

SAFE MONITORING OF THE ELECTRICAL INFRASTRUCTURE

SCALABLE SOFTWARE FOR
SMART DATA ACQUISITION, DATA
VISUALIZATION AND AN ENERGY
MANAGEMENT SYSTEM





High quality artwork for an optimised HMI experience and full functionality



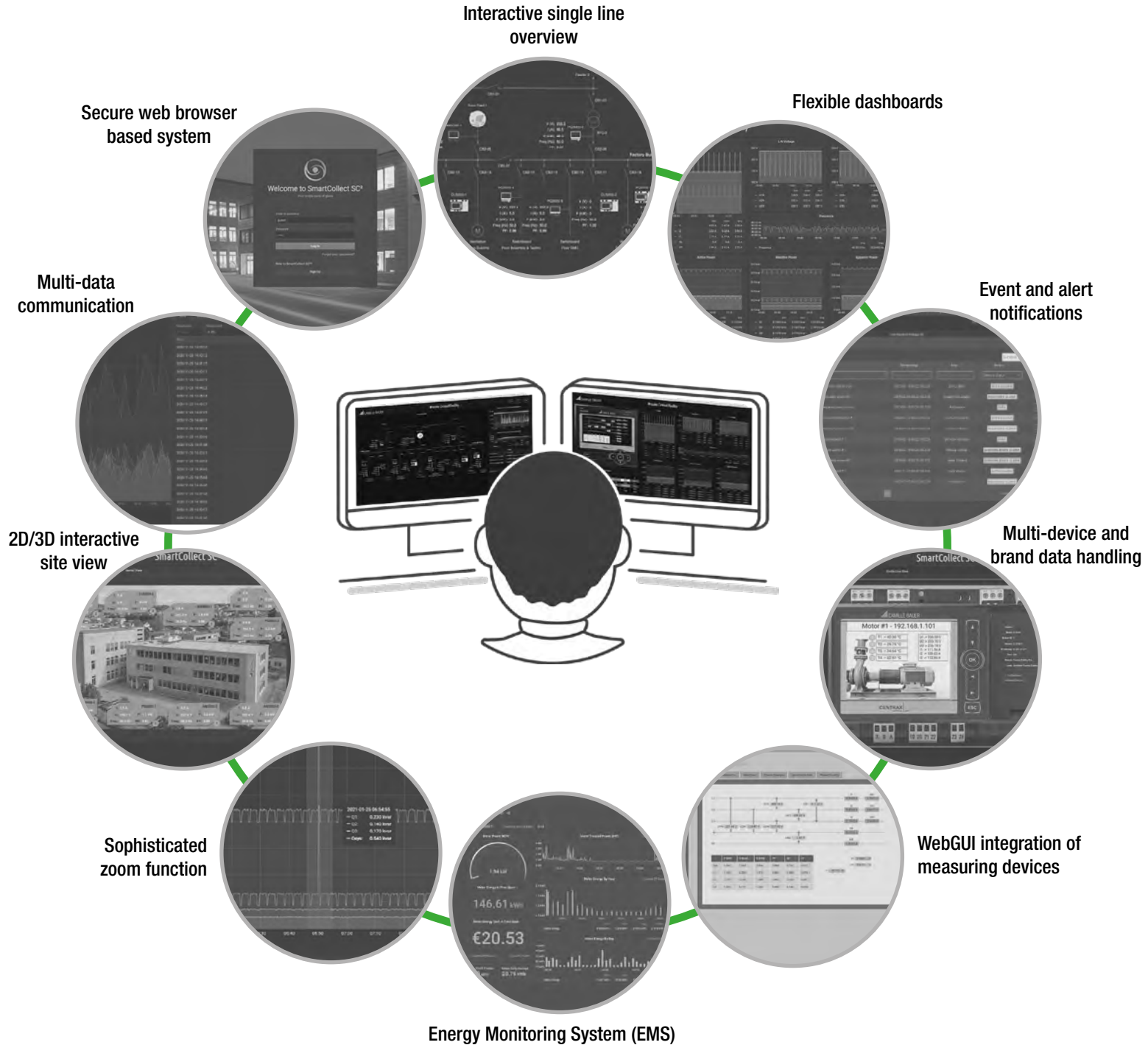
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Please ask for a demo access at: info@scada-smartcollect.com



SIMPLICITY AND USER FRIENDLINESS ARE THE KEY

SMARTCOLLECT® SC² SYSTEM OVERVIEW



SMARTCOLLECT® SC² is a scalable HMI/SCADA software for the visualization of electrical distribution and other physical parameters. Unlike other SCADA software, SMARTCOLLECT® SC² is built on a new,

ultra-modern platform with a visually pleasing 2D/3D web-based graphical user interface. Powerful communications and software interfaces, expansion options, ease of use and an affordable price are just some of the other

user benefits of SMARTCOLLECT® SC². Just one look at SMARTCOLLECT® SC² makes you wonder how you used anything else before.

CONSCIOUS SIMPLICITY

Interactive single line overview

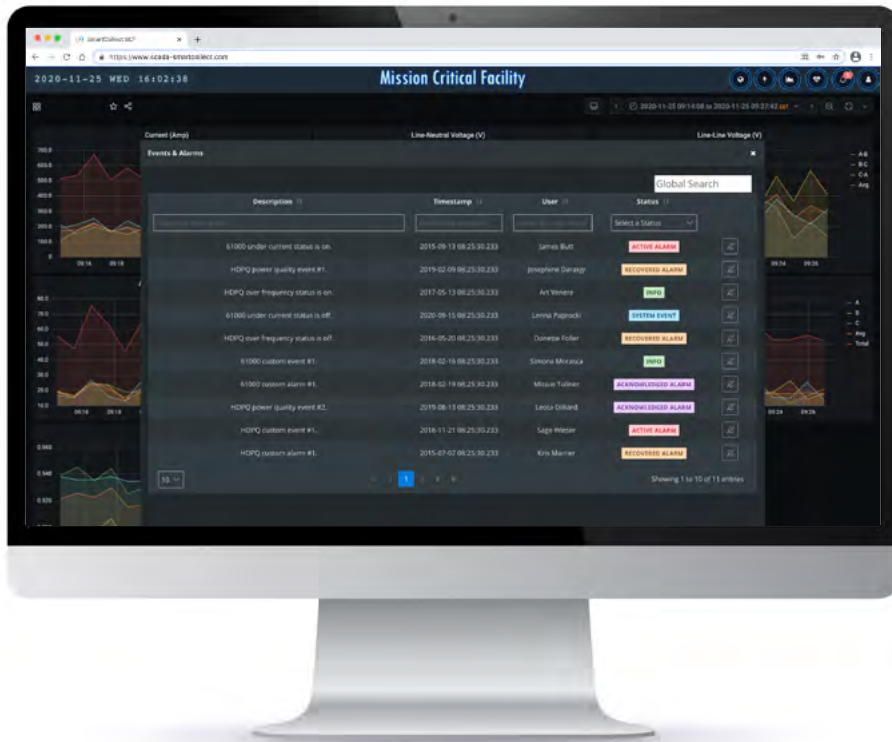
Permanent monitoring of all integrated circuits in the infrastructure with a brief overview of instantaneous measurement values. The single line overview is a customized function that is based on the individual application design.



Flexible dashboards

The modern dashboard displays all the necessary information with high fidelity for relevant and critical measures. The data design is customized based on the application and user demand while remaining flexible for future adjustments.





Event and alert notifications

The software has different options for event and alert notifications. For power quality event notifications, details can be read out at standard level for Camille Bauer devices from the integrated webGUI. Status, event and warning messages can be output both visually (e.g. traffic lights, etc.) and acoustically (e.g. internal PC loudspeaker, external signal).

Multi-device and brand data handling

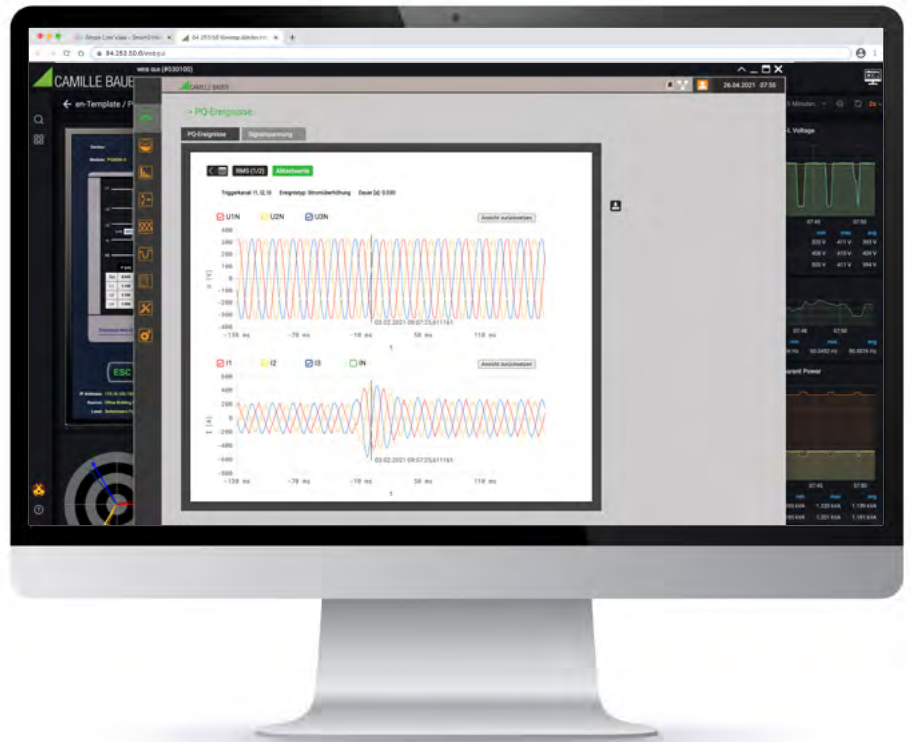
The software links with multiple devices and can integrate different measurement devices and sensors of any brand. In addition, other data beside physical parameters can be displayed, including virtual channels.



CONSCIOUS SIMPLICITY

Individual WebGUI integration

The software supports individual integration of device WebGUIs. This gives the user access to additional information and remote configuration options, depending on the device.



Energy Monitoring System (EMS)

The high degree of data acquisition allows full transparency of energy data. For analytic purpose (e.g. reducing CO₂ emission, increasing energy efficiency as well to evaluate potential saving) the EMS supports different panel views inside the EMS dashboard. Various manual or automatic reporting functions supports the individual business intelligence.

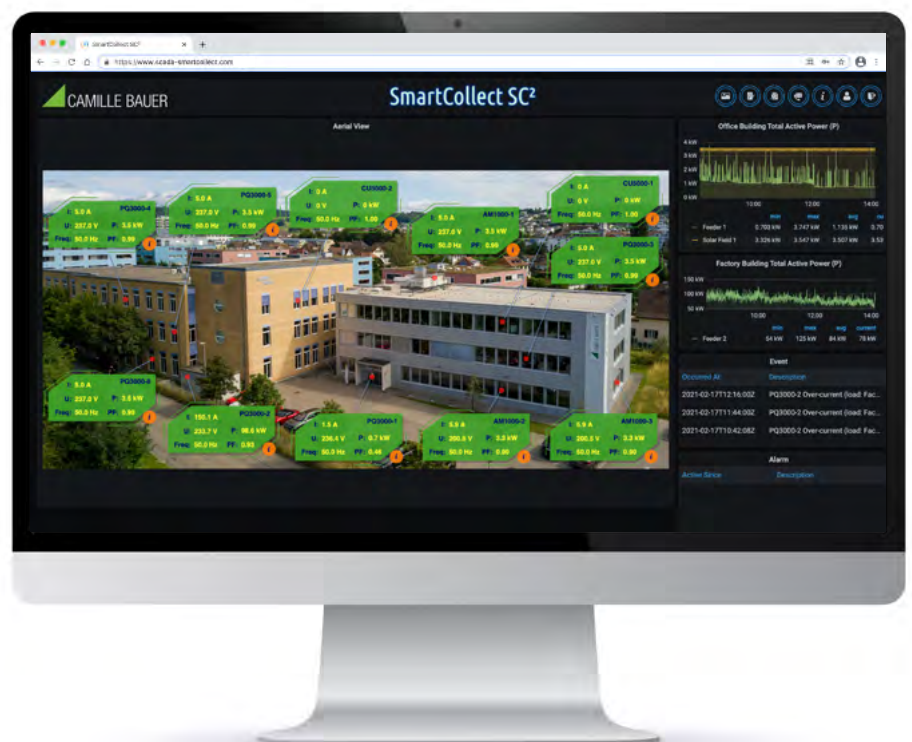


Sophisticated zoom function

The dashboard can be used for deep analysis with the zoom function. In the dashboard overview the zoom will synchronize all parameters so that all associated parameters can be viewed in relation to the zoomed-in data.

Interactive 2D/3D aerial view

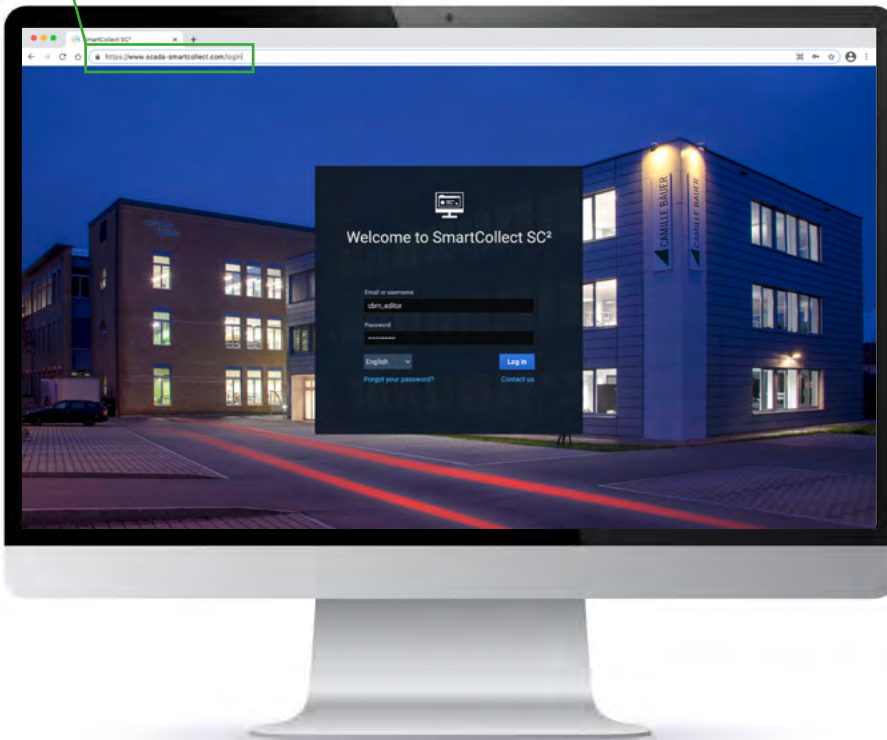
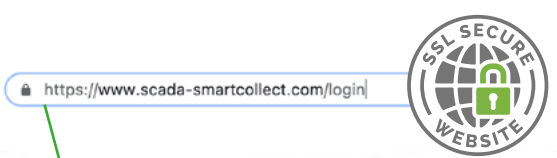
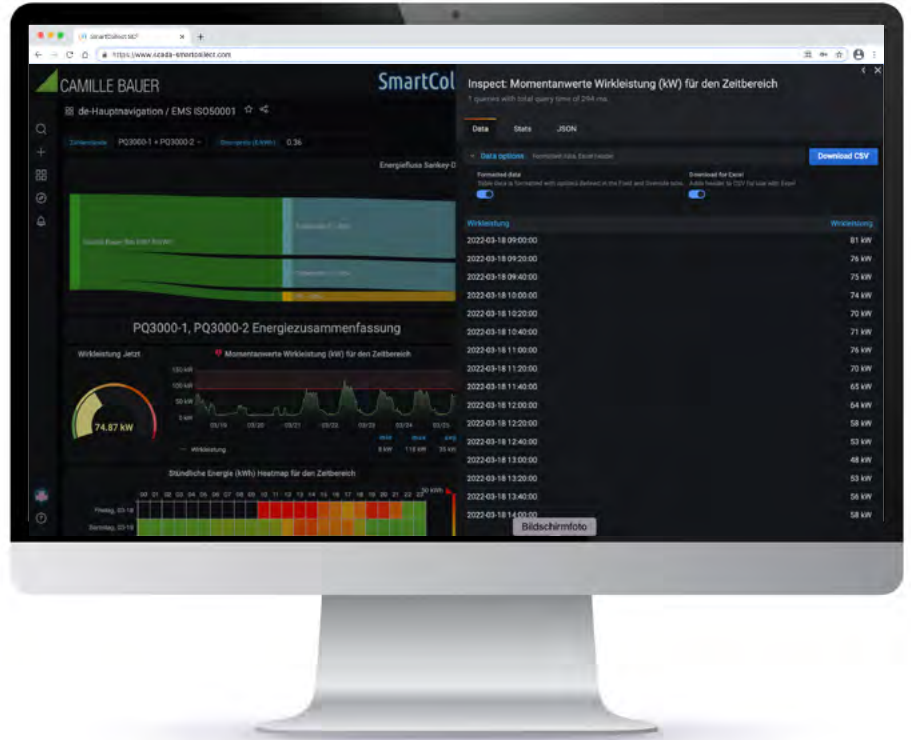
The main feature of the aerial view is the use of an image of the site(s) as the background. Brief info boxes point to locations where the measuring devices are situated. The info box has a specific name and contains a brief overview of the instantaneous measurement values



CONSCIOUS SIMPLICITY

Multi-data communication

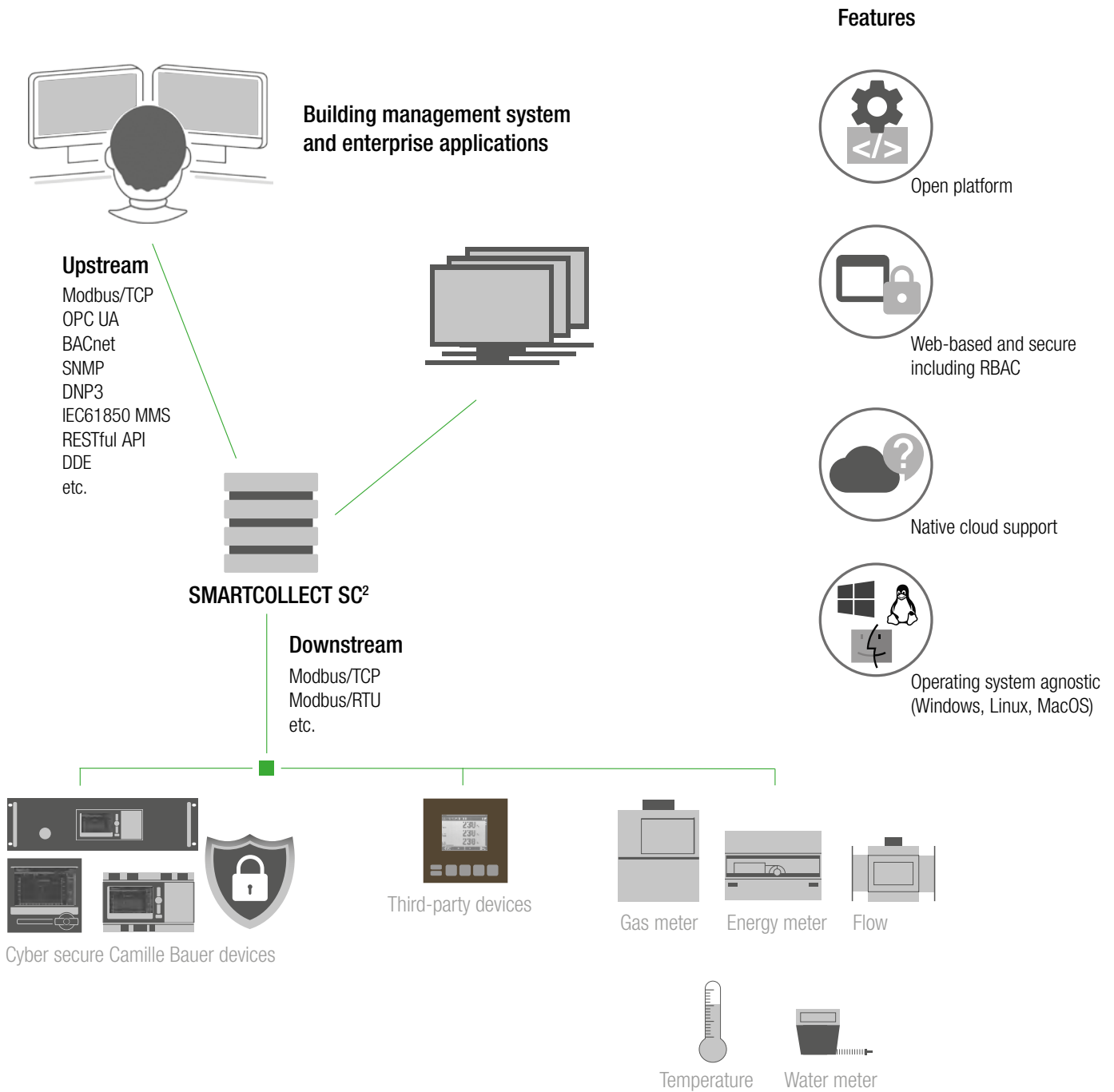
The software offers various data formats for incoming, outgoing and protected data. Data is exported in CSV format as well as CSV Excel format by default. Other formats can be programmed and configured individually.



Secure web-based system

The software is based on a modern and intuitive secure web application compatible with most common web browsers. The application needs no specific client software and runs on most common operating systems (OS) such as Microsoft Windows, Linux and MacOS, and provides intuitive cloud support.

SYSTEM OVERVIEW



RECOMMENDED SYSTEM REQUIREMENTS:	SYSTEM	CPU	MEMORY	HARD DISK	SCREEN RESOLUTION	BROWSER *
Starter Edition	Windows 10 x64	2 CPU cores	4GB (+4GB with EMS)	250GB	1920x1080	Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Edge
Standard Edition		4 CPU cores	12GB (+4GB with EMS)	500GB		
Professional Edition		4 CPU cores	20GB (+4GB with EMS)	1TB		
Enterprise Edition		4 CPU cores	20GB (+4GB with EMS)	1TB		

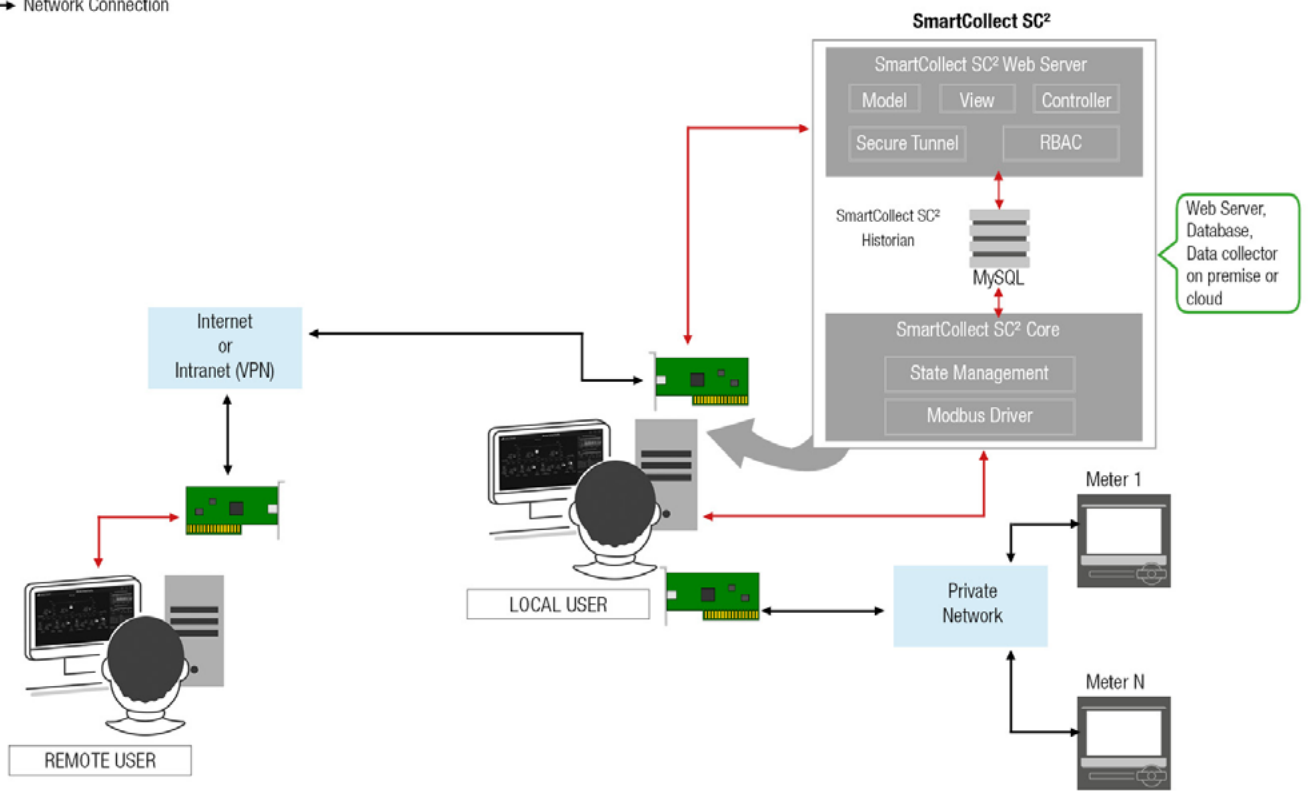
* **Attention:** Please always use latest browser version. Sometimes browser negatively influences the software performance. In case of performance issues please check for a newer version of your browser or try another browser.

INSTALLATION SCENARIOS

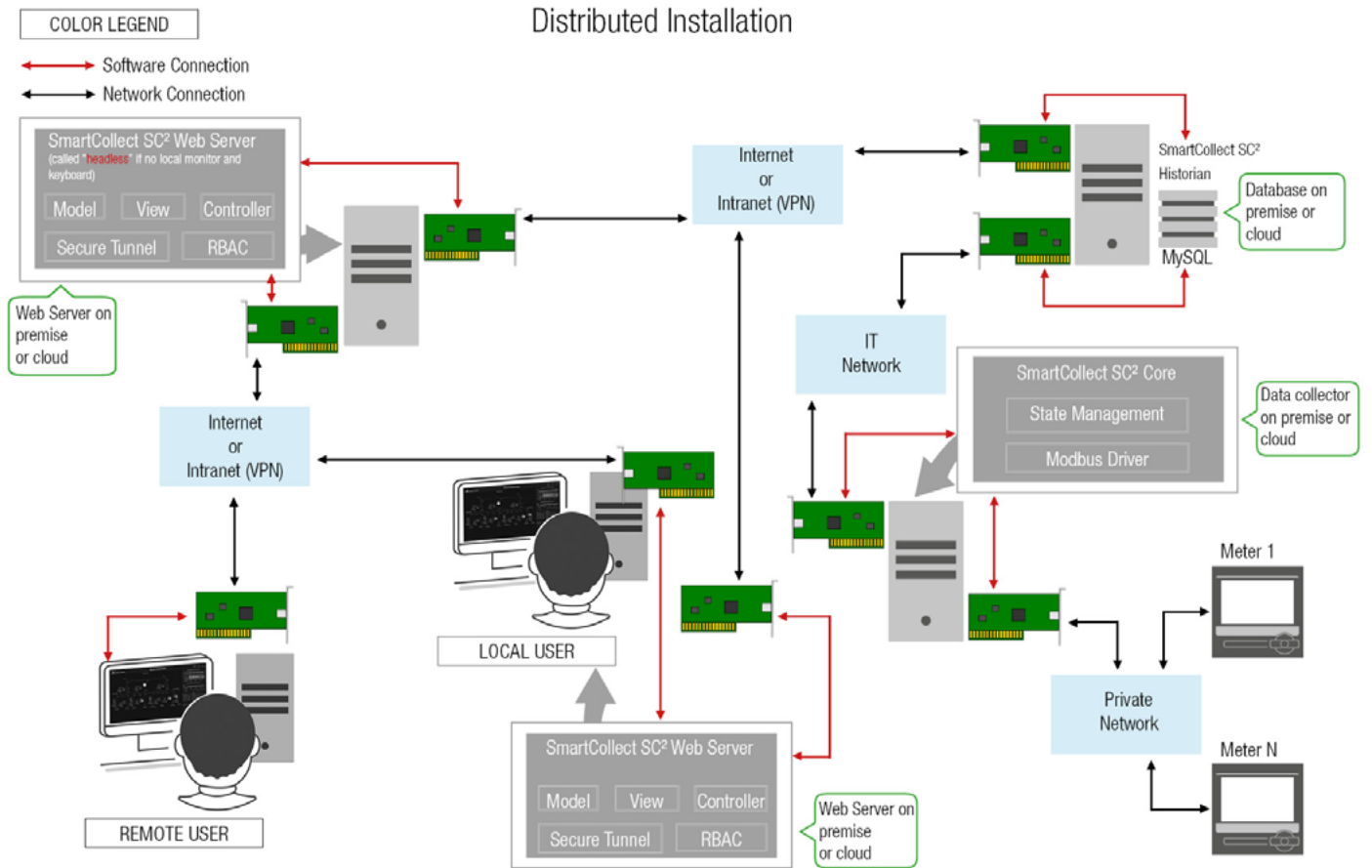
COLOR LEGEND

- ↔ Software Connection
- ↔ Network Connection

Single Node Installation



Distributed Installation



OVERVIEW OF SMARTCOLLECT SC² VERSIONS

System features	Starter Edition	Standard Edition	Professional Edition	Enterprise Edition
Communication driver upstream all server variants				
Modbus/TCP Server ⁽²⁾			✓	✓
OPC UA/DA Server			✓	✓
BACnet Server			✓	✓
SNMP Server			✓	✓
DNP3 Server			✓	✓
IEC60870-5-104			(4)	(4)
IEC61850 MMS Server			✓	✓
RESTful API Server			✓	✓
DDE Server			✓	✓
Communication driver downstream all client variants				
Modbus/TCP Client ⁽¹⁾	✓	✓	✓	✓
Modbus/RTU over TCP Client ^{(1) (3)}		✓	✓	✓
OPC UA/DA Client			✓	✓
BACnet Client			✓	✓
SNMP Client			✓	✓
DNP3 Client			✓	✓
IEC60870-5-104			(4)	(4)
IEC61850 MMS Client			✓	✓
RESTful API Client			✓	✓
DDE Client			✓	✓
Feature component				
Login screen	✓	✓	✓	✓
Interactive one-line (single line) with live data overlay (SLD)	✓	✓	✓	✓
Measuring device quick view screen	✓	✓	✓	✓
Measuring device dashboard screen	✓	✓	✓	✓
Measuring device webgui view ⁽⁶⁾	✓	✓	✓	✓
Event/alert screen	✓	✓	✓	✓
Role-based access control (RBAC)	✓	✓	✓	✓
Internationalization ⁽⁶⁾	✓	✓	✓	✓
HTML online help	✓	✓	✓	✓
Energy Monitoring System (EMS) Screen	✓	✓	✓	✓
Energy Monitoring System (EMS) Reporting		✓	✓	✓
Custom dashboards		✓	✓	✓
3rd-party device integration ⁽⁷⁾		✓	✓	✓
Export dashboard/report data as CSV		✓	✓	✓
2D-Management View		✓	✓	✓
3D-Management View				✓
Summary PQ Event Notification ⁽⁸⁾		✓	✓	✓
Interactive one-line (single line) with live animation ⁽⁹⁾			✓	✓
2D imagery background with live animation ⁽⁹⁾			✓	✓
3rd-party web app (WebGUI) embedding			✓	✓
E-mail notification „Standard“	✓	✓	✓	✓
E-mail notification „Enterprise“ ⁽¹³⁾				✓
SMS notification		(4)	(4)	(4)

System features	Starter Edition	Standard Edition	Professional Edition	Enterprise Edition
Architecture/technology				
Browser-server (BS)	✓	✓	✓	✓
HTTPS	✓	✓	✓	✓
Secure WebSocket (wss)	✓	✓	✓	✓
HTML5/CSS3	✓	✓	✓	✓
SVG	✓	✓	✓	✓
WebGL (3D)	✓	✓	✓	✓
Operating system				
Windows XP SP3 and above	✓	✓	✓	✓
MacOS		✓	✓	✓
Linux			✓	✓
Deployment/installation				
On Premise on customer system (server, PC, etc.)	✓	✓	✓	✓
Cloud (Virtual Server, e.g. MS Azure, Google Cloud, Amazon AWS, custom, etc.)		✓	✓	✓
Database integration				
MySQL Client (integrated standard database)	✓	✓	✓	✓
MySQL Server		✓	✓	✓
Microsoft SQL Client				✓
Microsoft SQL Server				✓
PostgreSQL Client				✓
PostgreSQL Server				✓
Ad-hoc features				
Retrieving, archiving and displaying device's local Data recording / Event log / Waveform capture ⁽¹⁰⁾				✓
I/O tags ⁽¹¹⁾				
≤ 250 ⁽⁶⁾	✓ ⁽¹²⁾			
Tier 1 < 500		✓	✓	
Tier 2 < 2,500			✓	
Tier 3 < 5,000				✓
Tier 4 > 5,000				✓

⁽¹⁾ also known as Modbus Master. To read data from devices via Modbus protocol

⁽²⁾ also known as Modbus Slave. To feed data to other hosts via Modbus protocol

⁽³⁾ also known as Modbus Encapsulated TCP. To read a Modbus/RTU device behind a device server via a generic TCP connection

⁽⁴⁾ On request

⁽⁵⁾ If available and only with https

⁽⁶⁾ The GUI will use not more than one language of customer's choice

⁽⁷⁾ Foreign 3rd-party brands on request

⁽⁸⁾ For connected LINAX PQXXX devices, PQ events are listed and can only be read out and analysed from the device web page or by means of external software

⁽⁹⁾ Changing the color of lines/shapes based on values, blinking texts/lines/shapes based on values, fill color in shapes to certain level based on values, rotation of shapes (like the phasor diagram), Switch positions, etc.

⁽¹⁰⁾ Customer to provide sample device and documentation. Extra 4-8 weeks R&D

⁽¹¹⁾ Tag = visual value point on the GUI, e.g. U1 = 1 tag, I1 = 1 tag, 1 virtual channel = 1 tag, etc.

⁽¹²⁾ Support for up to 10 devices, with each device having the following maximum 25 tags fixed:

- I1, I2, I3, Iavg
- U1N, U2N, U3N, Unavg
- P1, P2, P3, Ptotal
- Q1, Q2, Q3, Qtotal
- S1, S2, S3, Stotal
- PF1, PF2, PF3, Pftotal
- Frequency

⁽¹³⁾ Notification system in case of complex infrastructures (aggregation of notifications as well as reduction of individual messages)

If you have a request concerning a feature (e. g. Power Quality) that is not listed here, please contact Camille Bauer Metrawatt AG

EMS (ENERGY MONITORING SYSTEM) EDITIONS - COMPARISON TABLE

STAND-ALONE (WITHOUT SCADA)

System functions	Starter Edition (< 50 devices/meters)	Standard Edition (< 500 devices/meters)	Professional Edition (> 500 devices/meters)
User Interface			
Individuelle Dashboards	✓	✓	✓
Energy Monitoring System (EMS) Screen	✓	✓	✓
Export dashboard/reporting data as CSV	✓	✓	✓
Energy Monitoring System (EMS) Reporting	✓	✓	✓
Role-based access control (RBAC)	✓	✓	✓
HTML online help	✓	✓	✓
Architecture/Technology			
Browser-Server (BS)	✓	✓	✓
HTTPS	✓	✓	✓
WebSocket, encrypted (wss)	✓	✓	✓
HTML5/CSS3	✓	✓	✓
SVG	✓	✓	✓
Operating system			
Windows XP SP3 and higher	✓	✓	✓
Deployment/Installation			
On Premise on customer system (server, PC, etc.)	✓	✓	✓
Cloud (Virtual Server, e.g. MS Azure, Google Cloud, Amazon AWS, custom, etc.)	✓	✓	✓
Database integration			
MySQL Client	✓	✓	✓
MySQL Server	✓	✓	✓

EXAMPLES OF EMS DASHBOARDS



Display with Sankey diagram and active power graph



Instantaneous values with alert line



Heatmap for displaying the utilization over time



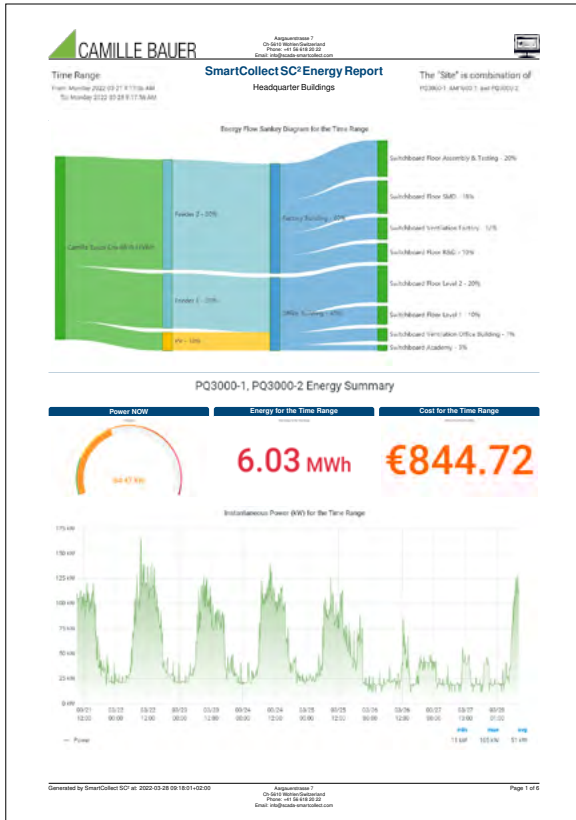
Graphics for individual measurement locations, incl. aggregation of measurement locations via time variable



Graphics for evaluations over day, month and years

EXAMPLES OF ENERGY REPORTS

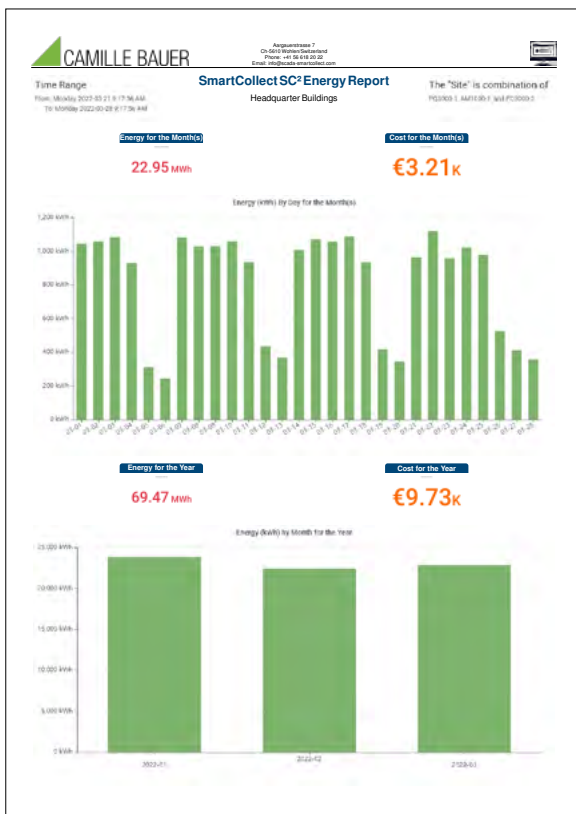
The reports reflect the same data from the dashboard in the form of a PDF. The reports can be generated either manually or via a scheduler.



Energy flow Sankey diagram and instantaneous values of active power for the selected time range



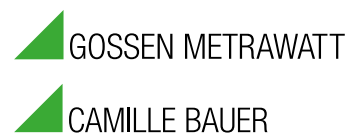
Hourly energy (heatmap) and daily energy for the selected time range



Daily energy for the month and monthly energy for the year



GMC INSTRUMENTS



Camille Bauer Metrawatt AG
Aargauerstrasse 7 • 5610 Wohlen • Switzerland
TEL +41 56 618 21 11 • FAX +41 56 618 21 21

www.camillebauer.com • info@cbmag.com