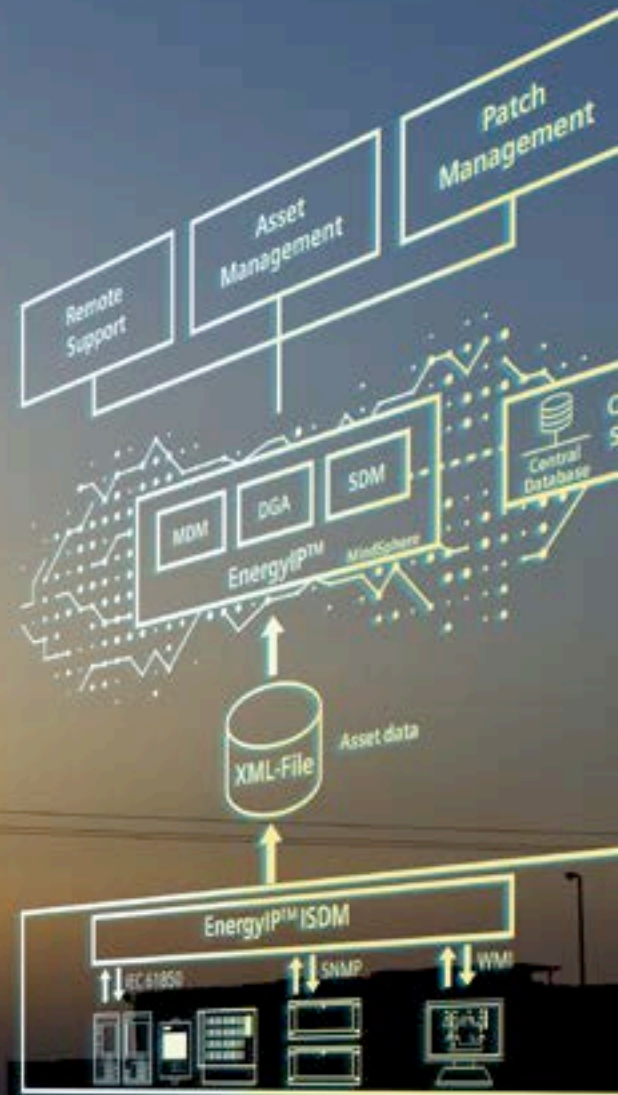


**SIEMENS**

*Ingenuity for life*



# SICAM PAS

Automation for energy systems

[siemens.com/sicam](http://siemens.com/sicam)

# Simple. Fast. Stable.

Automate your substations with a future-oriented concept. Ultimately, your goal is to protect your investment as much as possible.

SICAM PAS meets all the requirements for a decentrally controlled substation automation system. You'll rely on simple, fast configuration and commissioning. Your substations are more reliable and available, resulting in a stable power supply and increased economic efficiency, both today and into the future.

SICAM PAS provides a consistent system solution for the digital automation of substations.

## Main functions

- **Automation:** Store switching sequences – for example, busbar changes – in SICAM PAS, make functional sequences more flexible, while at the same time improving the economic efficiency of your power plants
- **Remote and on-site operation:** You can choose to manually perform operating steps at any time – via your control room or directly on-site
- **Records and processes**
  - Messages
  - Measured and metered values
  - Fault records
  - Data relating to grid quality
- **Compression and selective distribution:** Not only does SICAM PAS continuously collect all plant data, it also assigns and distributes data points to, for example, control centers, HMIs and archives
- **Logging and archiving:** With SICAM PAS, you'll support the archiving of fault records and events, and the archive is analyzed and visualized by the SICAM PQ Analyzer

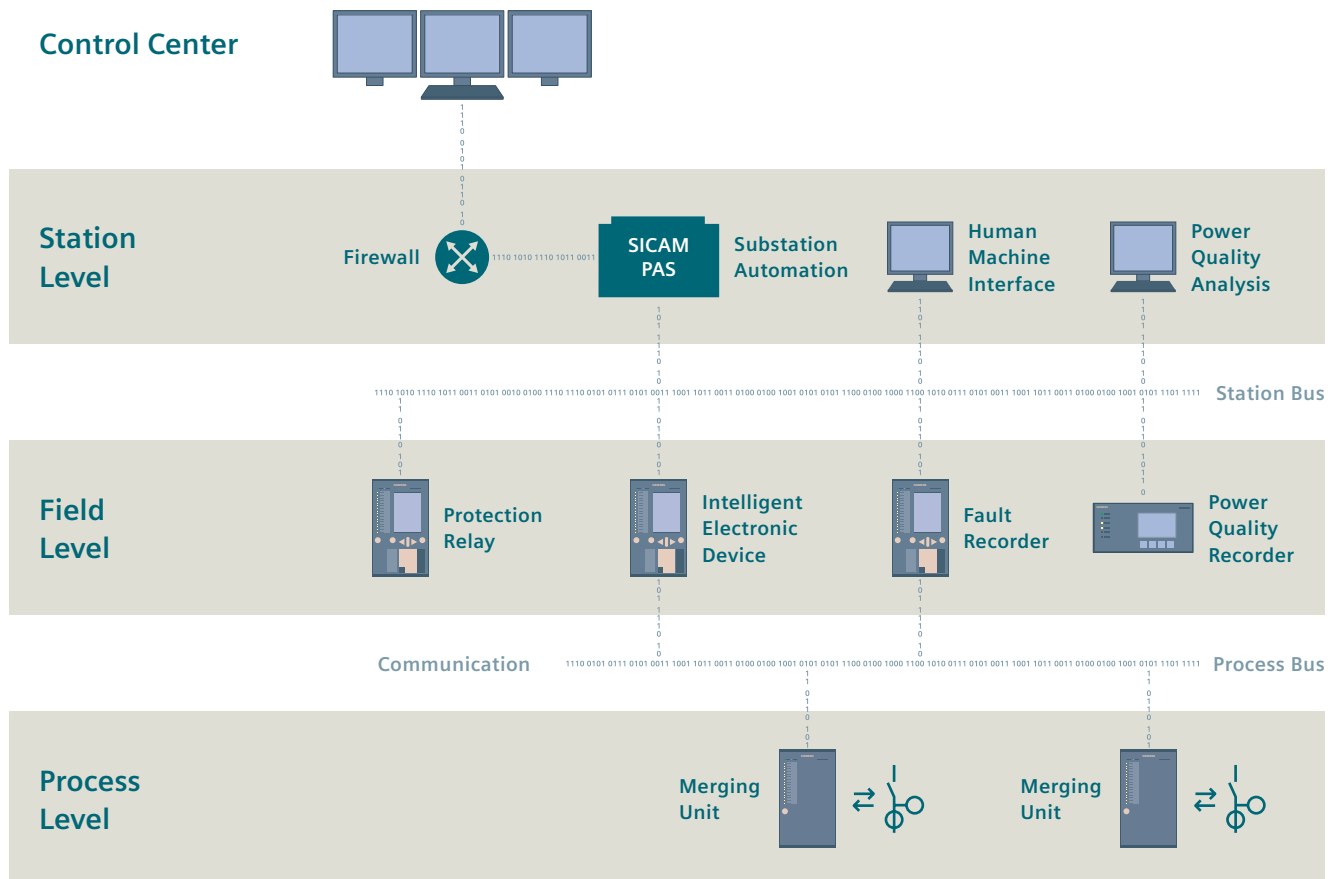
## Your benefits

- **Manufacturer-independent hardware:** You'll use existing hardware components and established communication standards, which lets you install SICAM PAS as a simple software product on any commercial industrial PC
- **Scalable and individually configurable systems:** You benefit from a modular, open system with a variety of applications, thanks to flexible, customized solutions
- **Secure and reliable operation:** You'll use efficient operating concepts, automation functions and on-board tools
- **Proven system architecture:** You'll enjoy the benefits of standardized interfaces (for example, DNV GL\* IEC 61850 Edition 2 certification). Thanks to the distributed architecture, you can operate a substation from a single station computer in conjunction with additional substation controllers
- **Comprehensive overall solution:** With SICAM and SIPROTEC, you have access to a complete product portfolio for energy automation
- **Cost savings in engineering:** You'll simplify your expenditures by allowing Siemens to configure your plant and thereby save yourself the trouble of obtaining a configuration license. Nevertheless, you still have full access to your configuration database for adapting parameters and selecting data points

\*A testing laboratory accredited by the UCA international users group

# Comprehensive. Complete. Universal.

In practice



## Features

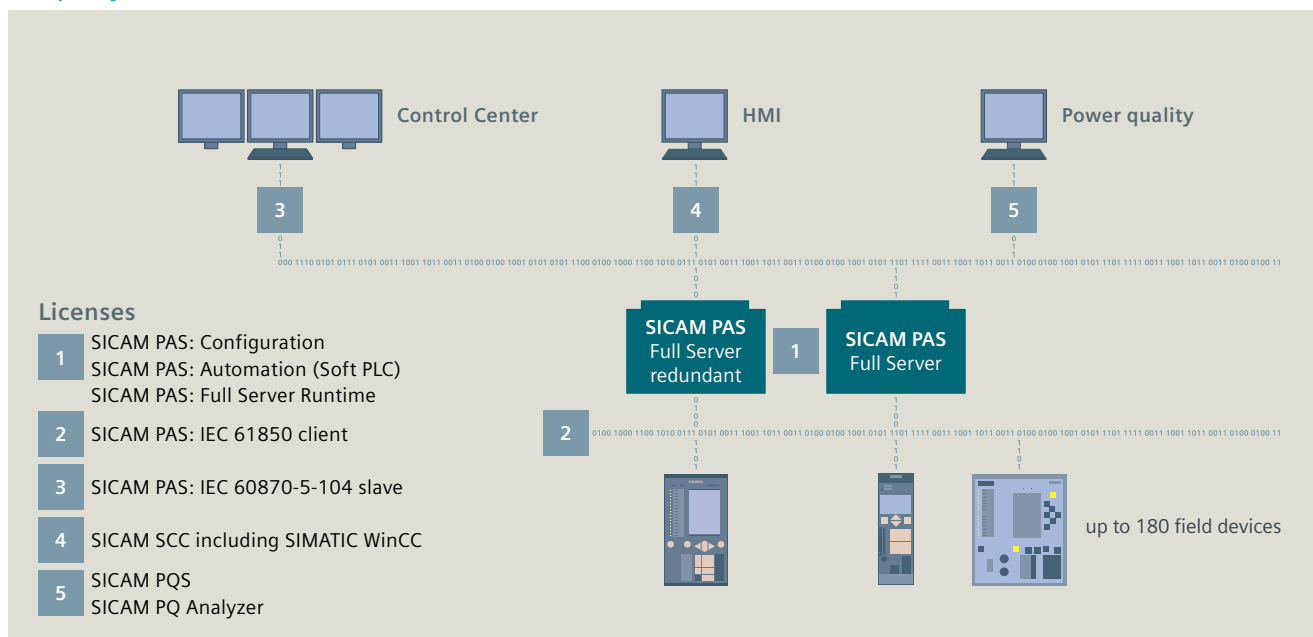
SICAM PAS is universally usable, both in new plants and as a retrofit solution in existing plants. It meets all the requirements of IEC 61850. Three factors make SICAM PAS the perfect automation concept for your substation: It features network and IT capability, secure communication, and comprehensive redundancy concepts. And yet another advantage: The SICAM PQS power quality system can be fully integrated.

## Basic station control functions of SICAM PAS

- Switching authority
- Bay blocking
- Telecontrol blocking
- Manual updating function
- SNTP/NTP time synchronization

# Reliable. Versatile. Licensed.

## Sample system architecture



### Licenses

- 1 SICAM PAS: Configuration  
SICAM PAS: Automation (Soft PLC)  
SICAM PAS: Full Server Runtime
- 2 SICAM PAS: IEC 61850 client
- 3 SICAM PAS: IEC 60870-5-104 slave
- 4 SICAM SCC including SIMATIC WinCC
- 5 SICAM PQS  
SICAM PQ Analyzer

## Licenses for the sample system architecture

Description	Version	Order No. (MLFB)															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Runtime	Full server (up to 180 devices)	6	M	D	9	0	0	0	X <sup>1)</sup>	A	A	1	0	8	A	A	0
Configuration	Configuration (more than 15 devices / more than 2,000 master information objects)	6	M	D	9	0	0	0	X <sup>1)</sup>	A	A	2	0	8	A	A	0
Automation	Soft PLC	6	M	D	9	0	0	0	0	B	A	5	0	8	A	A	0
Master protocols (field devices, RTUs)	IEC 61850 client	6	M	D	9	0	0	0	0	C	E	0	0	8	A	A	0
Slave protocols for connection to control centers	IEC 60870-5-104 slave	6	M	D	9	0	0	0	0	C	C	0	4	8	A	A	0

<sup>1)</sup> MLFB position 8: 1 = dongle / 2 = soft license

# Modular. Combinable. Flexible.

## SICAM PAS components

It's important that a substation control system in the energy sector meets the requirements of power generation companies and industry. SICAM PAS is able to do this because it provides you with a modular system that works with open communication interfaces. You can freely combine the individual components and then adapt them to your plant configurations and tasks.

**SICAM PAS Value Viewer**  
Testing and diagnostic functions

**Automation functions**  
Soft PLC for user-defined automation with

- CFC (continuous function chart)
- SFC (sequential function chart)
- ST (structured text)

**SICAM PAS UI – Operation**  
Operation of SICAM PAS

**SICAM PAS UI – Configuration**  
Configuration and parameterization of SICAM PAS

**SICAM PAS UI – Operation Client**  
Operation of SICAM PAS via a web-based browser

**SICAM PAS User Management**  
Assigning of user roles

**SICAM PAS Feature Enabler**  
Activates components requiring licenses

As a supplement to SICAM PAS, you'll receive software products for control and monitoring as well as for archiving, evaluating, and analyzing your plant's fault records and power quality data:

**SICAM SCC**  
Easily configurable HMI system for energy automation

- Based on SIMATIC WinCC
- Consistent architecture, from on-site stand-alone controllers to the redundant multi-server, multi-user system

**SICAM PQS**

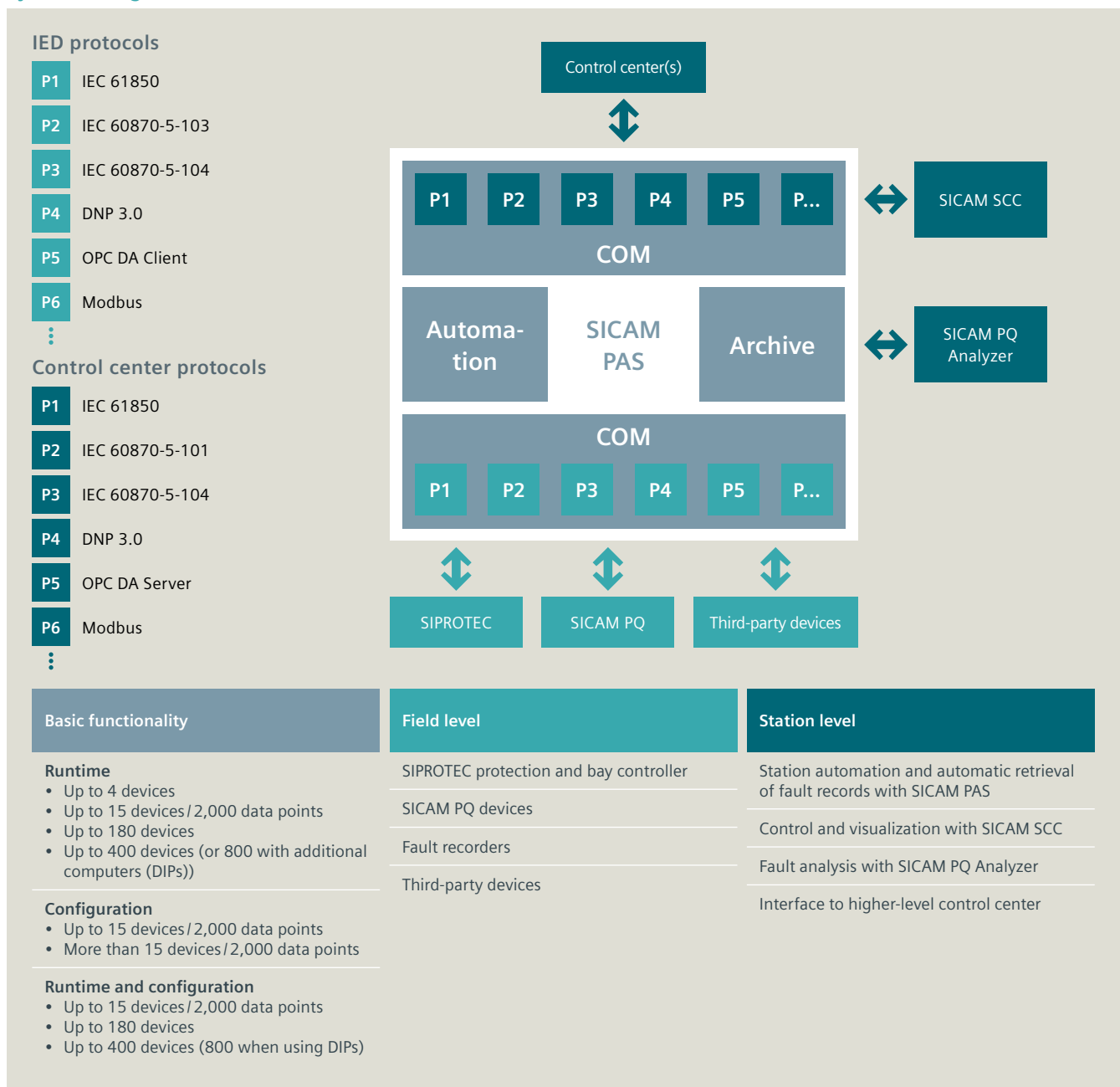
- Connects SICAM PQ devices for the transmission of power quality data from the field level
- Evaluation using standard and user-defined grid codes, including reporting
- Notifications regarding fault records, single-point indications, voltage events, and PQ violations via text message/ e-mail

**SICAM PQ Analyzer**

- Incident Explorer: Visualizes and evaluates fault and PDR (post-disturbance review) records
- Event Viewer: Display and automatic updating of events
- Additional views for PQ Data analysis as PQ Inspector, PQ Explorer and Report Browser

# Standardized. Straightforward. Variable.

## System configuration





# Customized. Ready. Secure.

## SICAM PAS Compact

- **Predefined: Economical**  
You'll use a customized functional scope tailored to a variety of applications.
- **Functionality: Like the SICAM PAS Runtime and Configuration base package**  
Function packages allow you to subsequently add all extension functions.
- **System architecture: The number of data points is permanently defined as a maximum of 2,000 (for example, connection of field devices)**  
In conjunction with SICAM SCC Compact, you receive a cost- and performance-optimized system for automating and visualizing small to medium-sized substations.
- **License: Instantly ready**  
With SICAM PAS Compact, you have a choice of three pre-defined versions with different functional scopes. Thanks to the option to add function packages, SICAM PAS Compact is customizable for many applications.

## SICAM PAS Cyber Security

- **Secure communication:** Permits additional data encryption and protection
- **TLS encryption** – Supplies the encryption protocol for data transmission
- **Password protection:** Guarantees that only authorized persons have access to the plant
- **User management:** Restrictive regulation, with role-based access control according to IEC 62351-8, ensures that each user can only exercise rights which correspond to their assigned role.
- **Security Logbook:** Saves all activities like user logon and logoff; security-related events are logged in a separate Windows event log and can be transmitted to a Syslog server
- **Firewall:** Provides a guideline for the recommended network topology
- **Conformity to BDEW white paper:** Meets the recommendations for secure control and communication systems
- **Certificate management:** SICAM GridPass supports the automatic use of digital certificates that conform to IEC 62351, the international standard for power supply systems

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OpenSSL Project for use in the OpenSSL Toolkit  
([www.openssl.org](http://www.openssl.org)).

This product includes cryptographic software written  
by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

This product includes software developed by Bodo Moeller.

