One for all
SICAM A8000 Series

The design of the SICAM A8000 equipment series has been specifically tailored to meet market requirements and customer needs.

• From simple to complex, always adapted in line with the actual requirements of the area of application
• Fulfills cybersecurity requirements
• Use of standards ensures secure investment
• Reduced stock inventory thanks to modular platform
• Usable along the entire energy supply chain
SICAM A8000 Series
All requirements combined in a single platform

- Rough ambient conditions
- Automation
- Long product lifecycle
- Cyber Security
- Space-saving design
- High electric strength
- Integrated communication
- Scalability
A strong team
SICAM A8000 - equipped for any task

- **CP-8000**: Processor with integrated power supply and display
- **CP-8021**: Processor with external power supply
- **CP-8022**: Processor + GPRS with external power supply
- **I/O module**: Expansion modules combinable as needed
A strong team
SICAM A8000 - equipped for any task
Wherever energy flows
SICAM A8000 - universal platform allows versatile use

Hydroelectric power stations
Railway power supply
Solar and wind farms
Data nodes
Communications gateway
Transformer substations
Distribution and secondary substations
Industrial applications
SICAM A8000 - universal platform allows versatile use

SICAM A8000 Highlights

- New I/O Modules enable new applications
- CP-8050 is ready for data node applications
- Cyber Security
- Retrofit
- SICAM Device Manager
- Digitalization
The entire family at a glance
SICAM A8000 - expansion modules

**DO-8212**
8 binary outputs
DC 24/48/60/110/220 V; AC 110/230 V

**DO-8230**
Transistor output
16x binary output
DC 24-60 V

**AI-8310**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**AI-8320**
4 analog inputs
(2 groups with 2 AI each) for Pt100/Ni100 in 2-, 3-, or 4-wire design

**AI-8330**
3 inputs current/voltage
I: 225 mV as per IEC 60044-8
U: 100√3 VAC, 230 VAC, 400√3 VAC

**AI-8340**
4x VT
50 Hz and 16.7 Hz
0.2% Accuracy
2x DO for Syncrocheck

**AI-8510**
3 inputs current/voltage
I: 225 mV as per IEC 60044-8
U: 100√3 VAC, 230 VAC, 400√3 VAC

**AI-8511**
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**CM-8820**
3 inputs current
Input: 1 A/5 A (parameterizable)
Output: 225 mV according to IEC 60044-8

**DI-8110**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8111**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8112**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8113**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8111**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8112**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**DI-8113**
16 binary inputs
DC 24 V
DC 48/60 V
DC 110 V
DC 220 V

**AO-8380**
4 analog outputs
-20...0...+20 mA
-10...0...+10 mA
-10...0...+10 V

**DO-8221**
Secure command output
DC 24-220 V, AC 230 V
1-out-of-n monitoring
External wiring check

**DI-8110**
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**DI-8111**
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**DI-8112**
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**DI-8113**
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**AI-8340**
in preparation
4x VT
50 Hz and 16.7 Hz
0.2% Accuracy
2x DO for Syncrocheck

**AI-8330**
in preparation
3x CT
1A/5A
0.2% Accuracy
In conjunction with AI-8340

**AI-8430**
in preparation
4x VT
50 Hz and 16.7 Hz
0.2% Accuracy
2x DO for Syncrocheck

**AI-8510**
in preparation
3 inputs current/voltage
I: 225 mV as per IEC 60044-8
U: 100√3 VAC, 230 VAC, 400√3 VAC

**AI-8511**
in preparation
3 inputs current/voltage
I: 225 mV as per IEC 60044-8
U: 100√3 VAC, 230 VAC, 400√3 VAC

**AI-8530**
in preparation
3 inputs current/voltage
I: 225 mV as per IEC 60044-8
U: 100√3 VAC, 230 VAC, 400√3 VAC
The SICAM A8000 I/O LED module
Support during commissioning and operation

Remote I/O Adapter
Up to 16 remote I/O rows connected to CP-8050 with:
CI-8530: DC 24–60 V
CI-8532: DC 110–220 V

SICAM I/O row
Up to 8 I/O modules
DI / DO / AI / AO

SICAM I/O LED module
- 128 Process LEDs for 8 I/O Modules
- Can be added subsequently to existing I/O rows (FW Update)
- Direct FW support - No dedicated engineering necessary
- Position is free to choose right from PS-86xx/CI-853x
- Power consumption <0,6W
- Process visualization after configuration of I/O modules
- Error LEDs per Module show process errors after engineering

CM-8830
SICAM A8000 - universal platform allows versatile use

SICAM A8000 Highlights

- New I/O Modules enable new applications
- **CP-8050 is ready for data node applications**
- Cyber Security
- Retrofit
- SICAM Device Manager
- Digitalization
## SICAM A8000 CP-8050
### Enhanced Featureset – Extended Processing

<table>
<thead>
<tr>
<th></th>
<th>CPCI85</th>
<th>Up to 4x EPCI85</th>
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<tbody>
<tr>
<td>Datapoints</td>
<td>400,000 datapoints</td>
<td>400,000 datapoints</td>
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<td>4 Protocols</td>
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<td>1 PLC ressource</td>
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<td>IO acquisition (up to 16 rows)</td>
<td>CPCI85</td>
<td>EPCI85</td>
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<tr>
<td></td>
<td>1 PLC resource</td>
<td>1 PLC resource</td>
</tr>
</tbody>
</table>

- **Today’s CP-8050 Base-Firmware CPCI85**
  - Limited to 400,000 datapoints
  - Limited to 400 connections
  - Limited to 8 protocols
  - Limited to 1 PLC resource

- **Tomorrow’s Extended-Processing-Firmware EPCI85**
  - Will unlock the full potential of CP-8050 performance
  - Offer a scalable feature-set.
SICAM A8000 CP-8050
Enhanced Featureset – Redundancy Concept

Datapoints
Communication (Protocols)

Datapoints
IO acquisition (up to 16 rows)

autom. Synchronization
< 20 km via encrypted I/O Bus
> 20 km via routed IP network

Voting
Supported through Firmware
Software or Hardware Voting

Singular I/O rows in ring

Datapoints
Communication (Protocols)

Datapoints
IO acquisition (up to 16 rows)
SICAM A8000 - universal platform allows versatile use

SICAM A8000 Highlights

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Cyber Security
SICAM A8000 - meeting the requirements of tomorrow

Integrated crypto chip
Protects data in a secure environment

IPSec encryption
Enables secure communication via IP networks

Secure and reliable https protocol
Guarantees the secure transmission of sensitive data

Compliant with BDEW White Paper
Fulfills the recommendations for secure and reliable control and communication systems

TLS encryption
acc. to IEC 62351-3 for IEC104 & IEC61850

Security Logbook
Non-volatile storage of SYSLOG events
Cyber Security
SICAM A8000 - additional features with SICAM CP-8050

Firewall
For the separation of TCP/IP networks via integrated software firewall or additional hardware-based application firewall

Firmware Signature
Protection against firmware manipulation

Configurable System Functions
Selective activation of individual or multiple system functions per communication interface

Role Based Access Control
RBAC in accordance with IEC 62351-8 ensures that users may exercise only the rights that correspond to their assigned role

Certificate Exchange
Via EST & SICAM GridPass

Authenticated NTP
Client & Server

LDAP Client
Certificate based LDAP authentication acc. to IEC 62351-8
SICAM A8000 - universal platform allows versatile use

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SICAM A8000
Retrofit of SICAM MIC, EMIC and SICAM TM applications

Migration Scenario for SICAM I/Os

- SICAM A8000 CP-80xx support SICAM I/Os
- Coupling module is available
- PLC can be transferred via Engineering Tool
- Homogenous I/O rows needed
SICAM A8000 - universal platform allows versatile use

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SICAM Device Manager:
The intuitive engineering tool for SICAM A8000

Offline parameterization

Online connection with device via SICAM WEB

Duplication of devices

automatization functions via integrated CFC editor

Project and device management
For CP-8000/CP-802x
For CP-8050

Customer benefits

- Simple, clear management of projects and devices in folder structures
- Little time and effort needed for parameterization thanks to duplication of devices and automatic adjustment of specific parameters
- Full compatibility between SICAM WEB and Device Manager
- Look-and-feel correspond to SICAM WEB
SICAM A8000 - universal platform allows versatile use

SICAM A8000 Highlights

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- Retrofit
- SICAM Device Manager
- Digitalization
Vision for SICAM A8000: Edge computing platform for Digital Grid

**Edge Computing**
- Run tailored Customer Apps on A8000
  - Provide SDK to design APPs
  - Integrate MATLAB/Simulink code
  - Grid voltage or closed loop control for Micro grid
  - Independent deployment and lifecycle

**IoT Connectivity**
- Provide interoperable IoT connectivity based on standards

**Upgrade Strategy**
- Enable legacy devices with IoT
- Zero configuration change
- Highest degree of security
- Migration for telecontrol protocols

**Cloud based Services**
- Provide data for central services to leverage investment in automation and monitoring
  - e.g. SICAM Navigator

**Mobile Dashboard**
- Provide data for mobile services to leverage investment in automation

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Schachinger Michael / SI DG SA&P PR AT-PLM
SICAM A8000 - universal platform allows versatile use

SICAM A8000 Highlights

- New I/O Modules enable new applications
- CP-8050 is ready for data node applications
- Cyber Security
- Retrofit & Packing density
- SICAM Device Manager
- Digitalization
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