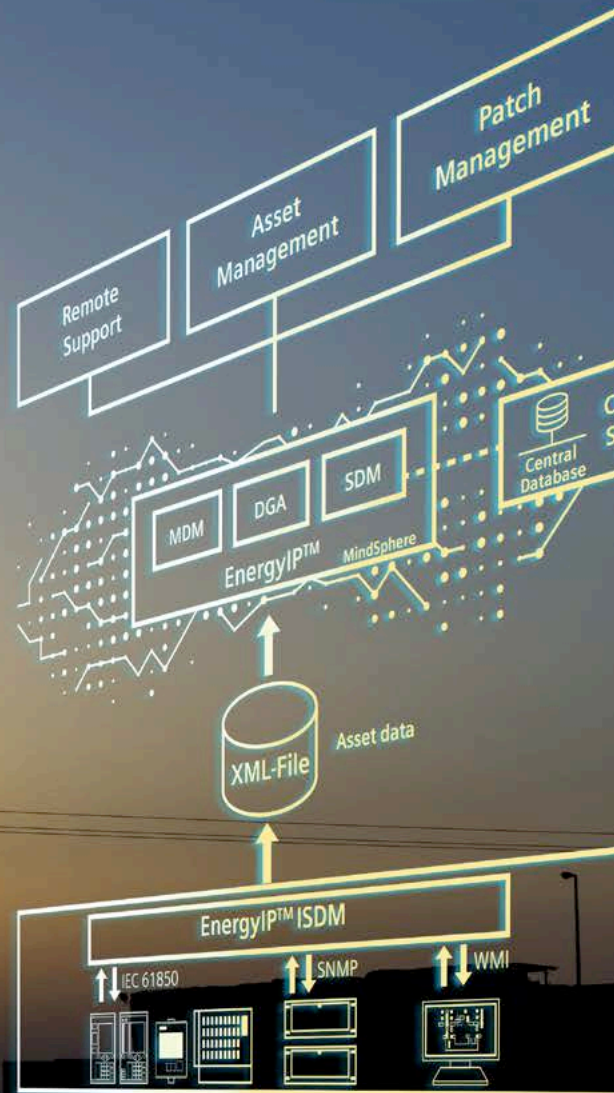


SIEMENS

Ingenuity for life



SICAM PAS

Automation for energy systems

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

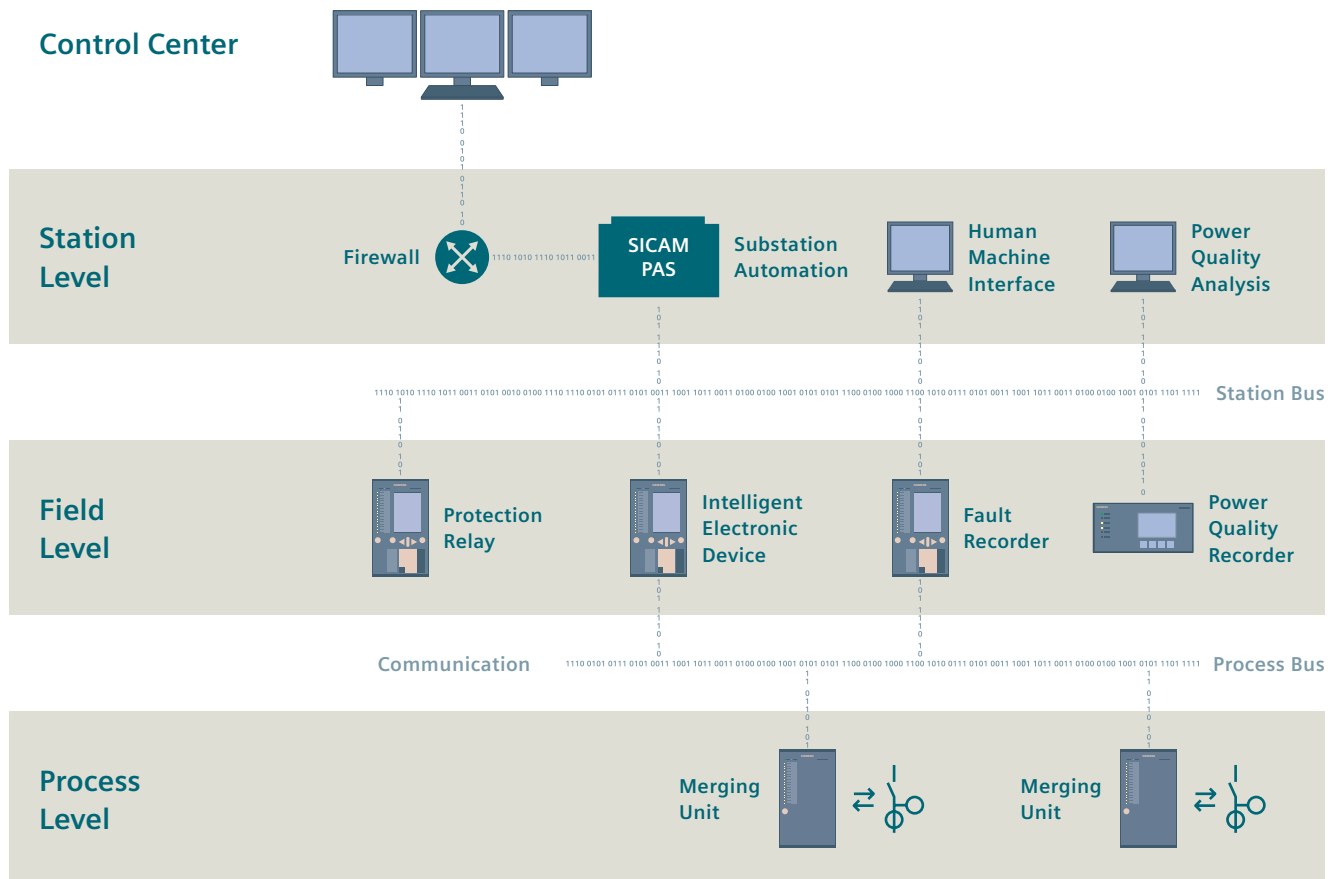
Your benefits

- 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

*A testing laboratory accredited by the UCA international users group

Comprehensive. Complete. Universal.

In practice



Features

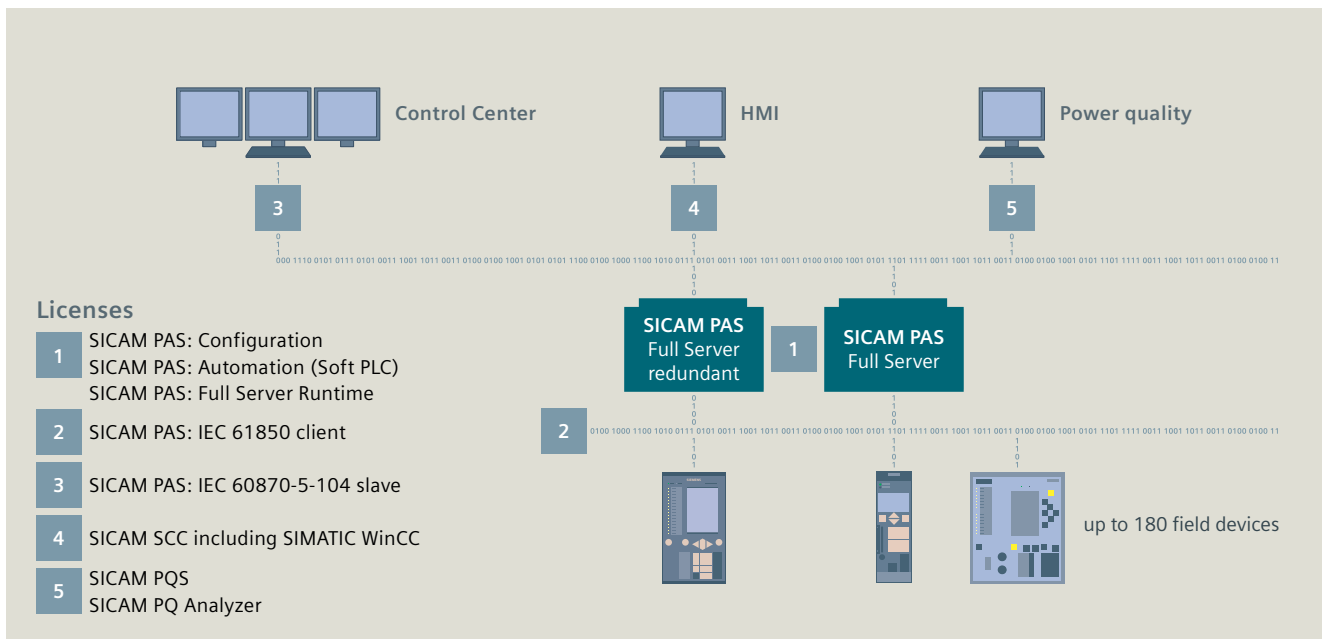
SICAM PAS is universally usable, both in new plants and as a retrofit solution in existing plants. It meets all the requirements of IEC 61850. Three factors make SICAM PAS the perfect automation concept for your substation: It features network and IT capability, secure communication, and comprehensive 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 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		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		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

1) 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

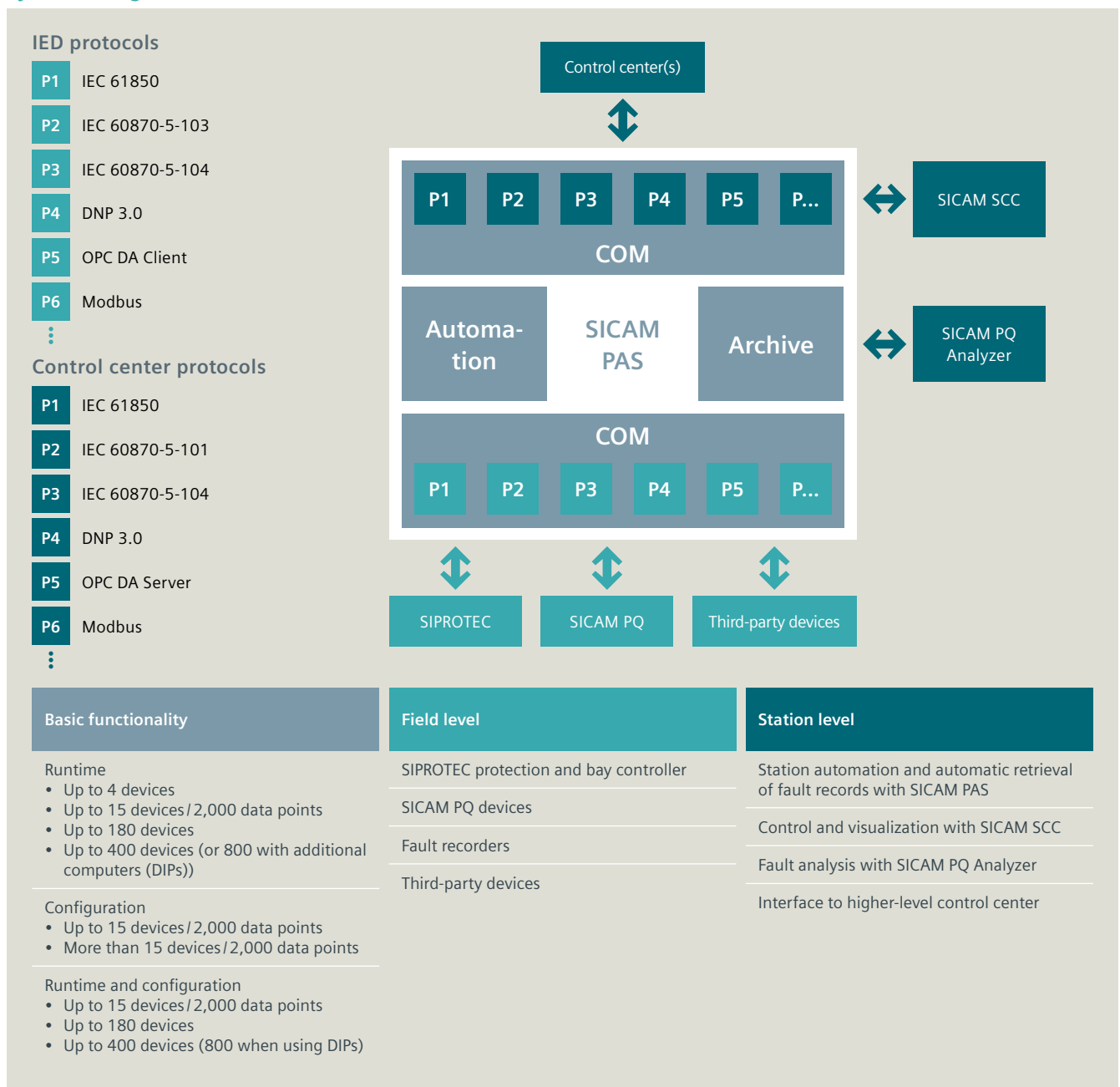
- Evaluation using standard and user-defined grid codes, including reporting
- Notifications regarding fault records, single-point indications, voltage events, and PQ violations via text message/ e-mail

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 predefined 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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Digital Grid Business Unit
PRO & SYS Group
7000 Siemens Drive
Wendell, NC 27591

For more information,
please contact our
Customer Support Center.
Phone: +1 877-217-4943
E-mail: support.siprotec.us@siemens.com

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For all products using security features of OpenSSL, the following shall apply:

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org).

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).

This product includes software developed by Bodo Moeller.

