Digital Grid Products
At a Glance
Protection, Substation Automation, Power Quality
## Digital Grid Products
Broadest portfolio – strong brands

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<th>Substation Automation, RTU's</th>
<th>Power Quality Feeder Automation</th>
<th>Protection</th>
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<tr>
<td>SICAM</td>
<td>SICAM, SIPROTEC</td>
<td>SIPROTEC, Reyrolle</td>
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SICAM A8000 Series – Wherever energy flows
**SICAM A8000 Series:**
All requirements combined in a single platform

<table>
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<tr>
<th>Feature</th>
<th>Details</th>
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<td>Rough ambient conditions</td>
<td>-40 ... +70° C</td>
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<td>Automation</td>
<td>PLC - IEC 61131-3</td>
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<td>Long product lifecycle</td>
<td>15+ years</td>
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<td>Cyber Security</td>
<td>IPSec, crypto-chip etc</td>
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<td>Space-saving design</td>
<td>128x124x123mm (W/H/D)</td>
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<td>High electric strength</td>
<td>EMC 5kV (IEC 60255-5)</td>
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<td>Integrated communication Protocols</td>
<td>GPRS</td>
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<td>Scalability</td>
<td>Modules</td>
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A strong team:
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
The entire family at a glance:
Power supply units, processor modules, and remotely installed expansion module

**SICAM CI-8520 / 21**
- CI-8520 Ethernet communication interface
- CI-8521 Ethernet hardware-based application layer firewall

**SICAM CP-8050**
- max. 16 I/O lines (max. 8 expansion modules / line)
- max. 14 interfaces (modular)

**SICAM CP-8050**
- PS-8640 DC 24–60 V, 45 W
- PS-8642 DC 110–240 V, AC 230 V, 45 W
  - Contact wetting DC 24 V
  - Watchdog contact

**SICAM CI-8530 / 32**
- CI-8530 remote interface module electrical DC 24–60 V
- CI-8532 I/O remote interface module electrical DC 110–220 V
The entire family at a glance: Expansion modules

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

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

**AI-8310**
- 4 analog inputs
  - (2 groups with 2 AI each) for Pt100/Ni100 in 2-, 3-, or 4-wire design

**AI-8320**
- 4 analog inputs
  - -20...0...+20 mA
  - -10...0...+10 V

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

**CM-8820**
- 3 inputs current
  - I: 1 A/5 A (parameterizable)
  - Output: 225 mV in accordance with IEC 60044-8

**Integration of functionality of SICAM FCM**

**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**
- I: 225 mV as per IEC 60044-8
  - U: 3.25/√3 VAC
Wherever energy flows:
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
Convenient engineering: Parameterization, commissioning and operation

with SICAM WEB

with SICAM TOOLBOX II
Cyber Security: 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

- **Password-protected access to SICAM TOOLBOX II**
  - Ensures that only authorized persons can access your system

Secure and reliable https protocol ensures the secure transmission of sensitive data, IPSec encryption enables secure communication via IP networks, and the integrated crypto chip protects data in a secure environment. Compliance with the BDEW White Paper fulfills the recommendations for secure and reliable control and communication systems. Password-protected access to SICAM TOOLBOX II ensures that only authorized persons can access your system.
Cyber Security: Additional features with SICAM CP-8050

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

Firmware Signature
Protection against firmware manipulation

Security Logbook
Non-volatile storage of SYSLOG events

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

Configurable System Functions
Selective activation of individual or multiple system functions per communications interface
Flexible communication:
Diverse range of interfaces and protocols

Flexible integration into an existing communications infrastructure through the support of standard protocols, legacy systems, and protocols from third-party manufacturers:

- IEC 61850
- IEC 60870-5-10
- DNP3.0 serial/TCP
- Modbus RTU/TCP
- Additional protocols upon request

Multiple communication options:

CP-8050
- 2 x RJ45 (Ethernet)
- 1 x RS 232 (RJ45)
- 1 x RS 485
- 10 x RJ45 (Ethernet) optional with CI modules

CP-8022
- 2 x RJ45 (Ethernet)
- 1 x RS 232 (RJ45)
- 1 x RS 485
- 1 x RS 232/485 (selectable)

Integrated GPRS modem

CP-8000 / CP-8021
- 2 x RJ45 (Ethernet)
- 1 x RS 232 (RJ45)
- 1 x RS 485

Multiple communication options:

- 2 x RJ45 (Ethernet)
- 1 x RS 232 (RJ45)
- 1 x RS 485
- 1 x RS 232/485 (selectable)
A strong team:
Simple to install

- Compact DIN rail mounting
A strong team: Simple to install

- Compact DIN rail mounting
- Consistent bus for I/O modules
A strong team:
Simple to install

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