SIEMENS
Ingenuity for life

SICAM A8000 Series

Operation, telecontrol, and automation in the smallest spaces

siemens.com/sicam-a8000

One for all:

SICAM A8000 series

The SICAM A8000 series is a new modular device range for telecontrol and automation applications. The most important features being:

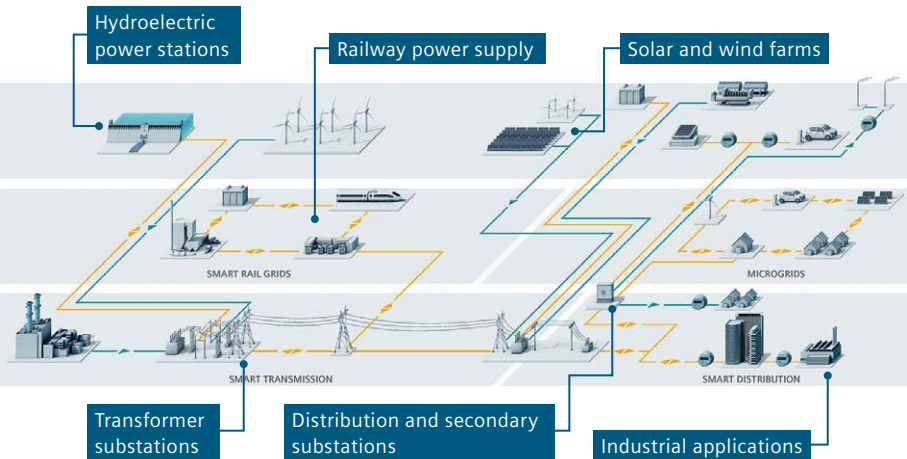|			
Rough ambient conditions		Space-saving design	
Automation		High electric strength	
Long product lifecycle		Integrated communication	
Cyber Security		Scalability	

Wherever energy flows:

Universal platform allows versatile use

The SICAM A8000 device range has been designed for many different tasks, from simple to complex. Always adapted to the actual requirements, it is suitable for use along the entire energy supply chain.

Hydroelectric power stations

Railway power supply

Solar and wind farms

SMART RAIL GRIDS

MICROGRIDS

SMART TRANSMISSION

SMART DISTRIBUTION

Transformer substations

Distribution and secondary substations

Industrial applications

Module by module:

Precisely tailored to the application

Individual tasks and application scenarios require modules that can be freely combined in nearly any way. Thanks to the different performance levels of the processor modules and the universal expansion modules, the SICAM A8000 series is nearly continuously scalable and can be expanded at any time.

Example 1: High performance and many interfaces for complex tasks

- Automation tasks in power distribution and transmission, micro-grids
- Control functions in hydroelectric power stations, including the turbines themselves
- Control and communication in railway power supply
- As a communication gateway for various networks and protocols

Example 2: Everything in view with the compact solution on site

- For use in distribution automation
- Optimized for use in MV switchgear
- Load-flow control available

Example 3: Space-saving design with no display and a slim CP module

- Grid connection for solar and wind farms
- Control and monitoring of electricity and gas distribution stations
- Simple gateway function

Great benefits right from the factory:

Well-designed for practical use

1. Platform modularity for **versatile application options and reduced inventory**

2. Extended temperature range of -40°C to +70°C for **rough ambient conditions**

3. Highest EMC stability up to 5 kV (IEC 60255) for **direct use in substations**

4. Integrated short-circuit indicator functionality for **use in cable network monitoring**

5. Use of international standards such as IEC 61850 for **high investment security**

6. Integrated crypto chip and IPSec encryption **to fulfill the high cyber security requirements**

7. Multitude of interfaces and integrated GPRS module for **simple adaptation to existing communication infrastructures**

8. Integrated web parameterization tool for **simple engineering**

9. Plug-and-Play functionality of the modules for **time and cost savings**

A strong team:

Equipped for any task

| Compact device | Power supply modules | Processor modules | Expansion modules |
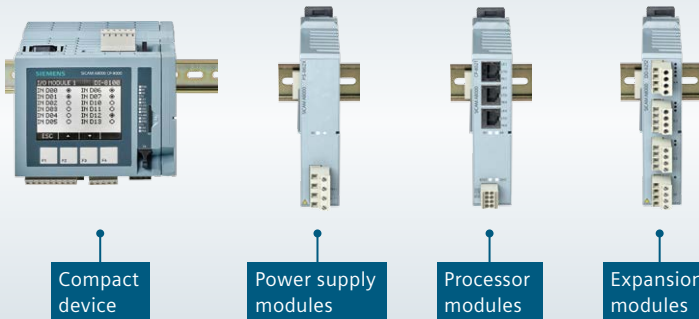
The SICAM A8000 series consists of a combination of modules for power supply, processor, and expansions and is used for various tasks such as operation, tele-control, automation, and communication. The SICAM A8000 CP-8000 compact device combines a power supply, display with function keys, and binary inputs and outputs.

CP-8000

Size (L x H x D)	128 x 124 x 123 mm
Temperature range	-40°C to +70°C
Interfaces	2 x Ethernet LAN 1 x RS 232 1 x RS 485 (galvanically isolated)
Memory	SD card
Data points	20,000
Special features	Integrated power supply 12 DI, 8 DO integrated, max. 116 I/O (max. 6 expansion modules) Integrated function keys and display
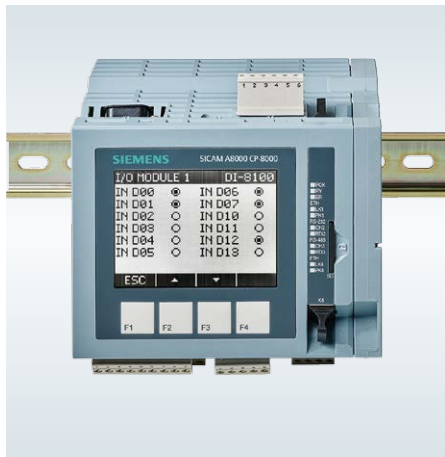
Power supply

PS-8620 and PS-8622

Operating voltage	PS-8620: DC 18...78 V incl. tolerance
	PS-8622: DC 82.5...286 V incl. tolerance
Output voltage 1	U_{out1} DC 5.15 V ±2% static ±3% dynamic
Output current 1	0 A – 1.8 A
Output voltage 2	U_{out2} DC 28.0 V ±10% static ±3% dynamic
Output current 2	0 A – 0.43 A

Processor module

CP-8021

Size (L x H x D)	30 x 132 x 124 mm
Temperature range	-40°C to +70°C
Interfaces	2 x RJ45 (Ethernet)
	1 x RS 232 (RJ45)
	1 x RS 485 (spring-loaded terminals, 8-pole plug)
Memory	SD card up to 2 GB
Data points	20,000
Distributed archive	Available

Processor module

CP-8022

Size (L x H x D)	30 x 132 x 124 mm
Temperature range	-40°C to +70°C
Interfaces	2 x RJ45 (Ethernet)
	1 x RS 232 (RJ45)
	1 x RS 485 (spring-loaded terminals, 8-pole plug)
	1 x RS 232/485 (selectable)
	1 x GPRS
Memory	SD card up to 2 GB
Data points	20,000
Distributed archive	Available

Digital input modules
DI-8110/11/12/13

16 binary inputs	2 groups with 8 inputs each			
	DI-8110	**DI-8111**	**DI-8112**	**DI-8113**
Rated voltage	DC 24 V	DC 48/60 V	DC 110 V	DC 220 V
Max. operating voltage	DC 31.2 V	DC 78 V	DC 143 V	DC 253 V
Current consumption	< 5 mA	< 3 mA	< 1.5 mA	< 1 mA

Digital output module
DO-8212

8 binary outputs (relay)	4 groups with 2 outputs each; galvan. isolated	
Rated voltage	DC 24/48/60/110/220 V; AC 110/230 V	
Max. continuous current	8 outputs, each max. 3 A (5 A/1 minute)	
Switching capacity	**Direct voltage**	**Alternating voltage**
	Min. 50 mW at DC 5 V	Max. 1,250 VA; 5 A/ V 250 AC, resistive load Max. 500 VA; 2 A/ V 250 AC, cosφ = 0.4

AI-8320

AI-8320

4 analog inputs	4 groups with 1 output each; galvan. isolated	
Measure-ment range	Current measurement	-20...0...+20 mA
	Voltage measurement	-10...0...+10 V
Resolution	0.004% relative to the measuring range value	
Accuracy	0.15% at 25°C	

Analog input module
AI-8510

Inputs for measurement currents

Input voltage at I_N	225 mV as per IEC 60044-8
Max. measurement current	200% I
Rated frequency	45...65 Hz
Resolution	16 bit
Sampling	20 values per system period

Inputs for measurement voltage

Input voltage	100/√3 VAC, 230 VAC, 400/√3 VAC (parameterizable)	
Max. measurement voltage	150% U	
Rated frequency	45...65 Hz	
Resolution	16 bit	
Sampling	20 values per system period	
Intrinsic consumption	< 0.3 VA	at U=230 V
	< 0.02 VA	at U=110 V/√3

Analog input module
AI-8511

Inputs for measurement currents

Input voltage at I_N	225 mV as per IEC 60044-8
Max. measurement current	200% I
Rated frequency	45...65 Hz
Resolution	16 bit
Sampling	20 values per system period
Internal impedance	22 kΩ

Inputs for measurement voltage

Input voltage	3.25/√3 VAC
Max. measurement voltage	150% U
Rated frequency	45...65 Hz
Resolution	16 bit
Sampling	20 values per system period
Internal impedance	22 kΩ

Current transformer adapter module
CM-8820

Inputs for measurement currents

Rated current I_N	1 A/5 A (parameterizable)
Max. measurement current	200% I
Rated frequency	45...65 Hz
Intrinsic consumption	< 0.1 W at I=1 A < 0.3 W at I=5 A
Thermal withstand capability	10 A continuous 100 A 1 s

Outputs for measurement currents

Rated voltage at I_N	225 mV as per IEC 60044-8
Max. voltage	450 mV
Rated frequency	45...65 Hz

Analog output module
AO-8380

4 analog outputs	All outputs galvanically isolated
Output current	-20...0...+20 mA at max. 500 W
	-10...0...+10 mA at max. 1 kW
Output voltage	-20...0...+20 V at min. 1 kW
Accuracy	0.3% at +25°C
	0.4% at 0...+50°C
	0.7% at -20...+70°C
	0.8% at -40...+70°C

Advantages tested in practise:

Mounting and commissioning made easy

Easy mounting

- Compact DIN rail mounting
- Detection of the plugged modules during startup
- Individual combination of modules
- Consistent bus for I/O modules

Convenient engineering tools

- SICAM WEB
- SICAM TOOLBOOX II
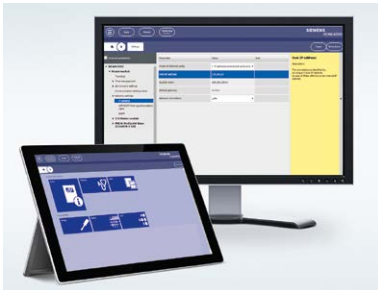
The following applies to all products that include OpenSSL IT security functions:

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).