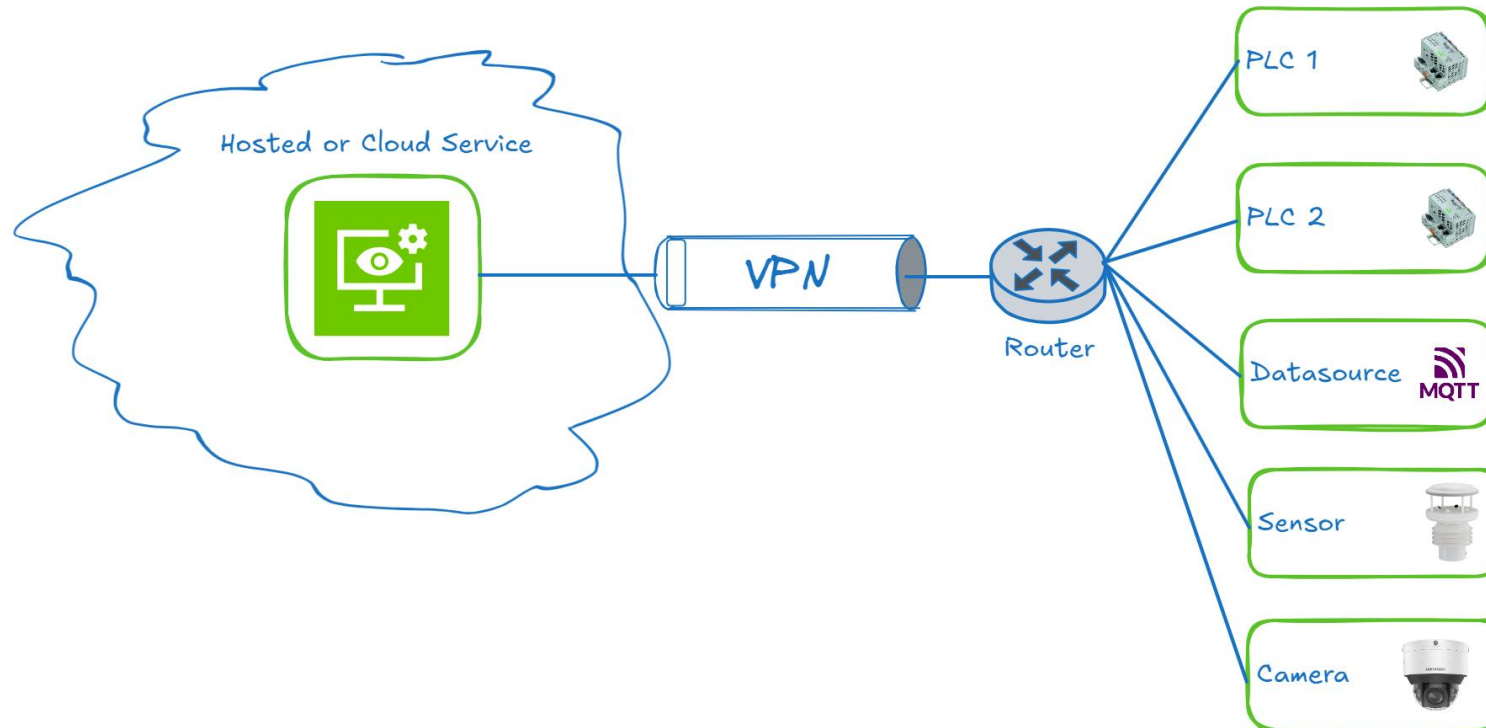
Standard





Possible System Structures

VC Hub as Cloud Service



Product Overview

»WAGO Visualization And Control Hub«

Marketing Package

L

Product

WAGO Visualization And Control Hub



List price:

- 2759-01xx: According to Licencing model

Message

Features

- **Flexible Deployment:** Supports cloud, on-premise, and hybrid setups.
- **Modern HTML5 Visualization Editor:** Enables 2D visualizations and 3D digital twin applications.
- **Mass Roll-Out:** Centralised mass roll-out of firmware, software, and configurations.
- **Zero-Touch Provisioning:** Commissioning without pre-configuration.
- **Security-Oriented**
- **Open Platform:** Low-code environment with scripting and open API

Advantages

- Scalability for different project size according to our transparent licencing model
- Easy integration through various supported drivers and protocols
- Mass roll-out of software and configuration
- Flexible deployment for each case

Benefits

- Enables WAGO to deliver single-source solutions (HW & SW)
- Lever to reach our AUT targets

Target

Target markets

- Focused on EMEA customers of WAGO, high potential in many countries and regions
- Step by step internationalization

Target customers

- Systemintegrators
 - Internal (SOL) or external
- Energy Supplier, Manufacturer...
 - Customer who need a modern, web-based and open SCADA software

Target applications / ISP

- Energy- or industry-driven applications, that require a visualization, monitoring of KPI's and direct access and control to their application

Expected Product Launch

Resp. PM: N. Osthoff

◆ V5.0: 12/2025

◆ V5.1: 06/2026



PLC Agent

AI-Powered Engineering



Problem

- Skilled labor shortage
 - Rising wages
 - Hardware is becoming increasingly comparable
- ➡ Efficient engineering process is becoming increasingly important



Mission

- Using AI for your daily work greatly increases efficiency
- AI may struggle with domain specific task

➔ PLC Agent: specialized AI for WAGO-Programming



Target

PLC engineering process without PLC Agent



PLC engineering process **with** PLC Agent



Safe time and money

WAGO PLC Agent

THE choice for effective engineering with WAGO

PLC Agent

- Interactive Chat Assistant
- Supports in the engineering process

Features

- Contains additional WAGO-Knowledge
- ST Code Generation
- Codesys Project Integration

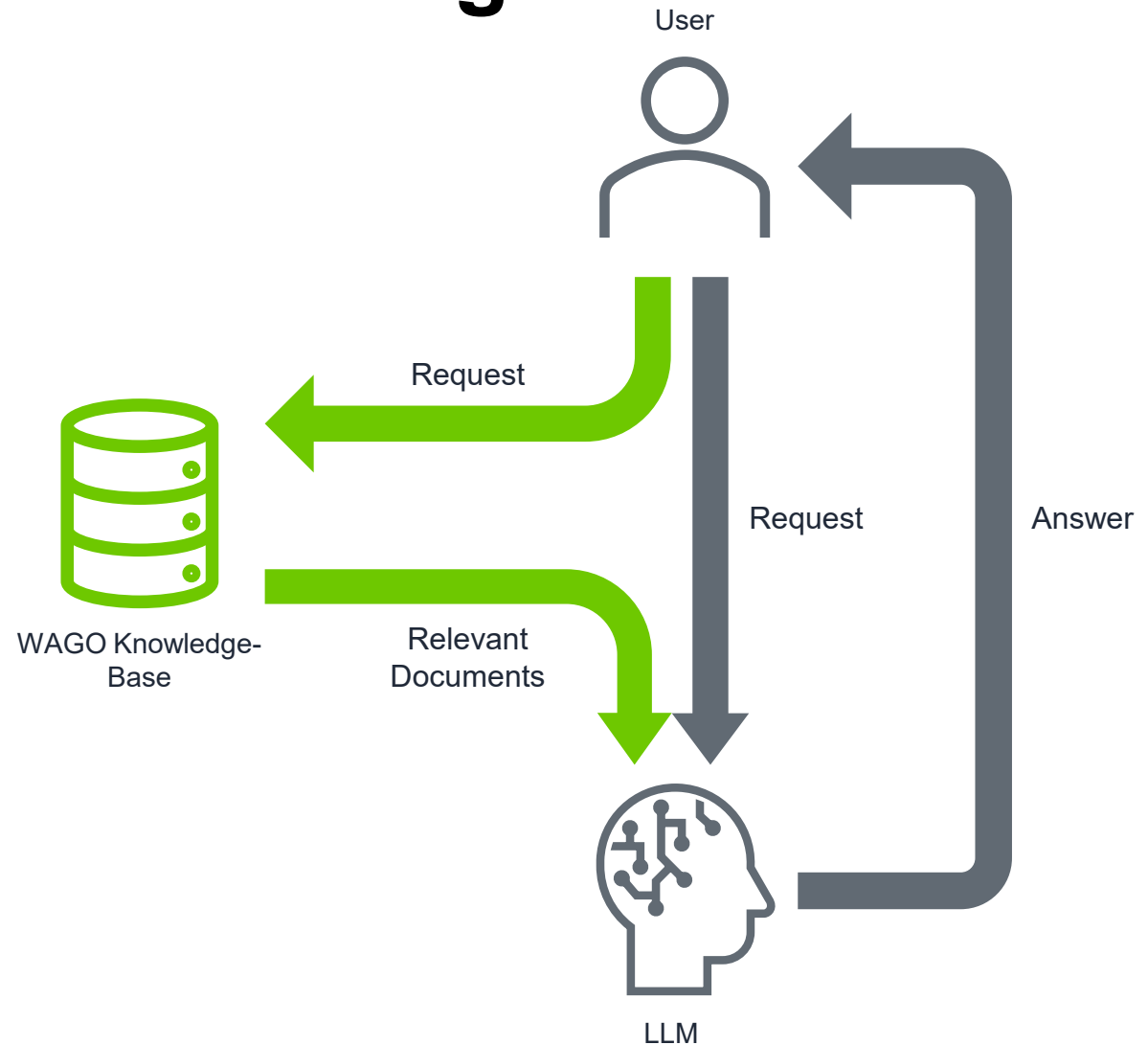


Technology – External Knowledge

Retrieve Augmented Generation

Dynamically add WAGO-Documents that are relevant for the User-request

- LLM can access WAGO-Knowledge
- Knowledge-Base is easily expandable

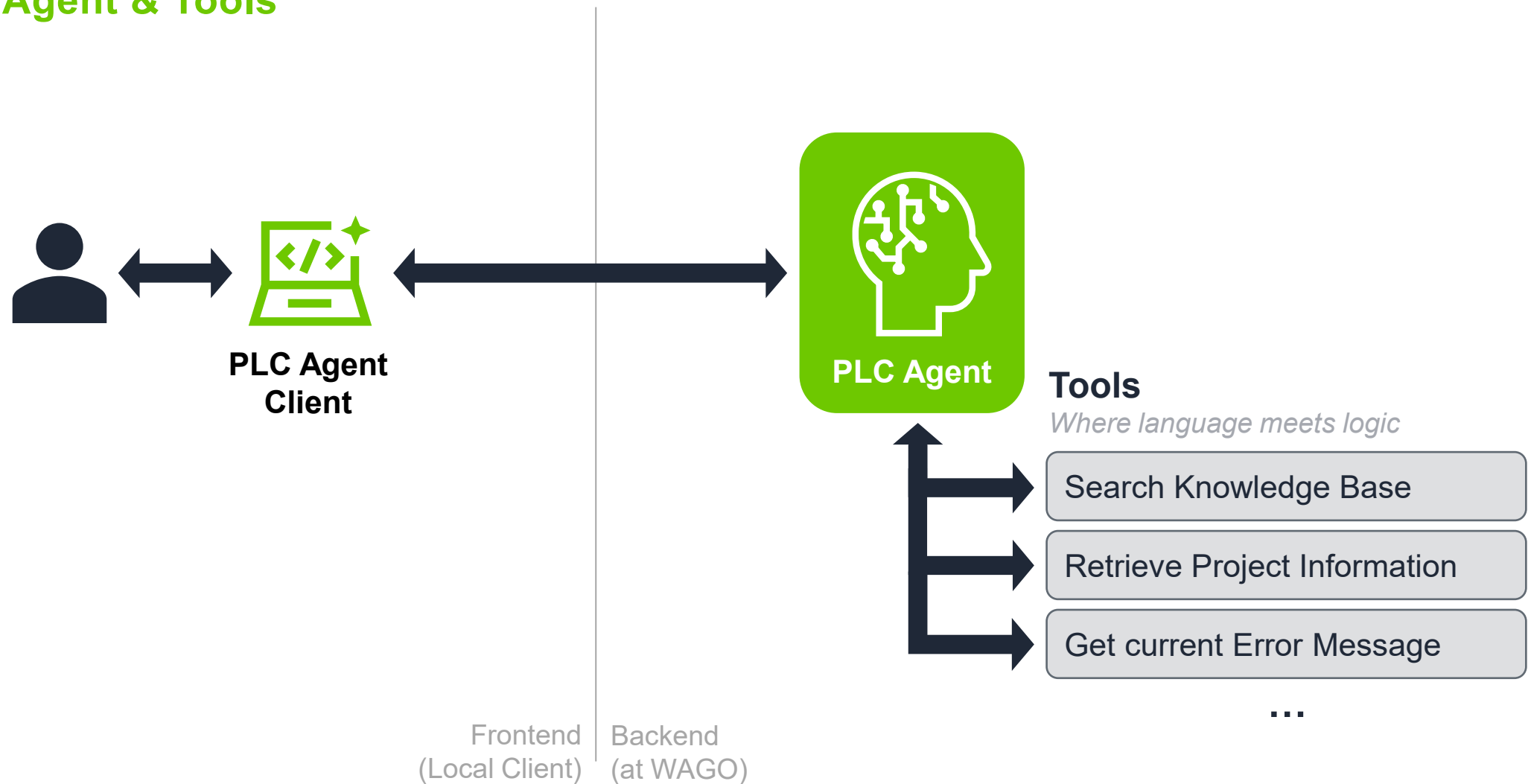


Technology - WAGO Knowledge Base

Knowledge Source	Codesys-Libraries	Example Projects	Product-Manuals <i>Coming soon</i>
Benefit	▪ Use-Cases of different libraries ▪ Specific Functionality of the WAGO Libraries	▪ Code Examples for usage of different libraries ▪ How the projects running on WAGO controllers look like	▪ Commissioning of WAGO products ▪ Technical details

Technology – Architecture

Agent & Tools



Interaction

Integrated Codesys Dialogue Window

The screenshot displays the WAGO PLC Agent V1.0 interface. The central area shows the 'serialCommunication' program in the 'COM1' project. The code is written in a structured text format, defining variables and logic for serial communication. The right sidebar contains the 'WAGO AI Assistant Chat' window, which provides an explanation of the code and a summary of its operation.

```
19 pRxBuffer : POINTER TO ARRAY [0..GVL_CONSTANT.gc_udirxBufferSize] OF BYTE; //pointer to read buffer
20 udiRxIndex : UDINT := 0; //number of bytes really read from read buffer
21 udiRxIndex_old : UDINT := 0; //number of bytes read from read buffer to
22
23 xRxBufferFull : BOOL;
24 xRxOverflow : BOOL;
25 xResetStatus : BOOL;
26
27 receiveTon : TON; //TON wait to receive all
28 waitErrorTimeTon : TON; //TON wait to receive anything
29 xSetReceiveTon : BOOL := FALSE; //to set receiveTon
30 xSetWaitErrorTimeTon : BOOL := FALSE; //to set waitErrorTimeTon
31
32 i : INT;
33 j : INT;
34
35 sError : STRING;
36 END_VAR
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```

Please explain the code found in the serialCommunication (PRG)

The "serialCommunication" program implements a serial communication interface using a state machine to manage sending and receiving data via a WAGO serial port.

Here's a summary of how it works:

- State 0 - Open Communication:**
 - Tries to open the serial port (`xOpen := TRUE`).
 - Waits until the port is opened (`xIsOpen = TRUE`).
 - Uses a timeout timer (`waitErrorTimeTon`) to detect failures in opening the port.
 - If successful, moves to state 10; if timeout expires, moves to error state 100.
- State 10 - Prepare and Send Data:**
 - Clears transmit and receive buffers.
 - Fills the transmit buffer with the ASCII bytes for "Hello World".
 - Sets the transmit byte count to 11.
 - Triggers sending (`xTxTrigger := TRUE`).
 - Starts an error timeout for transmission.
 - Proceeds to state 40.
- State 40 - Wait for Transmission Completion:**
 - Monitors when `xTxTrigger` becomes FALSE, indicating transmit end.
 - If transmit completes successfully, disables timeout and moves to state 50.
 - If timeout expires, moves to error state 120.
- State 50 - Receive Data:**
 - Waits for incoming data by monitoring `udiRxIndex`.
 - If new data arrives, starts a timer (`receiveTon`) that resets whenever new bytes come in.
 - Once data stops arriving for the specified timeout, signals new data ready (`GVL.xIsNewData`) and moves to state 60.
 - If no data arrives within the error timeout, moves to error state 140.

Type your message here...

LLMs can make mistakes. Check important info.

Advantages of WAGO PLC Agent

Future Proof

CRA:

IEC 62443 compliance ensures
CRA readiness

Secure

Data:

Chats are not used for training of
AI-models

Code Suggestions

ST Programming:

Provides code examples and
applies best practices

Innovative

AI-Based:

Enhances engineering through
leveraging emerging technologies



Central Knowledge

Documentation Access:

Expertise in automation products
and CODESYS-Libraries

Integrated

Codesys:

Access to project information for
further efficiency increase

Easy to use

Natural Language:

Interactive and intuitive operation
through natural language

Efficient

Saved Time:

Simplifies and reduces
development efforts

PLC Agent - Licensing

PLC Agent in the E-Shop

2759-611/1659-10xx

The PLC Agent is free of charge until end of February 2026 → No license is required until then

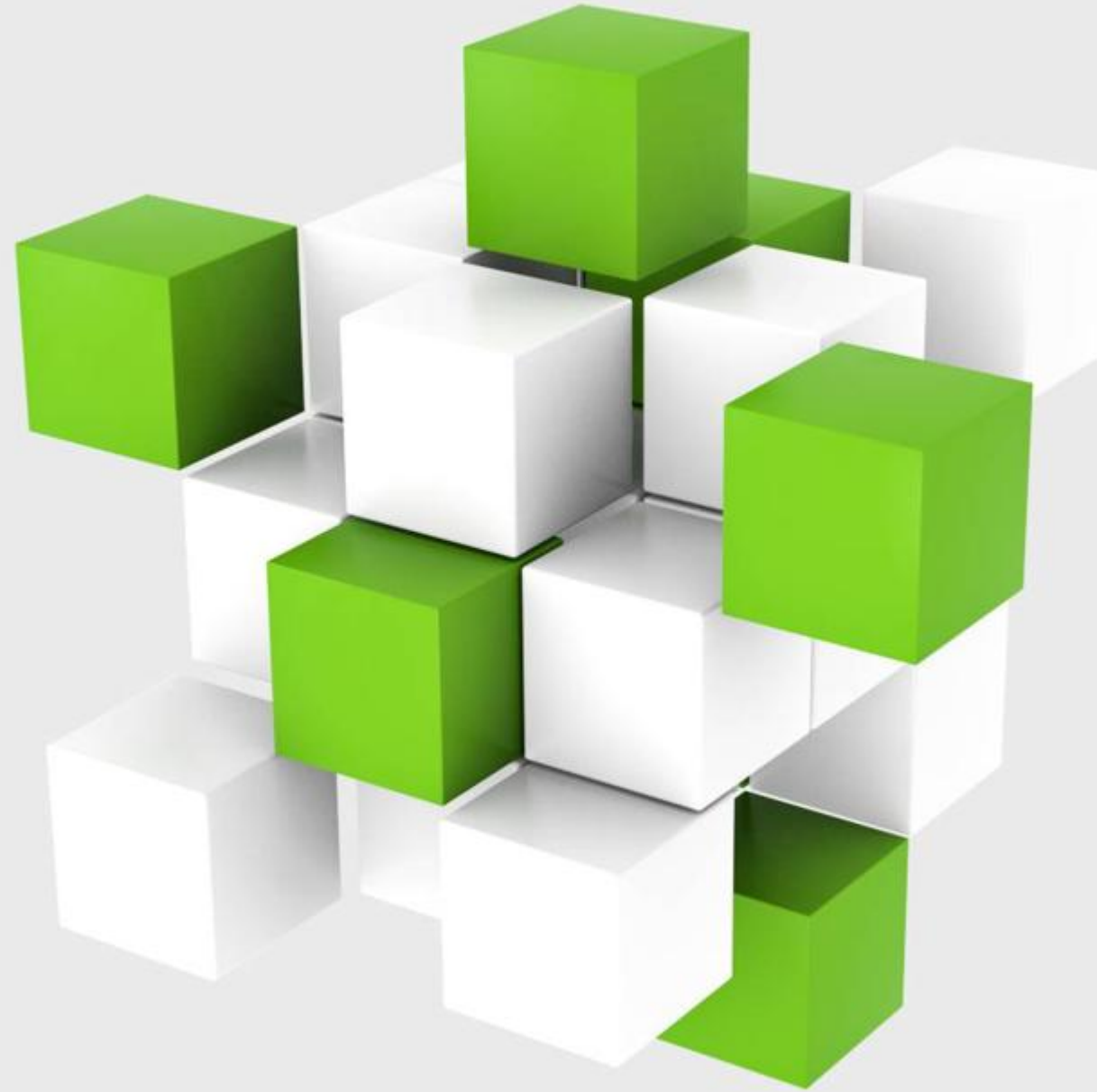
Type	Validity period	Item number	Description	List Price
PLC Agent 3	3 months	2759-611/1659-1003	Allows use of the PLC Agent for one person through one customer account for the validity period	180 €
PLC Agent 12	12 months	2759-611/1659-1012		690 €
PLC Agent 24	24 months	2759-611/1659-1024		1300 €

Notes:

- License allows usage of the PLC Agent for one WAGO customer account through one person
- PLC Agent licenses are time-based and expire after the validity period
- Every user has a weekly limit of **800** requests
- New users start with **50 free** evaluation requests



Solutions Platform



Die Solution Plattform bietet

Lösungen

Hybride Lösungen
aus Cloud- und
Controller
Applikationen

Handhabung

Software einfach
bedienbar wie ein
Smartphone
+
Inbetriebnahme für
technisch
unterwiesene
Personen

Sicherheit

Betrieb im
geschlossenen
Netzwerk möglich

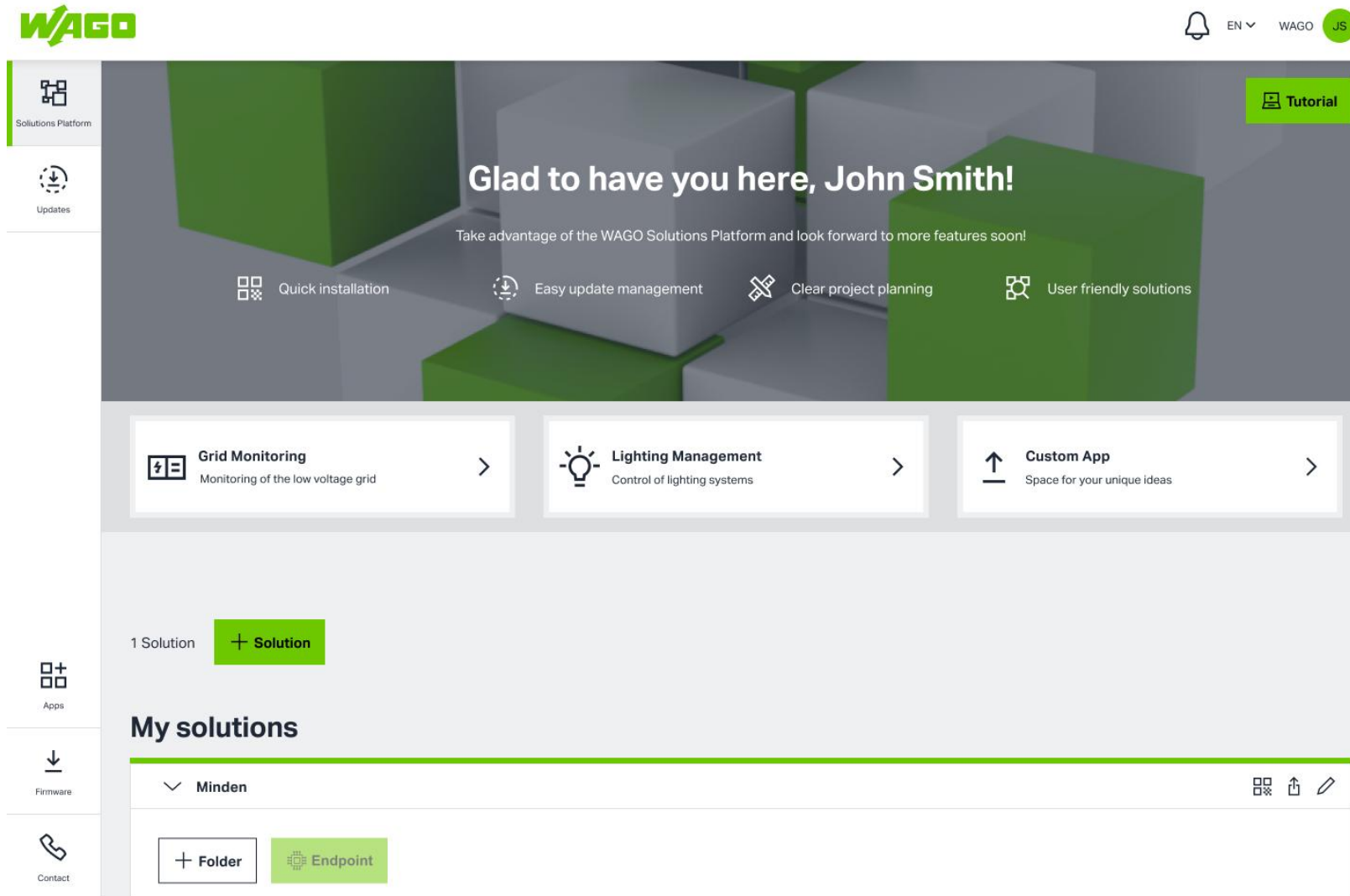
Projekt- und Geräte- management

Übersicht in
großen Projekten
behalten und
Updates aus der
Ferne durchführen

Highlights



Lösung planen

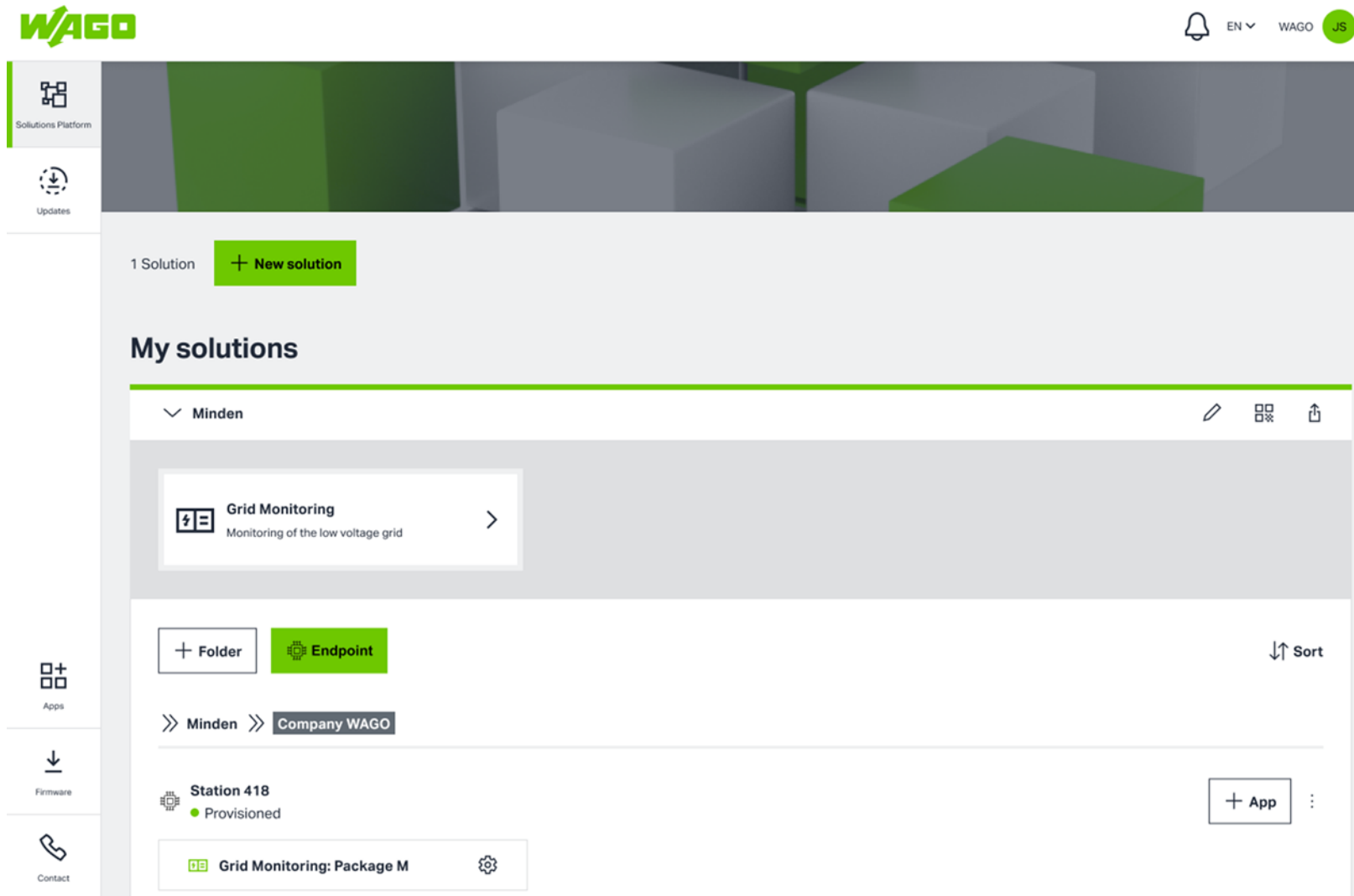


Übersichtliche Projektplanung

Übersichtlichkeit durch
Ordnerstruktur

Endpunkte und Apps einfach
hinzufügen und frei benennen

Lösung planen



Übersichtliche Projektplanung

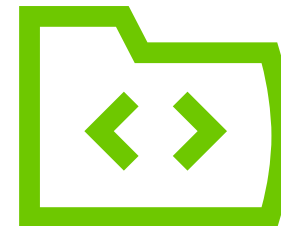
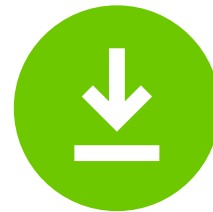
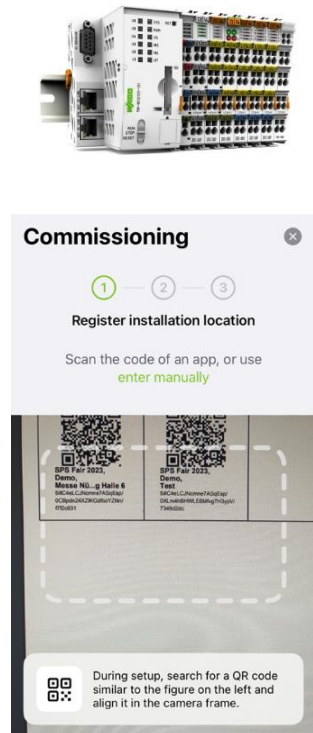
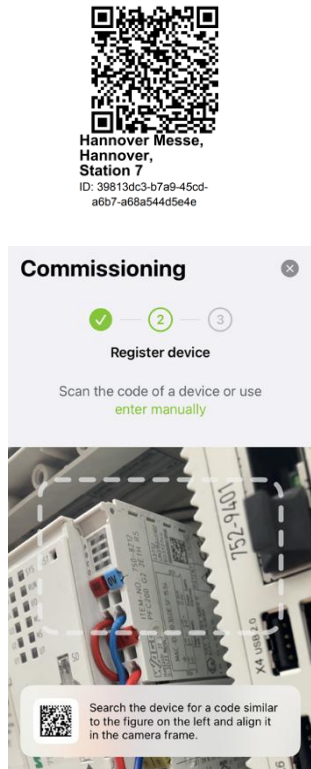
Übersichtlichkeit durch
Ordnerstruktur

Endpunkte und Apps einfach
hinzufügen und frei benennen

Highlights



Fernwirkgeräte Installieren



Einfache Inbetriebnahme

Geeignet für technisch unterwiesene Personen

Alternativ:

Fertigung für die Plug&Play Verbindung zur Solutions-Platform

Highlights





How To

Um konfigurierbare Variablen zu definieren, fügen Sie den Variablennamen wie folgt hinzu:

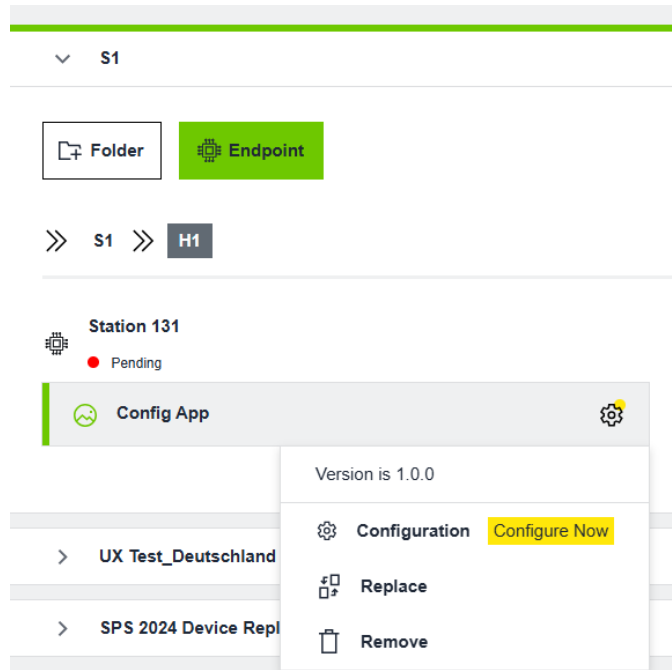
Um den Wert der Variablen zu definieren, fügen Sie mit einer Default-Einstellung den Wert wie folgt **{{VALUE:Wert}}**

```
1 {
2   "config": {
3     "{{KEY:speed}}": "{{VALUE:3}}",
4     "{{KEY:duration}}": "{{VALUE:44}}"
5   }
6
7
8
```

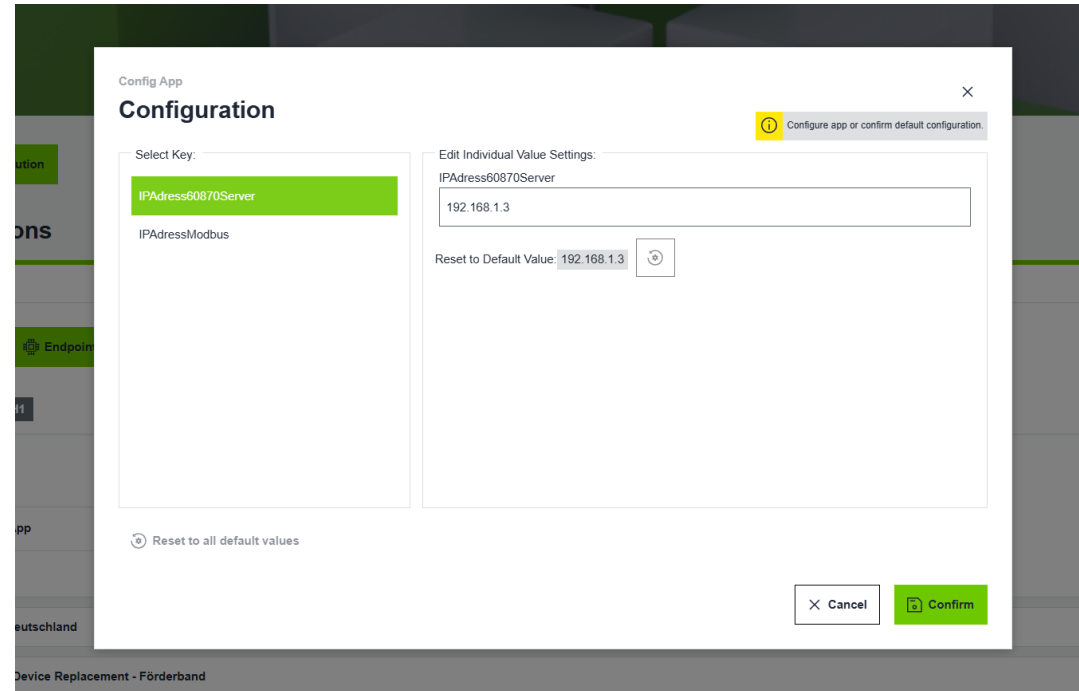
```
1 config:
2   {{(KEY:speed)}}:{{(VALUE:3)}}
3   {{(KEY:duration)}}: {{(VALUE:44)}}
4
5
6
7
8
```

1	[config]
2	{{KEY:sp
3	{{KEY:du
4	
5	
6	
7	
8	

Parametrierung

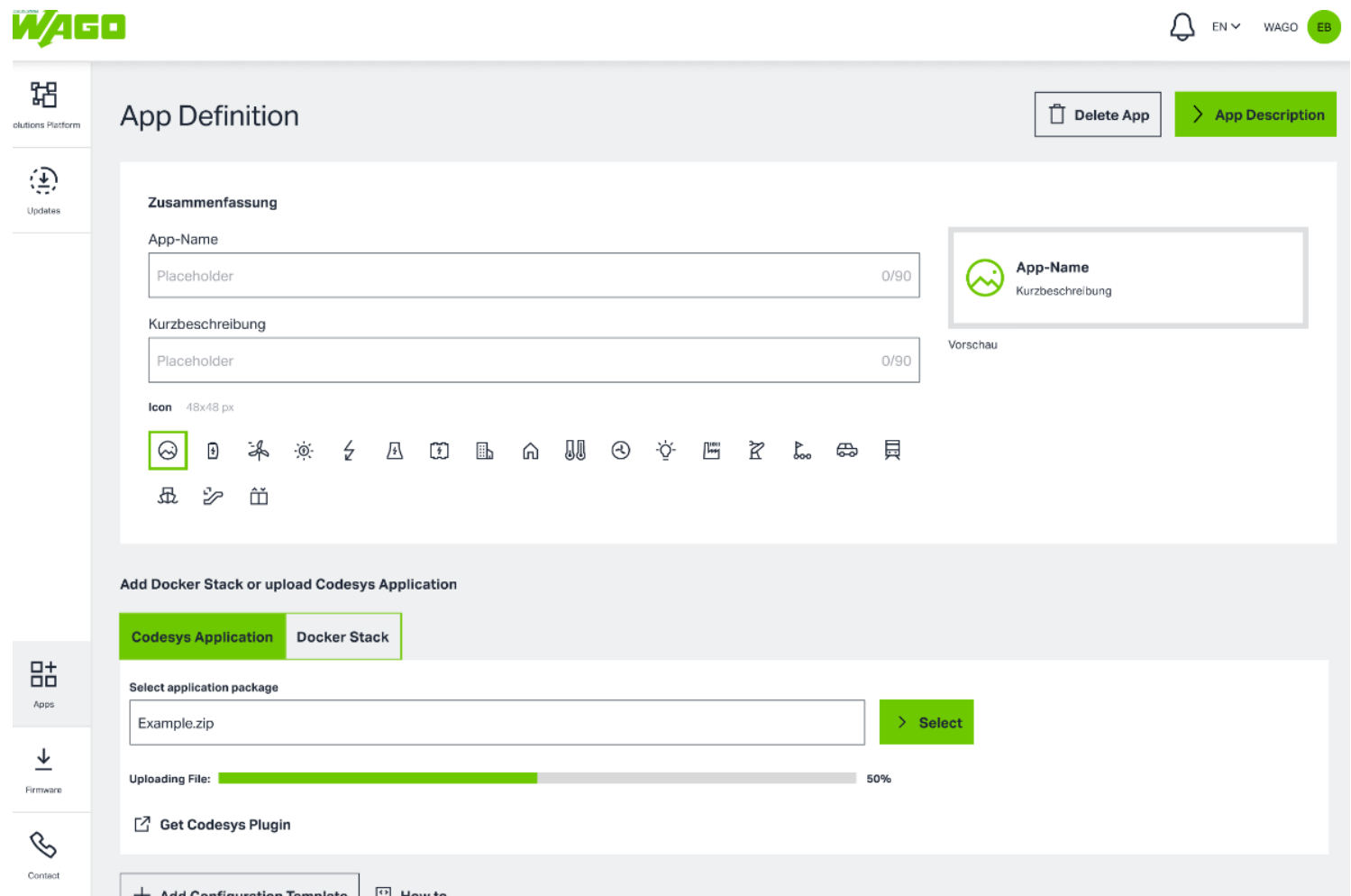


Konfigurationsaufforderung für Applikationen

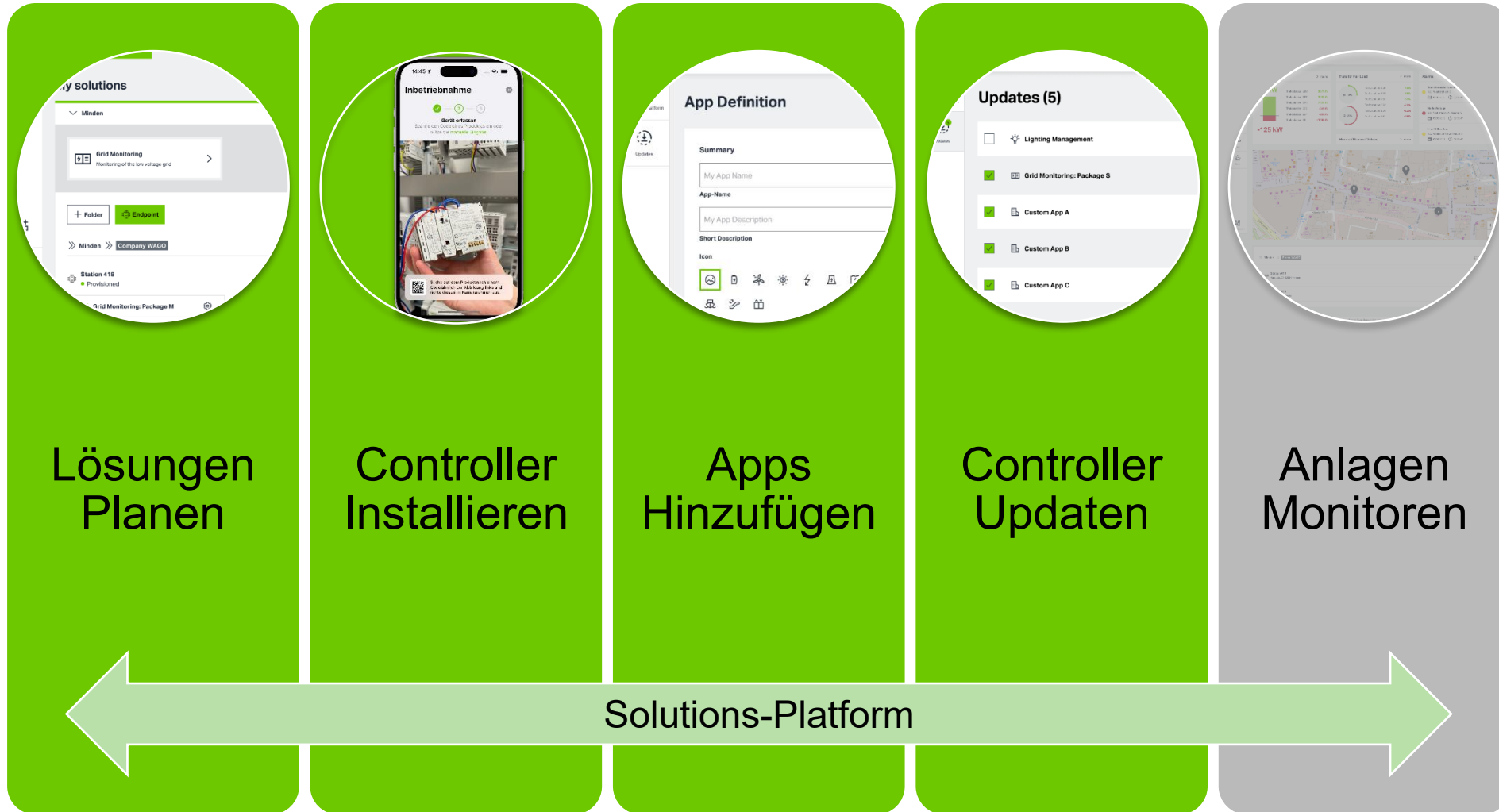


Konfigurationsmenü für Applikationen

CodeSys Plug-In



Highlights



Fernwirkgeräte Updaten



Solutions Platform

Updates

Apps

Firmware

Contact

Updates (5)

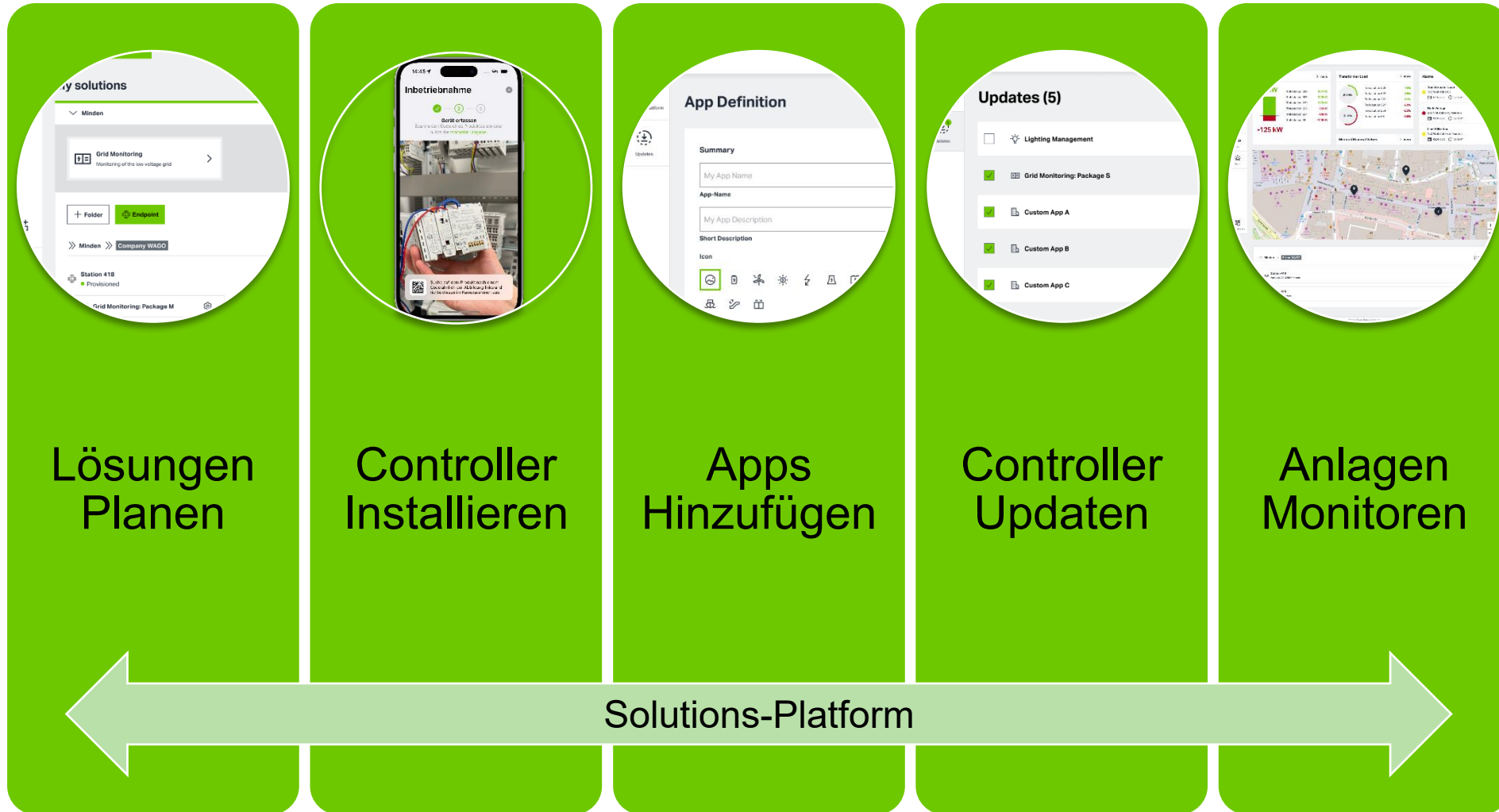
Assign Updates

☐	Lighting Management	Version 20 (Latest)
☒	Grid Monitoring: Package S	Version 2.1 (Latest)
☒	Custom App A	Version 3.8 (Latest)
☒	Custom App B	Version 2.1 (Latest)
☒	Custom App C	Version 1.2 (Latest)

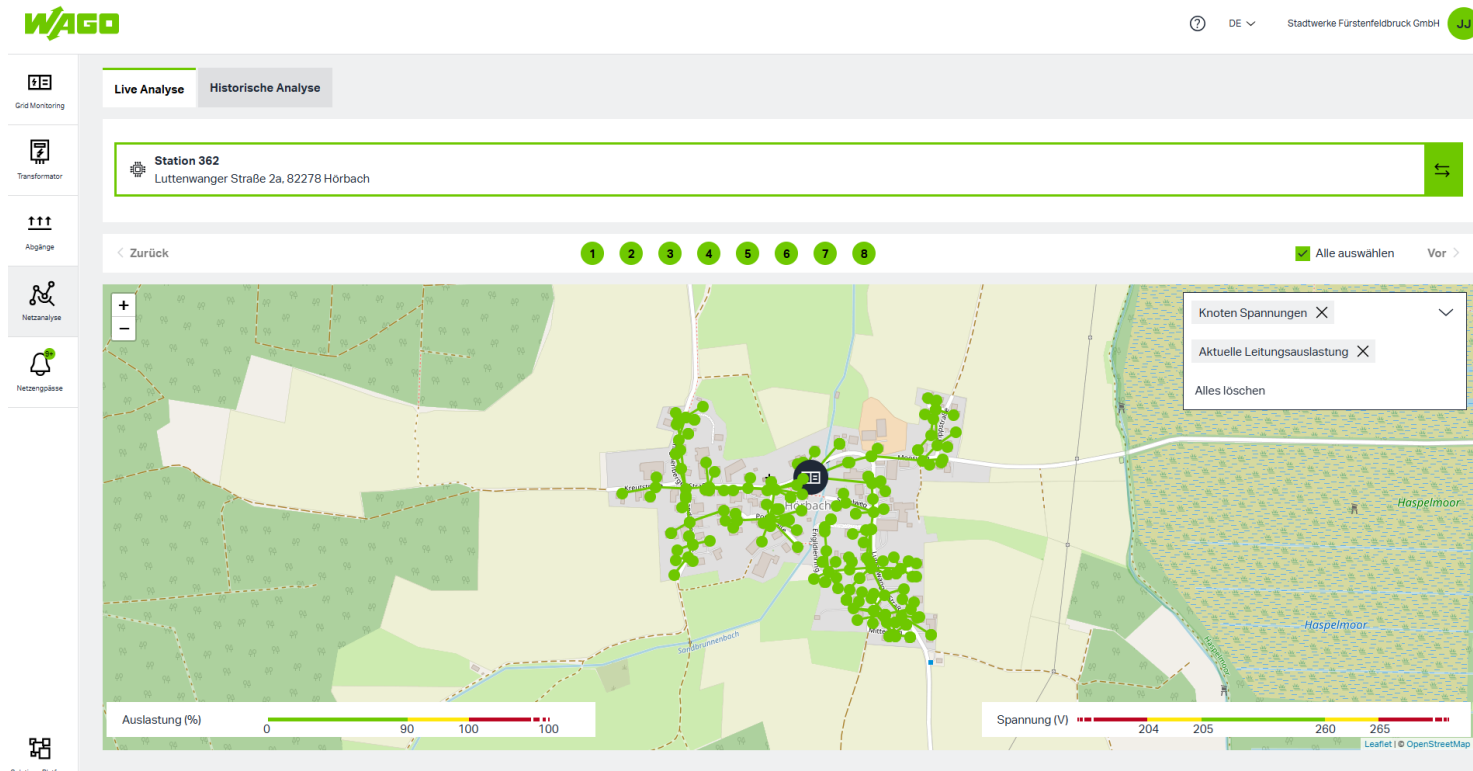
Einfaches Updatemanagement

Alle Controller einfach per Knopfdruck updaten

Highlights



Anlage Monitoring - Netzanalyse -



Gesamtnetzanalyse

Berechnung der Spannung & Ströme im Netz basierend auf

- Trafodaten
- iMSys TAF 10 Daten
- Wetterdaten
- Lastprofilen

WAGO