

## SICAM PAS Software – 6MD9

Energy Automation

Catalog SICAM 4.1.2 · 2007

Power Transmission and Distribution

**SIEMENS**



# C E R T I F I C A T E

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## Siemens AG

Power Transmission and Distribution Group (PTD)

Energy Automation (PTD EA)

Humboldtstraße 59

90459 Nürnberg

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Development, Production, Engineering, Sales and Service of Protection,  
Substation Automation, Telecontrol, Power Quality and Energy Management Systems

has implemented and maintains a

## Quality and Environmental Management System.

Audits, documented in a report, have verified that this  
management system fulfills the requirements of the following standards:

### DIN EN ISO 9001 : 2000

December 2000 edition

### EN ISO 14001 : 2004

November 2004 edition

This certificate is valid until 2009-05-31

Certificate Registration No. 000876 QM UM

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# SICAM PAS Software 6MD9

Catalog SICAM 4.1.2 · 2007

Supersedes: Katalog SICAM 4.1.2 · 2006

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# System Overview

For some years now, power generation and distribution have been undergoing major changes. The innovation cycles (where operating equipment and communication media are concerned) are getting ever shorter, and the market is becoming increasingly deregulated.

The systems used to monitor power supply equipment and processes must take account of these changes.

When new products are used, user-friendliness and interfacing to various communication media are important features.

SICAM PAS (Power Automation System) meets all the demands made of a distributed substation control system – both now and in the future. Amongst many other standardized communication protocols SICAM PAS supports the new IEC 61850 substation standard for communication with bay devices. SICAM PAS is an open system and – in addition to standardized data transfer processes – it features user interfaces for the integration of system-specific tasks and offers multiple automation options. SICAM PAS can thus be integrated with ease in existing systems and can be used for system integration too. With modern diagnostics, it optimally supports commissioning and maintenance. SICAM PAS is clearly structured and reliable, thanks to its open, fully documented and tested system.

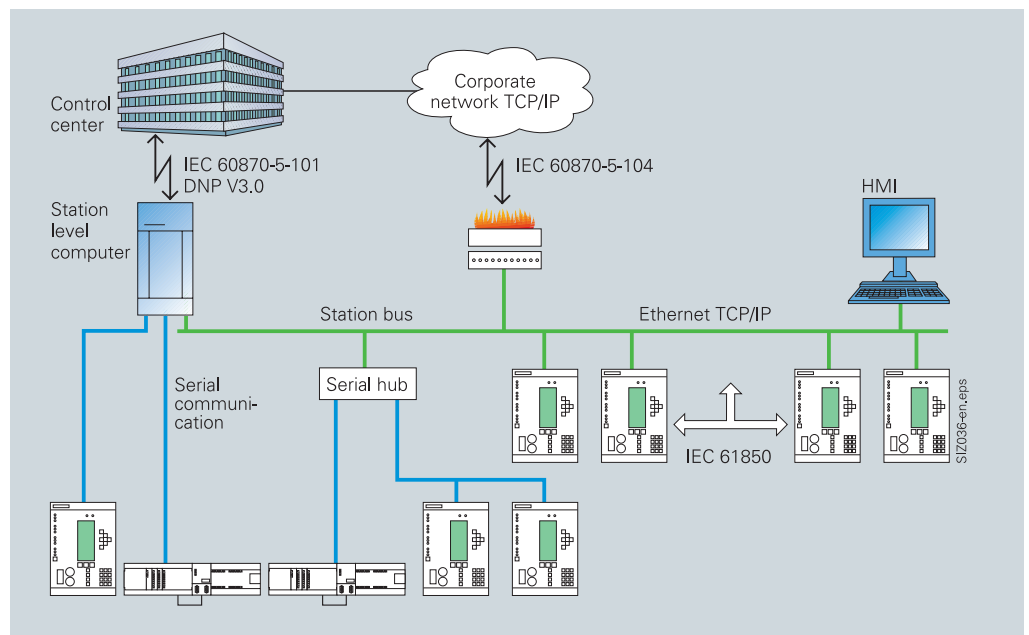


Fig. 1  
Typical SICAM PAS configuration  
IEDs are connected to the station unit with IEC 61850 and various other protocols (see pages 3 and 4)

## System overview, application and functionality of SICAM PAS

- SICAM PAS is an energy automation solution; its system architecture makes it scalable.
- SICAM PAS is suitable for operating a substation not only from one single station level computer, but also in combination with other SICAM PAS systems. Communication in this network is based on a powerful Ethernet LAN.

- With its features and its modular expandability, SICAM PAS covers a broad range of applications and supports distributed system configurations. A distributed SICAM PAS system operates simultaneously on several computers.
- SICAM PAS can use existing hardware components and communication standards as well as their connections.
- SICAM PAS controls and registers the process data for all devices of a substation, within the scope of the data transfer protocols supported.
- SICAM PAS is a communication gateway. This is why only one single data connection to a higher-level system control center is required.

- SICAM PAS enables integration of a fully graphical process visualization system directly in the substation.
- SICAM PAS simplifies installation and parameterization of new devices, thanks to its intuitive user interface.
- SICAM PAS is notable for its online parameter setting features, particularly when the system has to be expanded.
- There are no generation times, and there is no need for loading into a target system (unless configuration is performed on a separate engineering PC).
- SICAM PAS features integrated testing and diagnostic functions.
- Its user-friendliness, its operator control logic, its orientation to the Windows world and its open structure ideally suit users' requirements.
- SICAM PAS is developed in accordance with selected security standards.

### Essential features

- Modular and scalable hardware and software
- User-friendly
- Flexible, graphical configuration of automation
- Open system thanks to standards

## System architecture

SICAM PAS works on PC-compatible hardware with the Microsoft Windows 2000, Windows XP Professional and Windows 2003 Server operating systems. The advantages of this platform are low hardware and software costs, ease of operation, scalability, flexibility and constantly available support.

With the powerful real-time data distribution system, applications can be allocated among several computers, thus boosting performance, connectivity and availability.

A system stores and organizes the database (e.g. configuration data, administrative status data, etc.).

The device master function for communication with Intelligent Electronic Devices (IEDs) supports a large number of well-established protocols.

The SICAM PAS data normalization function allows such conversions as measurement filtering, threshold calculation and linear characteristics.

SICAM PAS CC is used for process visualization. Specifically designed for energy automation, it assists in optimization of operations management. It provides a quick introduction to the subject matter and a clearly arranged display of the system's operating states.

SICAM PAS CC is based on SIMATIC WinCC, well-known in industrial automation worldwide.

To facilitate incident analysis, the fault recordings from protection units are retrieved and archived automatically during operation. This is supported by the IEC 61850 and PROFIBUS FMS (SIPROTEC 4) protocols, or the IEC 60870-5-103 protection units protocol. SICAM Recpro is used for archiving and navigation in the fault recording archive. Fault recordings are visualized with Comtrade View (included with SICAM Recpro). Alternatively, SIGRA 4 can also be used.

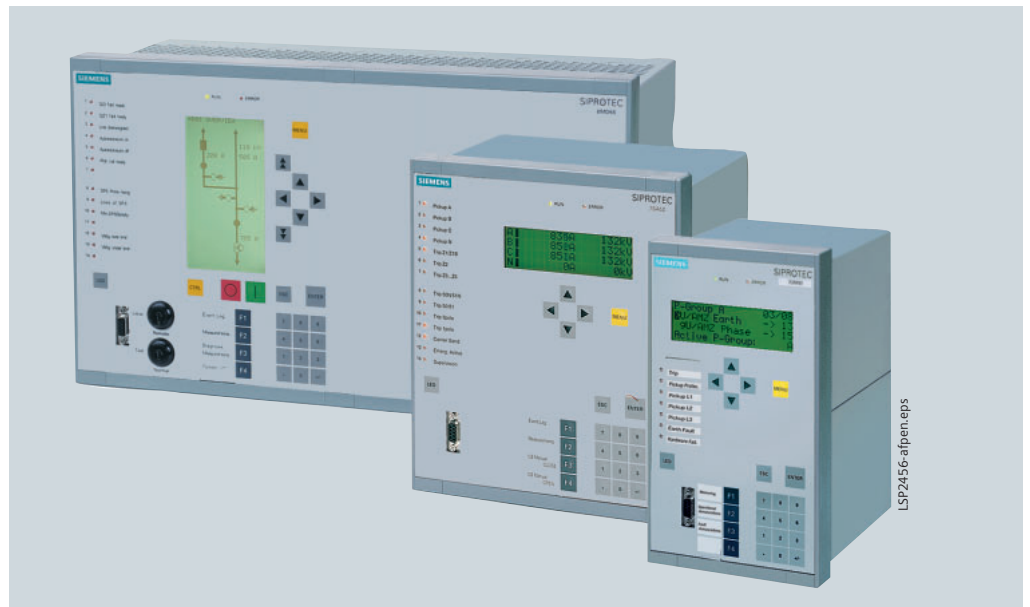


Fig. 2  
SIPROTEC 4 Bay control units and protection units

## Communication

### Device interfaces and communication protocols

In a substation that you configure and operate with SICAM PAS, you can use various types of protection units, IEDs, bay control units, measured-value recorders and telecontrol units from a wide range of manufacturers.

SICAM PAS offers a large number of commercially available communication protocols for recording data from various devices and through differing communication channels. Subsequent expansion is easy.

### • Available protocols

These communication protocols and device drivers can be obtained as optional additions to the standard scope of SICAM PAS.

#### – IEC 61850

IEC 61850 is the communication standard for interconnecting the devices at the bay and station control levels on the basis of Ethernet. IEC 61850 supports the direct exchange of data between IEDs, thus enabling switching interlocks across bays independently of the station control unit, for example.

#### – PROFIBUS FMS

Most SIPROTEC 4 bay controllers and protection units (see Figs. 2 and 3) can be connected to the SICAM PAS station unit with PROFIBUS FMS.

Many of the functional aspects standardized in IEC 61850 have been anticipated in this communication platform.

(continued on page 4)



Fig. 3  
SIPROTEC 4 bay control units with local control

# Communication

## Communication

### Device interfaces and communication protocols

(continued)

#### – IEC 60870-5-103

Protection units, IEDs, bay control units, measured-value recorders and transformer controllers from many manufacturers support the IEC 60870-5-103 protocol and can therefore be connected directly to SICAM PAS.

#### – IEC 60870-5-101 (Master)

The IEC 60870-5-101 protocol is generally used to connect telecontrol units.

The 'balanced' and 'unbalanced' traffic modes are supported.

**Automatic dialing** is also supported for the connection of substations with this protocol.

SICAM PAS can establish the dial-up connection to the substation either cyclically or as required (e.g. for command output). By contrast, the substation can also establish a connection cyclically or in event-triggered mode.

Analog or ISDN modems can be used. A GSM modem can also be used in the substation.

Several modems are supported for communication with substations. Even if the 'standard modem' is already in use, other substations remain accessible.

#### – IEC 60870-5-104 (Master)

Furthermore, connection of substations is also supported by the TCP/IP-based IEC 60870-5-104 protocol.

#### – PROFIBUS DP

PROFIBUS DP is a highly powerful field bus protocol based on the token passing method. For example, it is used for industrial automation and for automating the supply of electricity and gas.

PROFIBUS DP serves to interface multifunctional measuring instruments such as SIMEAS P ( $I, V, P, Q$ , p.f. ( $\cos \varphi$ )) or, for example, to connect ET200 components

for gathering messages and for simple commands. Messages, for example, can be derived from the signaling contacts of fuse switch-disconnectors.

For simple applications that do not need functions like time synchronization and fault recording transfer, etc., SIPROTEC 4 units can also be interfaced via PROFIBUS DP.

IEDs and substations can also be connected with **DNP V3.00** (serial and "over IP") and **MODBUS**.

#### – ILSA Protocol

Communication via the ILSA protocol is a highlight of SICAM PAS system. Existing ILSA central devices can be used without changing of configuration on bay level. A future-proof extension with IEC 61850 is possible.

### System control center connections, distributed process connection and process visualization

- SICAM PAS operates on the basis of Windows 2000, Windows XP Professional and Windows XP Embedded. This means that the extensive support which 2000/XP offers for modern communication protocols is also available with SICAM PAS.

- SICAM PAS was conceived for easy and fast integration of conventional protocols. Contact Siemens if you have any questions about integration of user-specific protocols.

#### • The standardized telecontrol protocols

**IEC 60870-5-101**  
**IEC 60870-5-104,**

**DNP V3.00** (which is also used throughout the world) as well as TG 8979 and CDT are supported for the purpose of linking up to higher-level system control centers.

Asymmetric encryption enables tap-proof DNP V3.00 communication via TCP/IP connection to higher-level control centers.

- Distributed process connection in the substation is possible thanks to the SICAM PAS **Device Interface Processor (DIP)**.

- SICAM PAS can also be set up on computers networked with TCP/IP. Here, one computer performs the task of the so-called full server. Up to six other computers can be used as DIPs. With this architecture, the system can be adapted to the topological situation and its performance also boosted.

- SICAM PAS allows use of the SICAM PAS CC process visualization system for central process control and monitoring.

- For industrial applications, it is easy to configure an interface to process visualization systems via OPC (**object linking and embedding for process control**).

- SICAM PAS can be configured as an **OPC server** or as an **OPC client**.

The SICAM PAS process variables – available with the OPC server – can be read and written with OPC clients working either on the same device or on one networked by TCP/IP. This mechanism enables, for example, communication with another process visualization system.

The OPC server is included in the basic system.

The **OPC client** can read and write data from other OPC servers. Typical applications are data exchange with another SICAM PAS station unit, and the connection of SIMATIC programmable controllers.

The OPC client is available as an optional package.

#### • SICAM Diamond

SICAM Diamond can be used to monitor the system interfaces, to indicate switching device states (and up-to-date measured values), and also for further diagnostic purposes.

SICAM Diamond features an event list and enables the issue of switching commands. SICAM Diamond allows access to data with a **Web browser** (Microsoft Internet Explorer), either on the same computer or from a Web client.

In other words: SICAM PAS permits data access with Web-based programs.

## Protocols

SICAM PAS supports the following communication protocols (optionally available):

- Control center connection IEC 60870-5-101, IEC 60870-5-104, DNP V3.00 (serial and "over IP"), TG 8979, CDT
- Open data exchange OPC server, OPC client
- IED and substation connection IEC 61850, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, DNP V3.00 (serial and "over IP"), PROFIBUS FMS, PROFIBUS DP, MODBUS,

### Further station control aspects

SICAM PAS features **bay blocking** and **telecontrol blocking** functions.

The telecontrol blocking function can also be configured for specific channels so as to prevent the transfer of information to one particular control center during operation, while transfer continues with other control centers. The bay blocking and telecontrol blocking functions act in both the signaling and the command directions.

Channel-specific **switching authority** also makes it possible to distinguish between local control (SICAM PAS CC) and remote control for the switching direction, but also between control center connections. Circuit-breakers can be controlled in **synchronized/unsynchronized** mode.

### Automation tasks

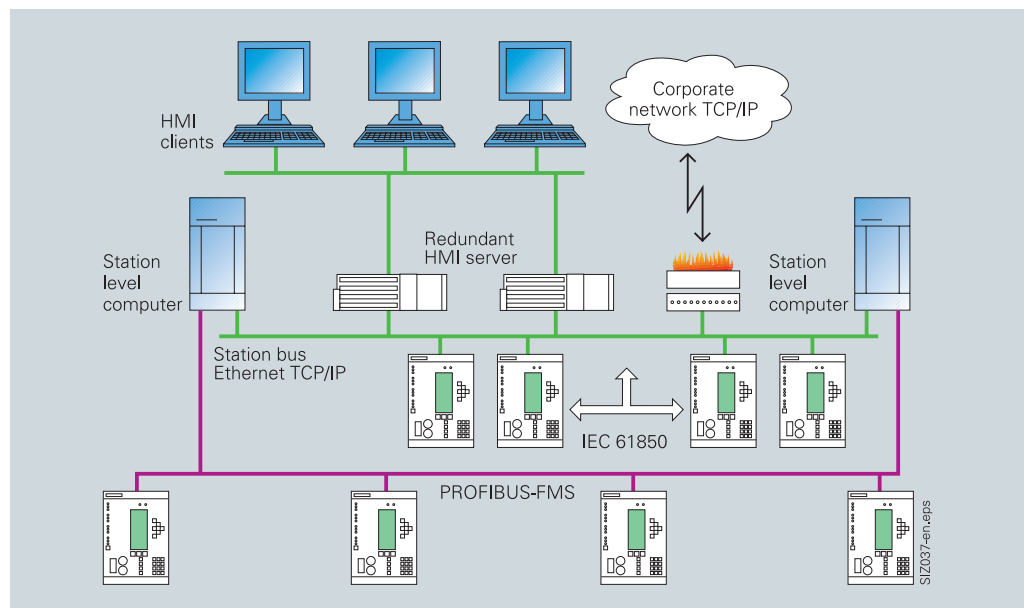
can be configured in SICAM PAS with the CFC (Continuous Function Chart), which conforms to IEC 61131. In this editor, tasks are configured graphically by wiring function blocks. SICAM PAS comes with an extensive library of CFC function blocks, developed and system-tested specially for energy automation.

Applications range from generation of simple group indications through switching interlocks to complex switching sequences.

Namely creation of switching sequences are supported by the SFC Editor (Sequential Function Chart).

### Redundancy

The station level computer can be used in a duplicate configuration to further boost the availability of the station control level (see Fig. 4). This duplication is possible with IEDs or substation devices that support simultaneous communication with two masters (PROFIBUS FMS, IEC 60870-5-101) or clients (IEC 61850).



**Fig. 4**  
Typical redundant configuration: The station level computer and the HMI server are based on a redundant structure to boost availability

A redundant structure is also possible for process visualisation with SICAM PAS CC and fault-record archiving with SICAM Recpro as shown in Fig. 4.

### Scope of information

The amount of information to be processed by SICAM PAS is essentially determined by the following factors:

- Computer network concept (multiple-computer network or single-station system)
- Performance data of the hardware used
- Performance data of the network
- Size of the database (RDBMS)
- Rate of change of values

A maximum of 150 IEDs and 10,000 data points can be processed.

# Process Visualization

## Process visualization with SICAM PAS CC

In the operation of a substation, SICAM PAS is used for configuration purposes and as a powerful data concentrator. SICAM PAS CC serves as the process visualization system.

SICAM PAS CC can be connected both to a SICAM PAS full server and to a SICAM PAS-DIP.

Several independent SICAM PAS CC servers can be connected to one SICAM PAS. Connection of redundant servers is also supported. SICAM PAS CC supports the connection of several SICAM PAS systems.

In the signal lists, the original time stamps are logged in ms resolution as they occur in the devices. With every signal, a series of additional data is also presented to provide information about causes (spontaneous, command), event sources (close range, local, remote), etc. Besides process signals, command signals are also logged.

**IndustrialX-Controls** are used to control and monitor switchgear. These **switching device objects** support four different forms of presentation (IEC, DIN, SINAUT LSA, SICAM) for circuit-breakers and disconnectors. It is also possible to create bitmaps (defined for a specific project) to represent switching devices, and to link them to the objects. For informative visualization, not only nominal and spontaneous flashing are supported, but also the display of various device and communication states (e.g. up-to-date/not up-to-date, bay and telecontrol blocking, etc.).

Measured values and switching device states that are not continuously updated due to, e.g., device or communication failure or bay blocking, may be updated directly via the operation panel with SICAM PAS CC.

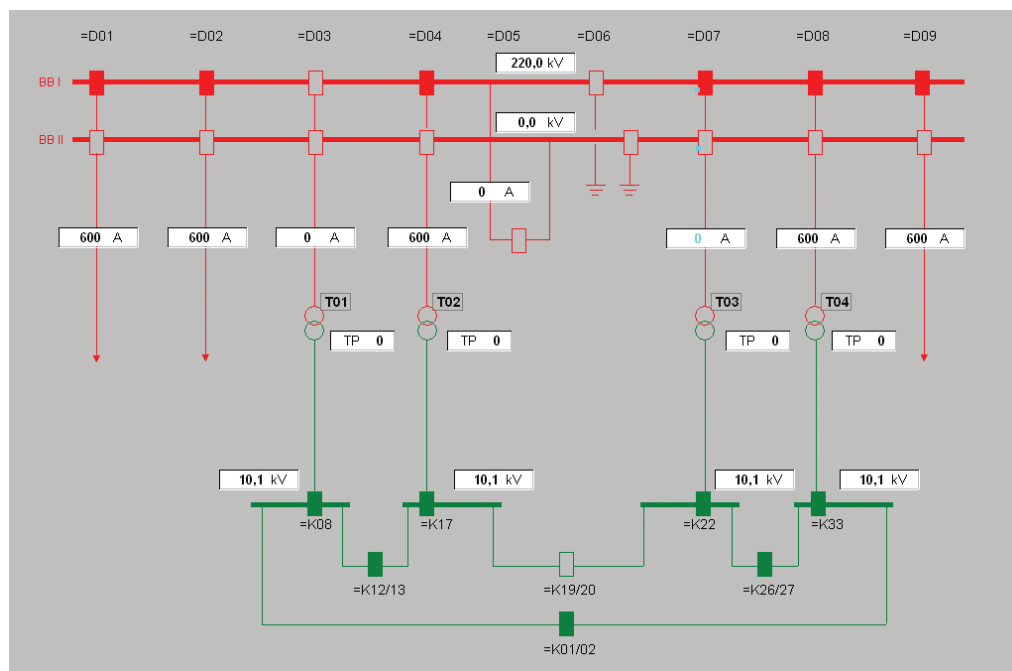


Fig. 5  
Process visualization with SICAM PAS CC

In conjunction with the SICAM PAS station unit, the switching devices can be controlled either directly or with "select before operate".

When visualizing the process by single-line images, topological coloring can be used.

The WinCC Add-on SIMATIC Web navigator can be used for control and monitoring via the Internet.

**SICAM Valpro** can be used to evaluate measured and metered values. It not only allows a graphical and a tabular display of archived values, but also enables subsequent evaluation functions such as minima, maxima and averages (on an hourly or daily basis).

**SICAM Recpro** supports automatic retrieval and archiving of fault recordings from protection units connected with IEC 60870-5-103, PROFIBUS FMS and IEC 61850.

SICAM PAS CC is based on **SIMATIC WinCC**, which has advanced to become both the industrial standard and the market leader in Europe. It has the following impressive features:

- Multilingual capability
- All operation and monitoring functions on-board. These include not only the graphics system for plant displays and the signaling and archiving system for alarms and measured values, but also a reporting and logging system. Further advantages are integrated user administration, along with the granting and checking of access rights for configuration and runtime operations.
- Easy and efficient configuration. Configuration is assisted by dialogs, wizards and extensive libraries

- Consistently scalable, even via the Web. In conformity with requirements, the bandwidth ranges from simple single-user station through to distributed multi-user systems with redundant servers and multi-site solutions with Web clients.
- Open standards for easy integration
  - Using any external tools, archived data can be accessed through a series of open interfaces (such as SQL and ODBC) for further editing.
  - Manufacturer-independent communication with lower-level controllers (or with applications such as MS Excel) is supported with OPC (OLE for Process Control).
  - Visual Basic for Applications (VBA), VBScript or ANSI-C create an ideal scope for project-specific solutions.

- Expandable with options and add-ons
- WinCC/Dat@Monitor serves to display and evaluate current process states and historical data on office PCs, using standard tools such as the Microsoft Internet Explorer or Microsoft Excel
- WinCC/Web Navigator is an option with SIMATIC WinCC for controlling and monitoring systems over the Internet, a company Intranet or a LAN
- WinCC/Connectivity Pack The functions of the two OPC servers HDA and A&E, and of the WinCC OLE-DB provider are ensured by the WinCC/Connectivity Pack.
- FunkServerPro With the aid of FunkServerPro, messages from the WinCC signaling system can be forwarded automatically to radio call receivers.

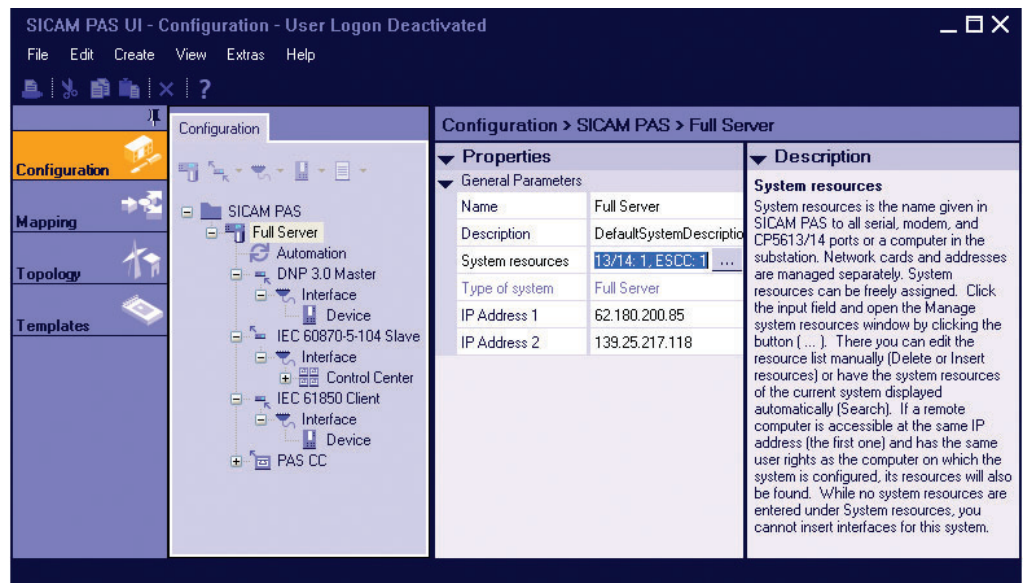


Fig. 6  
SICAM PAS UI – Configuration

## Overview of the operator control philosophy and user interface

The SICAM PAS user interface is based on customary Windows technology, which enables you to navigate in the familiar Windows environment both when configuring the system and during on-going operation.

The system distinguishes between configuration and operation of a substation. In SICAM PAS, these two tasks are firmly separated by two independent programs.

The **SICAM PAS UI – Configuration** program is used to create and edit a project-specific configuration. To enhance clarity, four views are distinguished:

- Configuration
- Mapping
- System topology
- Device templates

A common feature of all views is that they have an Explorer window that shows the system configuration in a clearly arranged tree structure. As in the Windows Explorer, you can open individual levels of this

tree structure to work in them. Meanwhile, you can close other levels to improve clarity.

Depending on the level you are currently navigating in and the component you have chosen, in the context menu (right mouse button) SICAM PAS offers you precisely those program functions that are currently appropriate.

You work through the necessary steps in the data window on the right. Here, you set parameters, select information and define assignments to a user-specific, process-oriented system topology.

The user interface is uncomplicated and structured according to the task definition, so as to enable intuitive working and to simplify changes. The user interface assists the editing process by displaying parameter descriptions and messages when incorrect parameters are entered.

In the tabular views for information assignment and allocation to the system topology, configuration is made easy by extensive sorting and filtering mechanisms, multiple choices and Drag & Drop.

To ensure data consistency and to avoid redundant data input, SICAM PAS UI provides extensive import and export functions for the exchange of configuration data, e.g. with the bay control level and with process visualization.

# Test and Diagnosis

The SICAM PAS UI – Operation program features a series of editing and diagnostics views for monitoring and controlling a substation.

In the **Operation Manager**, you check and control the states of individual data connections.

In the **SCADA Value Viewer** you can see incoming values in a clearly arranged form and perform operator control actions for test purposes.

Security can be boosted by applying “user administration” for the SICAM PAS UI Configuration, UI Operation and Value Viewer programs. User administration supports user-rights contexts with pre-defined rights and password protection.

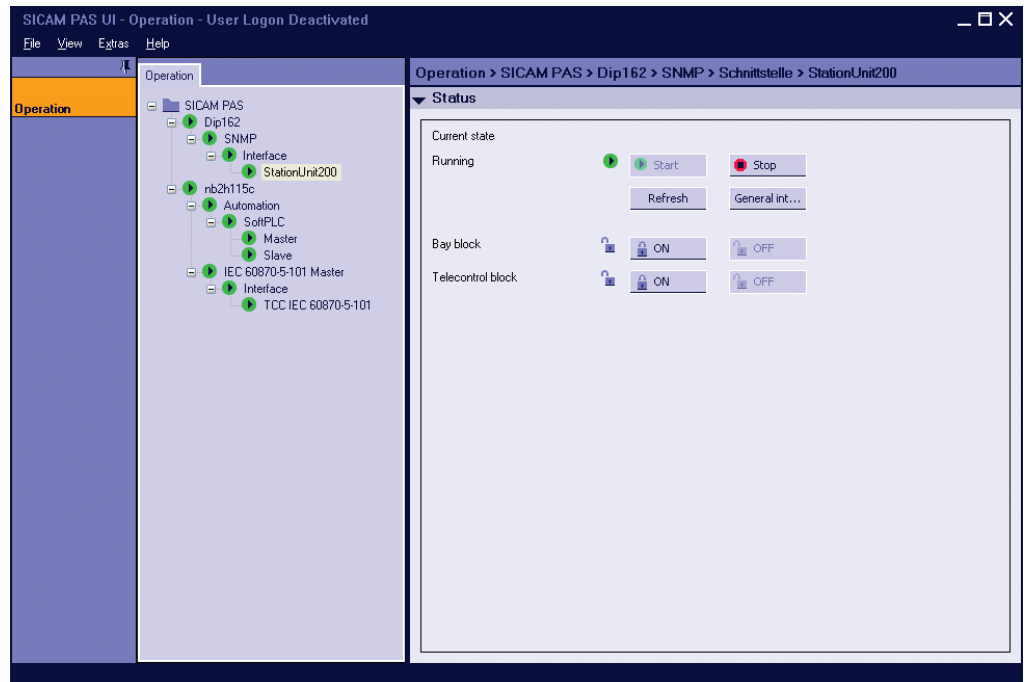


Fig. 7  
SICAM PAS UI – Operation

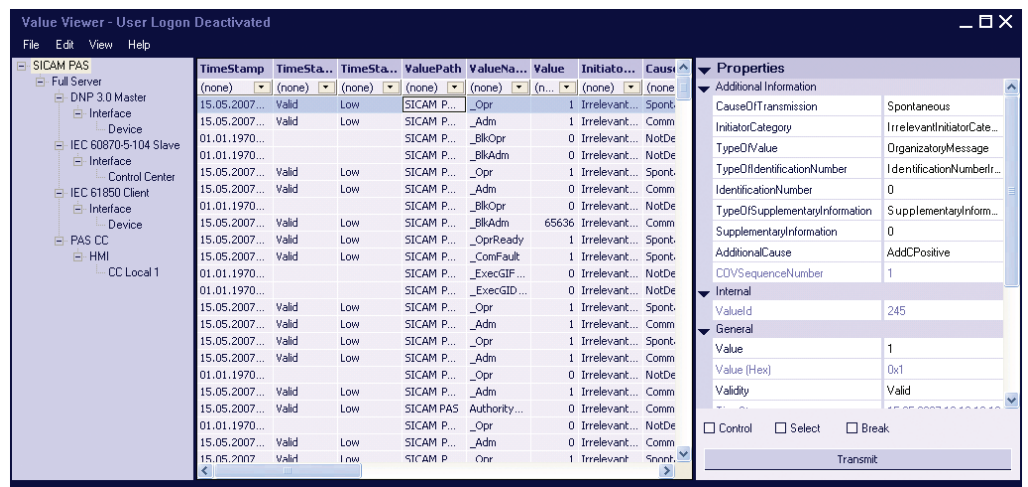


Fig. 8  
SICAM PAS Value Viewer

# System Requirements

## System requirements

- Station unit with:
  - Pentium processor III  
≥ 800 MHz
  - Main memory  
≥ 512 Mbytes
  - Hard disk capacity  
≥ 512 Mbytes
  - Graphics card for recommended resolution of  
≥ 1024 x 768
  - Color monitor matching the graphics card
  - CD-ROM drive
  - Keyboard
  - Mouse
  - Parallel printer interface
  - Network adapter for LAN/WAN connection
  - Interface cards for connection of IEDs
    - SIMATIC CP 5613/14 for connecting units with PROFIBUS DP interfaces
    - e.g. Rocket Port COM Expander for serial connection of units with IEC 80670-5-103 interfaces, etc.

For the station level computer Siemens recommends the station unit as standardized hardware solution with Microsoft Windows XP Embedded.

- Operating system for SICAM PAS:
  - Microsoft Windows 2000
  - Microsoft Windows XP Professional
  - Microsoft Windows 2003 Server
- Operating system for visualization with SICAM PAS CC:
  - Microsoft Windows 2000
  - Microsoft Windows 2003 Server
  - Microsoft Windows XP Professional

## Services

- Configuration
  - Large-scale orders call for configuration work and competent project management.
  - We will support you with:
    - Project planning
    - Project management
    - Project controllingor we will perform these tasks for you.
- Training
  - SICAM PAS courses are staged at our
  - Nuremberg training center  
PTD SE  
Tel.: +49-911 / 433-7005  
Fax: +49-911 / 433-7929

For details of individual courses, consult our catalog on the Internet at <http://www.ptd-training.de> or contact our training center.

- Certificates
  - A DQS-certified quality management system conforming to DIN ISO 9001 is applied in the manufacture and sale of the products listed in this brochure.

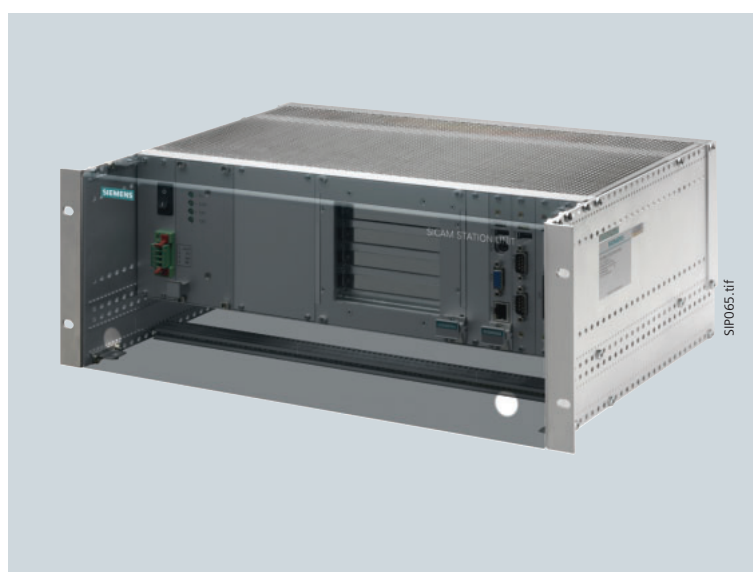


Fig. 9  
Station unit

# Selection and Ordering Data

Description	Order No.																		
<b>Hardware</b> <b>SICAM Station Unit</b> SICAM Station Unit V2 based on industrial mobile processor 19" rack system, fanless, without moving components. CPU: Yonah M processor, 1.87 GHz 2 GB RAM, 2 x 2 GB Flash, 4 external USB, 2 internal USB, 2 x Gbit Ethernet RJ45, 1 serial port, status LEDs. Redundant power supplies, switchover without reboot. Monitored by SNMP, HW Watchdog, Temperature/voltage monitoring, live contact Windows XP embedded service pack 2. SICAM PAS-software pre-installed, without license / dongle SICAM PAS license / dongle (USB-version) must be ordered separately.	1 3 5 7 9 11 13 15 2 4 6 8 10 12 14 16 6MD9101 - □□□□□ - □□A□ ↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑↑																		
<b>Primary power supply</b>																			
24 – 60 V DC	1																		
110 – 230 V AC / DC	2																		
<b>Secondary power supply</b>																			
without	A																		
24 – 60 V DC	B																		
110 – 230 V AC / DC	C																		
<b>Storage medium / operating system</b>																			
2 x 2 GB compact flash cards with Windows XP Embedded	A 1																		
<b>Language of operating system &amp; SICAM PAS software</b>																			
German	1																		
English	2																		
<b>Function</b>																			
Full server	1																		
Device interface processor	2																		
<b>PCI adapter</b>																			
without	A																		
with	B																		
<b>Guarantee extension</b>																			
2 years guarantee	0																		
3 years guarantee	1																		
<b>Software</b> <sup>1)</sup> The SICAM PAS <b>basic system</b> includes	<ul style="list-style-type: none"> <li>● SICAM PAS UI – Operation</li> <li>● SICAM PAS UI – Configuration (depending on the variant ordered)</li> <li>● SCADA Value Viewer</li> <li>● OPC-Server</li> <li>● SNMP Manager</li> <li>● SNTP for time synchronization</li> <li>● Real-time data distribution system</li> <li>● Sybase SQL database</li> </ul>																		
The following <b>variants</b> of the basic system are available:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">"Full Server" (<b>Runtime &amp; Configuration</b>) basic component as a single-user system or as the central component in a distributed system</td> <td style="text-align: right; padding: 2px;">6MD9000-□AA00-6AA0</td> </tr> <tr> <td style="padding: 2px;">"Full Server" (<b>Runtime</b>) basic component</td> <td style="text-align: right; padding: 2px;">6MD9000-□AA10-6AA0</td> </tr> <tr> <td style="padding: 2px;">"Full Server" (<b>Configuration</b>) basic component</td> <td style="text-align: right; padding: 2px;">6MD9000-□AA20-6AA0</td> </tr> <tr> <td style="padding: 2px;"><b>Configuration Upgrade</b> for one "Full Server" (Runtime)</td> <td style="text-align: right; padding: 2px;">6MD9000-□AA23-6AA0</td> </tr> <tr> <td style="padding: 2px;"><b>Device Interface Processor (DIP)</b> basic component for use as a subordinate component in a distributed PAS system (Runtime &amp; Configuration)</td> <td style="text-align: right; padding: 2px;">6MD9010-□AA00-6AA0</td> </tr> <tr> <td style="padding: 2px;"><b>Device Interface Processor (DIP; Runtime)</b> basic component</td> <td style="text-align: right; padding: 2px;">6MD9010-□AA10-6AA0</td> </tr> <tr> <td style="padding: 2px;">Basic packages available</td> <td></td> </tr> <tr> <td style="padding: 2px;">with dongle for parallel printer-interface</td> <td style="text-align: right; padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">with dongle for USB-interface</td> <td style="text-align: right; padding: 2px;">1</td> </tr> </table>	"Full Server" ( <b>Runtime &amp; Configuration</b> ) basic component as a single-user system or as the central component in a distributed system	6MD9000-□AA00-6AA0	"Full Server" ( <b>Runtime</b> ) basic component	6MD9000-□AA10-6AA0	"Full Server" ( <b>Configuration</b> ) basic component	6MD9000-□AA20-6AA0	<b>Configuration Upgrade</b> for one "Full Server" (Runtime)	6MD9000-□AA23-6AA0	<b>Device Interface Processor (DIP)</b> basic component for use as a subordinate component in a distributed PAS system (Runtime & Configuration)	6MD9010-□AA00-6AA0	<b>Device Interface Processor (DIP; Runtime)</b> basic component	6MD9010-□AA10-6AA0	Basic packages available		with dongle for parallel printer-interface	0	with dongle for USB-interface	1
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with dongle for parallel printer-interface	0																		
with dongle for USB-interface	1																		

1) Positions 13 and 16 of the software Order No. indicate the version. Version 6.0 is the current version.

# Selection and Ordering Data

Description		Order No.	
<b>Software</b> <sup>1)</sup> (continued) The following <b>option packages</b> are available for SICAM PAS Full Server and DIP:	for connecting SIPROTEC 4 IEDs <b>IEC 61850 (Client) Driver for PROFIBUS FMS</b>	6MD9000-0CE00-6AA0 6MD9000-0CB02-6AA0	
	for connecting devices (e.g. SIPROTEC 4, SIMEAS P, S7-300, ET 200, etc.) <b>Driver for PROFIBUS DP</b>	6MD9000-0CB01-6AA0	
	for connecting IEDs or substations <b>IEC 60870-5-103 Master</b> <b>IEC 60870-5-101 Master</b> <b>IEC 60870-5-104 Master</b> <b>DNP V3.00 Master</b> (serial and "over IP") <b>MODBUS Master</b> <b>SINAUT LSA-ILSA</b>	6MD9000-0CB00-6AA0 6MD9000-0CD00-6AA0 6MD9000-0CD04-6AA0 6MD9000-0CB07-6AA0 6MD9000-0CB05-6AA0 6MD9000-0CB03-6AA0	
	for connection to higher-level control centers <b>IEC 60870-5-101 Slave</b> <b>IEC 60870-5-104 Slave</b> <b>DNP V3.00 Slave</b> (serial and "over IP") <b>CDT</b> <b>TG8979</b>	6MD9000-0CC00-6AA0 6MD9000-0CC04-6AA0 6MD9000-0CC07-6AA0 6MD9000-0CC08-6AA0 6MD9000-0CC10-6AA0	
	Further option packages <b>Automation SoftPLC (CFC, SFC)</b> <b>OPC Client</b>	6MD9000-0BA50-6AA0 6MD9000-0BA40-6AA0	
	SICAM PAS CC <b>Human Machine Interface</b> Process visualization	<b>Runtime</b>	6MD550□-0AP00-6AA0
		<b>Runtime incl. evaluation applications</b> SICAM Valpro, SICAM Recpro	6MD550□-0BP00-6AA0
		<b>Runtime &amp; Configuration</b>	6MD551□-0AP00-6AA0
		<b>Runtime &amp; Configuration incl. evaluation applications</b>	6MD551□-0BP00-6AA0
		SICAM Valpro, SICAM Recpro	↑
		128 tags	1
		256 tags	2
	1024 tags	3	
	8000 tags	4	
64000 tags	5		
<b>User documentation</b>	SICAM PAS – Overview	E50417-X8976-C044	
	SICAM PAS – Installation Manual	E50417-M8976-C045	
	SICAM PAS – Configuration and Operation	E50417-P8976-C046	
	SICAM PAS – Automation Blocks	E50417-H8976-C287	
	SICAM PAS CC – Human Machine Interface	E50417-H8976-C284	
	SICAM Recpro – Fault Record Processing Utility	E50417-H8976-C286	
	SICAM Valpro – Measured/Metered Value Processing Utility	E50417-H8976-C285	

1) Positions 13 and 16 of the software Order No. indicate the version.  
 Version 6.0 is the current version.

# Appendix

## Catalog Index of the Power Transmission and Distribution Group (Energy Automation Division)

### Energy automation

SICAM PAS 6MD9	SICAM 4.1.1	E50001-K5604-A111-A3-7600
SICAM PAS Software 6MD9	SICAM 4.1.2	E50001-K5604-A121-A1-7600

### Numerical protection systems and bay control units

SIPROTEC Numerical Protection Relays (printed catalog)	SIP · 2006	E50001-K4400-A101-A4-7600
SIPROTEC Numerical Protection Relays (CD ROM)	SIP · 2006	E50001-D4400-A107-A4-7600

### CE-conformity

This product is in conformity with the directives of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Council Directive 89/336/EEC) and concerning electrical equipment for use within specified voltage limits (low-voltage directive 73/23/EEC).

This product conforms with the international standard IEC 60255, and the national standard DIN 57435/Part 303.

The product is designed for use in an industrial environment acc. to the EMC standard specification.

Conformity is proved by tests performed by Siemens AG in line with article 10 of the Council Directives in accordance with the generic standards EN 50081 and EN 50082 for EMC directive EN 60255-6 for the "low-voltage directive".

### Notes

If not stated otherwise on the individual pages of this catalog, we reserve the right to include modifications, especially regarding dimensions and weights.

Drawings are not binding.

All product designations used are trademarks or product names of Siemens AG or other suppliers.

If not stated otherwise, all dimensions in this catalog are given in mm.

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases.  
The required features should therefore be specified in each individual case at the time of closing the contract.