SAUTER modulo 6

Targeted performance for IoT architecture

SAUTER

Creating Sustainable Environments.

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SAUTER

Your partner for future-oriented solutions – modulo 6 takes you into the age of digitalisation.

Experience from recent years has clearly shown that future building automation will require powerful processors to handle large volumes of data, while at the same time being easier to use. The system seamlessly integrates with the Internet of Things (IoT) and uses the latest cloud technologies. Because it has opened up to the world of IoT, the system has to be protected from cyber attacks. In times of fast-moving technological trends, long term availability of system components is expected. Modernisation of existing systems and efficient commissioning without interrupting operations make a significant contribution towards protecting investments.

We at SAUTER are meeting these challenges, and the modulo 6 system generation builds the bridge between long-proven building technology and current trends in digitalisation.

Impressive performance

- Processes large amounts of data while retaining compact dimensions
- High memory capacity for logging data over several years
- High processing and reaction speed for precise control

Intuitive operation

- Integrated „moduWeb Unity" web server for operation
- Commissioning and maintenance via smartphone and Bluetooth
- „LOI" local operating unit with high-resolution, colour graphic display for priority operation (EN ISO 16484-2) independently from the automation station

Perfect integration

- BACnet/IP
- Field bus protocols: Modbus, M-Bus, KNX, BACnet MS/TP, SMI, DALI
- Combines heating, ventilation, air conditioning and power supply into a stable and secure overall system

IoT and cloud

- Integration of IoTs with MQTT
- Data backup via MQTT in the cloud
- Cloud services for control, operation and engineering
- Optimised operation from analysis of consumption and usage data in the cloud
- No more costs for local data centres

Maximum security

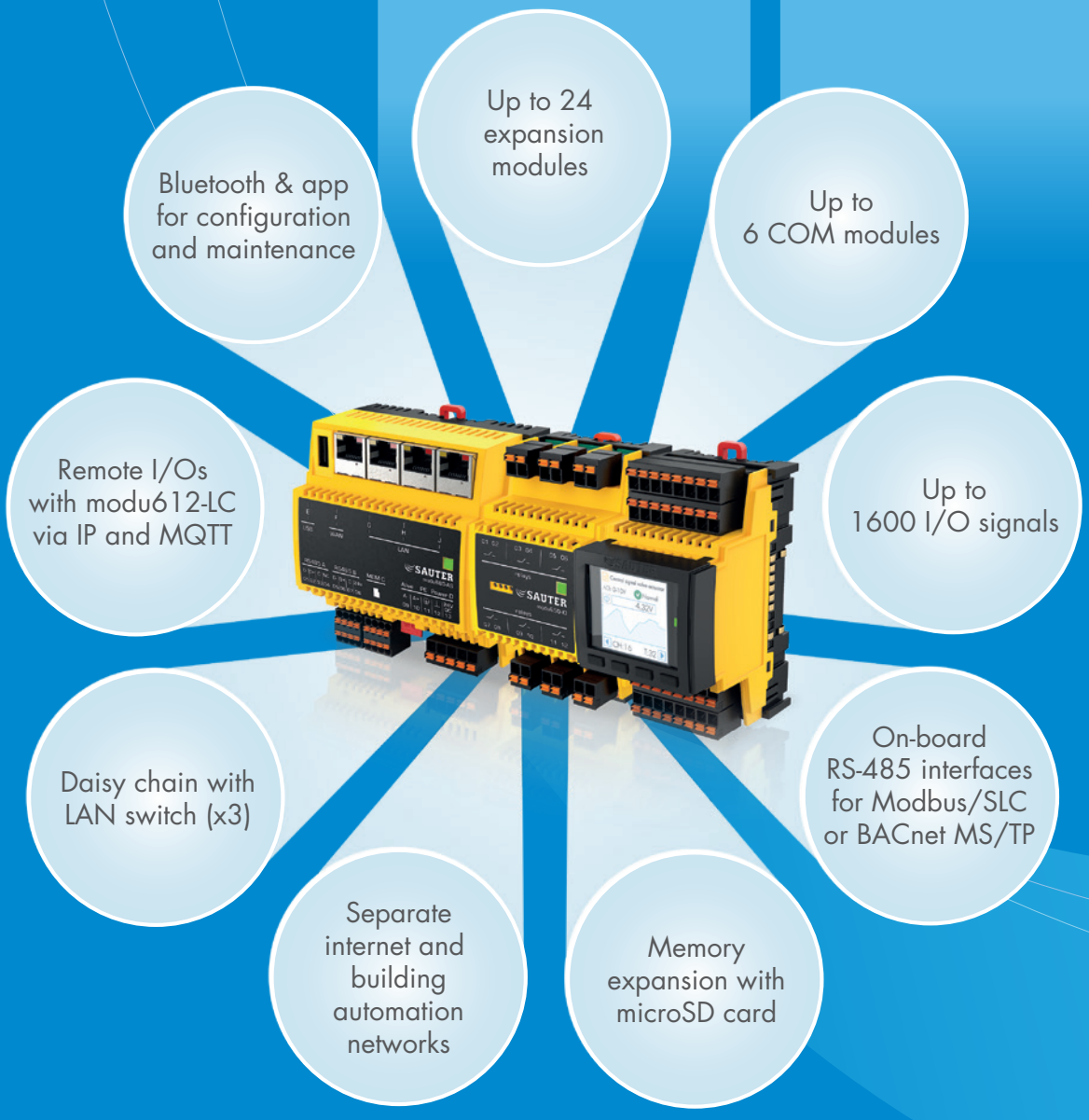
- Integrated network separation of internet and building technology
- Web server with encrypted communication
- BACnet SC-capable
- Integrated user authentication
- All user actions traceable thanks to audit trail

Guaranteed investment protection

- Backwards compatible with modulo 5
- Long term availability
- Allows modernisation of existing systems in cost effective stages

SAUTER automation stations:
Where expertise makes the difference

modu680-AS	modu660-AS
» Up to 1600 I/O objects	» Up to 800 I/O objects
» Up to 24 modules, 6 COM	» Up to 24 modules, 6 COM
» Expandable memory capacity with SD card, USB	» Expandable memory capacity with SD card, USB
» Bluetooth BLE 4.0	» Bluetooth BLE 4.0
» SLC, Modbus	» SLC
» 3 x LAN connections (switch)	» 2 x LAN connections (switch)
» 1 x WAN connection	
» Web server: Commissioning & operation	» Web server: Commissioning & operation



Impressive performance

modulo 6 is built for the challenges of the future.

The key aspect of future-oriented building management systems is the power of the technical systems. In the age of digitalisation and the IoT, fast and reliable processing of large amounts of data is becoming increasingly important. Efficient building technology now requires real-time communication with a variety of networked devices. The increasing density of production, office and living space requires ever smaller devices.

A single automation station can process up to 1600 sensor or actuator signals. The modular concept of the system enables tailor-made services for the most diverse requirements with optimised total costs: From simple heating and ventilation control right up to networked building clusters. The limits are set by you – our customers – not by the system.

Easy installation:
» Plug-in connection technology
» Modular design, modules exchangeable from the front

DIN rail housing for space-saving installation in cabinet or electrical sub-distributor

Intuitive operation

It's so easy to use modulo 6.

The intuitive operation of modulo 6 allows processes that are as efficient as they are reliable. You can connect your smartphone or tablet via Bluetooth. A free app allows quick access to all relevant measured values, control variables and system parameters.

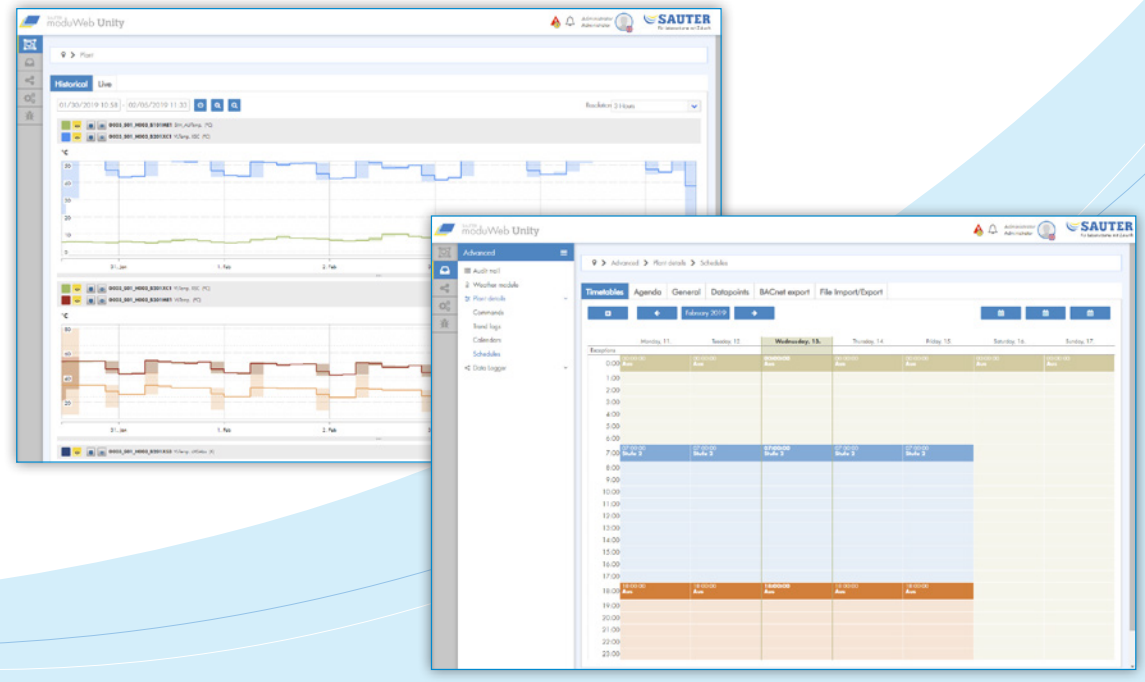
Tailor-made flexibility is an advantage that characterises all technological innovations from SAUTER. As an alternative to a smartphone, modulo 6 can also be controlled via a local "LOI" operating unit with a high-resolution, colour graphic display. The LOI is plugged into an I/O module and immediately shows all the relevant data of the module in real time. The compact device is operated using a menu and 4 buttons.

The I/O signals are displayed graphically and numerically. The display can even map and show the course of analogue and digital signals over time. With the optional modu601-LC power injector, the I/O modules are also independent of the automation station's power supply, thus ensuring separate priority operation according to EN ISO 16484-2.

One step ahead of tomorrow's requirements

Operators and facility managers have an overview of the automation station at all times with the embedded "moduWeb Unity" HTML5 web server. The moduWeb Unity graphical user interface makes it possible to display and operate entire buildings, zones, individual rooms and technical systems.

The structured representation of BACnet objects, the graphical calendar, time programmes and trend logs allow building technicians to carry out their daily tasks easily and efficiently.



Perfect integration

Thought out to the finest detail.

modulo 6 speaks the languages of intelligent buildings of the future, integrating all the specialised communication protocols of heating, ventilation, air conditioning, lighting, blinds and energy systems. This means that users experience smooth and perfectly interlinked processes. As a BACnet-certified partner, SAUTER offers its customers future-oriented solutions that are cost effective for years to come. The SAUTER programming tools, which are based on many years of experience, integrate a wide range of different subsystems into a stable and secure overall system. Technologically, you benefit from SAUTER Local Communication (SLC), RS-485 interfaces, COM modules for field buses, up to 4 IP connections and new protocols.

The BACnet (Building Automation Control Network) open communication standard is the backbone of our building automation. It is the interface which our controllers and automation stations use to communicate.

BACnet has established itself as the main protocol in building automation thanks to its open standards, its focus on interoperability and its certification. BACnet makes it possible to achieve complete integration between systems and installations, from the control system through to operation and monitoring.

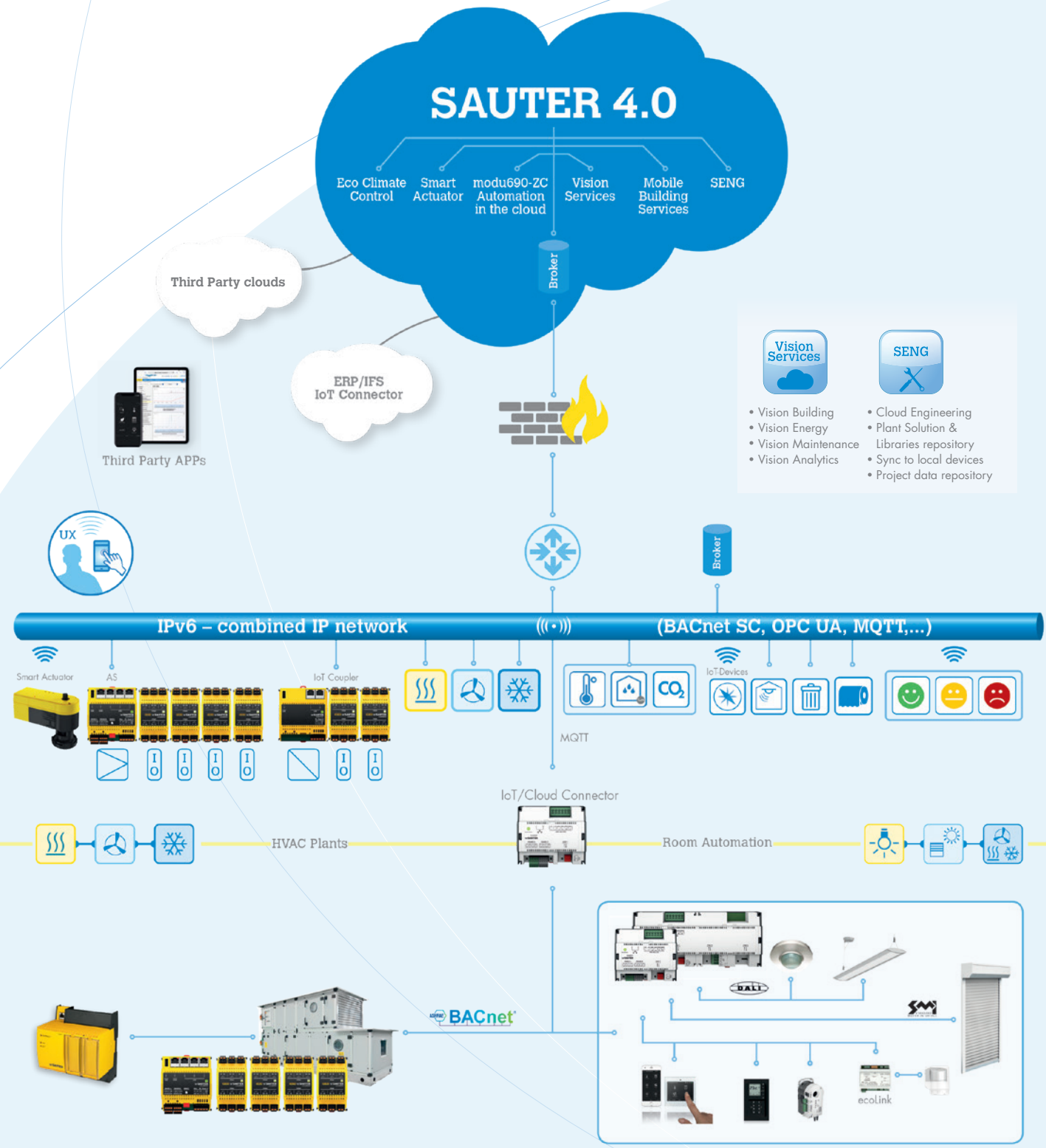
ASHRAE BACnet®

Since October 2003, BACnet (Building Automation and Control Network) has been the worldwide standard EN ISO 16484-5 for open communication in building automation. The BACnet organisation brings together all the activities relating to standardisation and the further development of the standard. The latest (2018) BSRIA study "Market Penetration of Communications Protocols" gives BACnet a market share of over 60%.

With Vendor ID 80, SAUTER was one of the first European manufacturers to use products based on the BACnet standard. Today, SAUTER is one of the world's leading manufacturers of BACnet products. SAUTER is actively involved in the further development of the standard and is represented in all the international working groups. By 29 January 2019, 1125 Vendor IDs had been awarded.

Additional modular components offer holistic solutions:

- M-Bus: For recording energy meters
- Modbus: For integrating assemblies (heat pumps, cooling systems, actuators, etc.)
- KNX: Widely used bus system for electrical installation
- DALI: For lighting control
- SMI: Interface for controlling electronic window blind actuators and glare protection
- MQTT: Communication protocol of the Internet of Things (IoT)


SAUTER 4.0
Eco Climate Control
Smart Actuator
modu690-ZC Automation in the cloud
Vision Services
Mobile Building Services
SENG
Broker
Third Party clouds
ERP/IFS IoT Connector
Third Party APPs
Vision Services
• Vision Building
• Vision Energy
• Vision Maintenance
• Vision Analytics
SENG
• Cloud Engineering
• Plant Solution & Libraries repository
• Sync to local devices
• Project data repository
UX
Broker
IPv6 – combined IP network
(BACnet SC, OPC UA, MQTT,...)
Smart Actuator
AS
IoT Coupler
IoT-Devices
MQTT
IoT/Cloud Connector
HVAC Plants
Room Automation
BACnet
DALI
ecoLink

IoT and cloud

The future starts today.

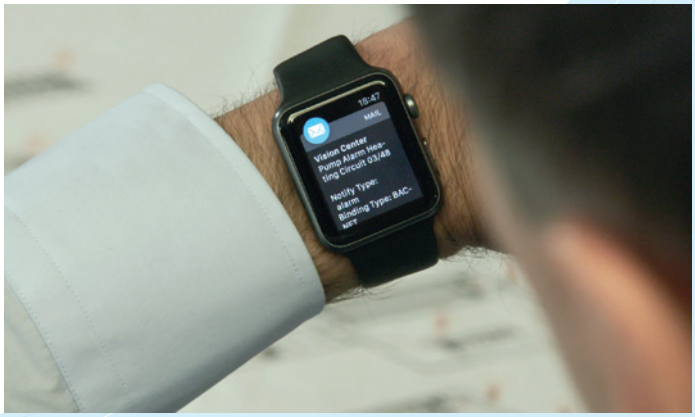
modulo 6 brings an end to the traditional separation of technical building subsystems. IoT and the cloud lift the barriers to communication! SAUTER product innovation uses cloud and IoT technology to bring together heating, ventilation and air conditioning into a single system. This makes them all easier to use. The analysis of operating and usage data in the cloud allows continuous optimisation and forms the basis for sustainably economical operation. The modulo 6 automation station can optionally communicate simultaneously with the traditional BACnet building network and with IoT devices using the MQTT protocol on a secure, encrypted connection.

SAUTER cloud services take over the role of a conventional management system. In future, building operators will be able to efficiently and easily retrieve management system services from the cloud on demand.

This pays off for the users because the only costs that arise are those of the functions and data that are actually used. There is no longer the need for building management software operated locally on a server. There are no more costs for establishing and operating local data centres. modulo 6 speaks the language of the most efficient buildings of the future!

SAUTER consistently develops new technologies and strategies for efficient building management. Other potential optimisations include the secure localisation and navigation of persons and objects, up-to-date information on the utilisation rate of actuators and valves, as well as related information on the expected service life, and much more besides.

The cloud increases ease of use: Voice control such as Amazon Alexa or operation with a smart watch means that the system can be used by anyone.



Maximum security

Availability, integrity, confidentiality and authenticity of data

Connection of buildings with IoT and Cloud requires reliable protection of systems and networks. This protection is already built into modulo 6 with an integrated separation of networks for the internet and the building technology. The automation station has a network interface that is completely separate from the building network. Encryption, authentication, access protection and continuous recording of user actions (audit trail) help to protect your system.

The BACnet SC (BACnet Secure Connect) security standard will be added to the protection package soon. This will be unique in the industry! The security concept is based on the international standard on cybersecurity for industrial automation, IEC 62443-3. It defines the achieved security levels for networks and system components.

IEC 62443-3

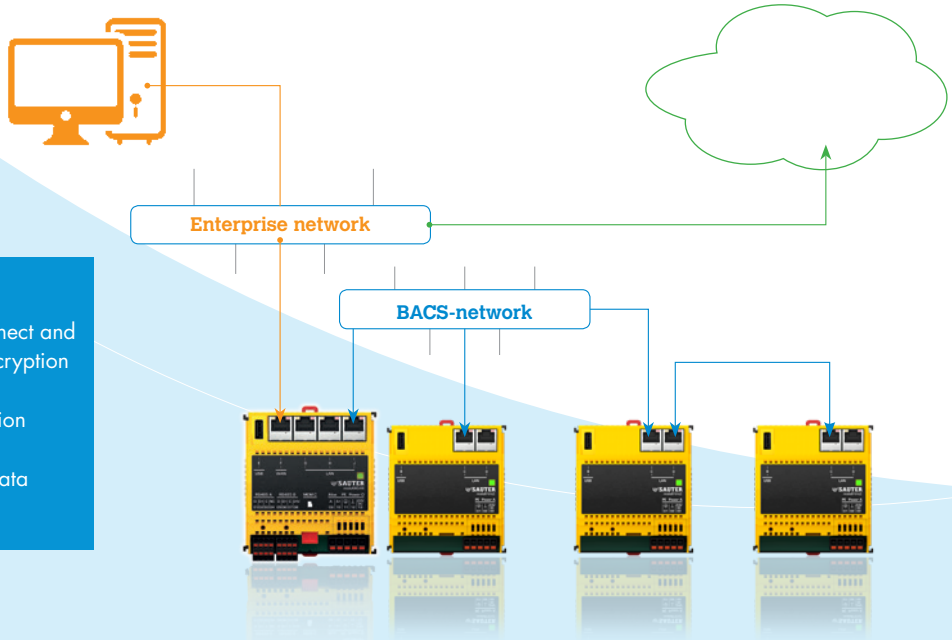
» The IEC 62443-3 standard defines system security requirements and security levels for IACS (industrial automation and control systems).
» The defined security levels are based on the expertise, motivation and resources available to potential attackers:

Level 4
» Protection from deliberate breaches using sophisticated means with advanced resources, IACS-specific skills and high motivation.

Level 3
» Protection from deliberate breaches using sophisticated means with moderate resources, IACS-specific skills and moderate motivation.

Level 2
» Protection from deliberate breaches using simple means with few resources, generic skills and low motivation.

Level 1
» Protection from unintentional or accidental breaches.



BACnet SC

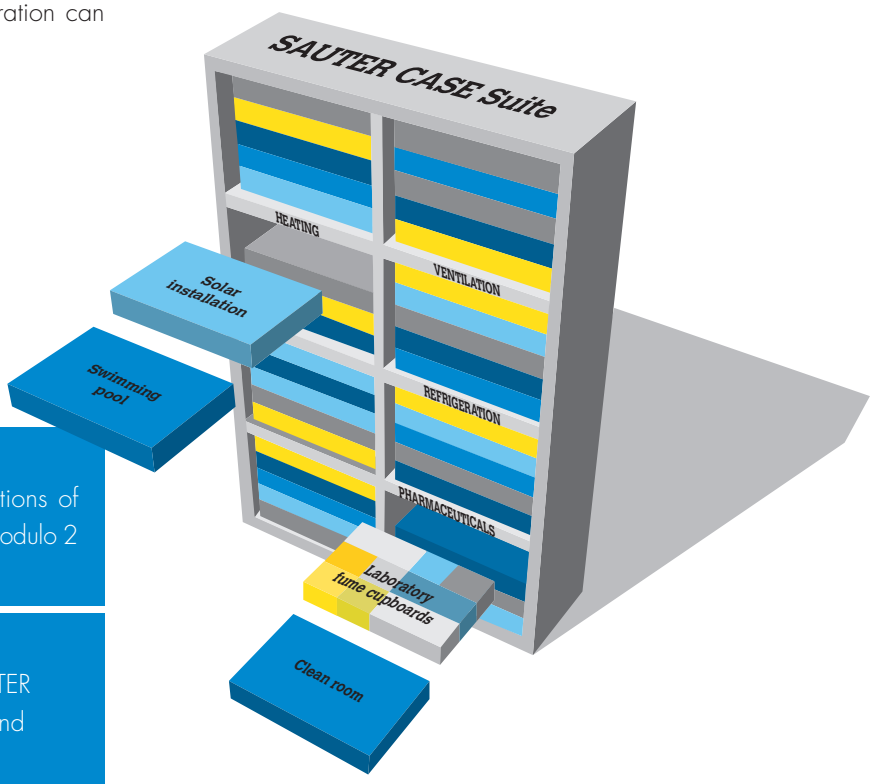
» Stands for BACnet Secure Connect and supports the latest standard encryption technologies.
» TLS 1.2 encrypted communication
» Location-based authentication
» Carrier for user authorisation data

Guaranteed investment protection

Modernisation in stages to suit your budge.

Buildings are generally used for several decades, but the life cycle of the building technology is much shorter. By using modulo 6, existing systems can be gradually and continuously modernised. This SAUTER product generation thus makes an important contribution towards protecting investment in the long term. Old systems can be renewed without disruption in budget-friendly stages, and existing control and regulation programs from the SAUTER modulo 5 system generation can still be used.

If required, several modulo 5 and modulo 6 programs can run in parallel on the same station with different process cycles. modulo 6 integrates its own and third-party installations and also provides a link to the era of the cloud and IoT – at no detriment to the necessary security!



CASE

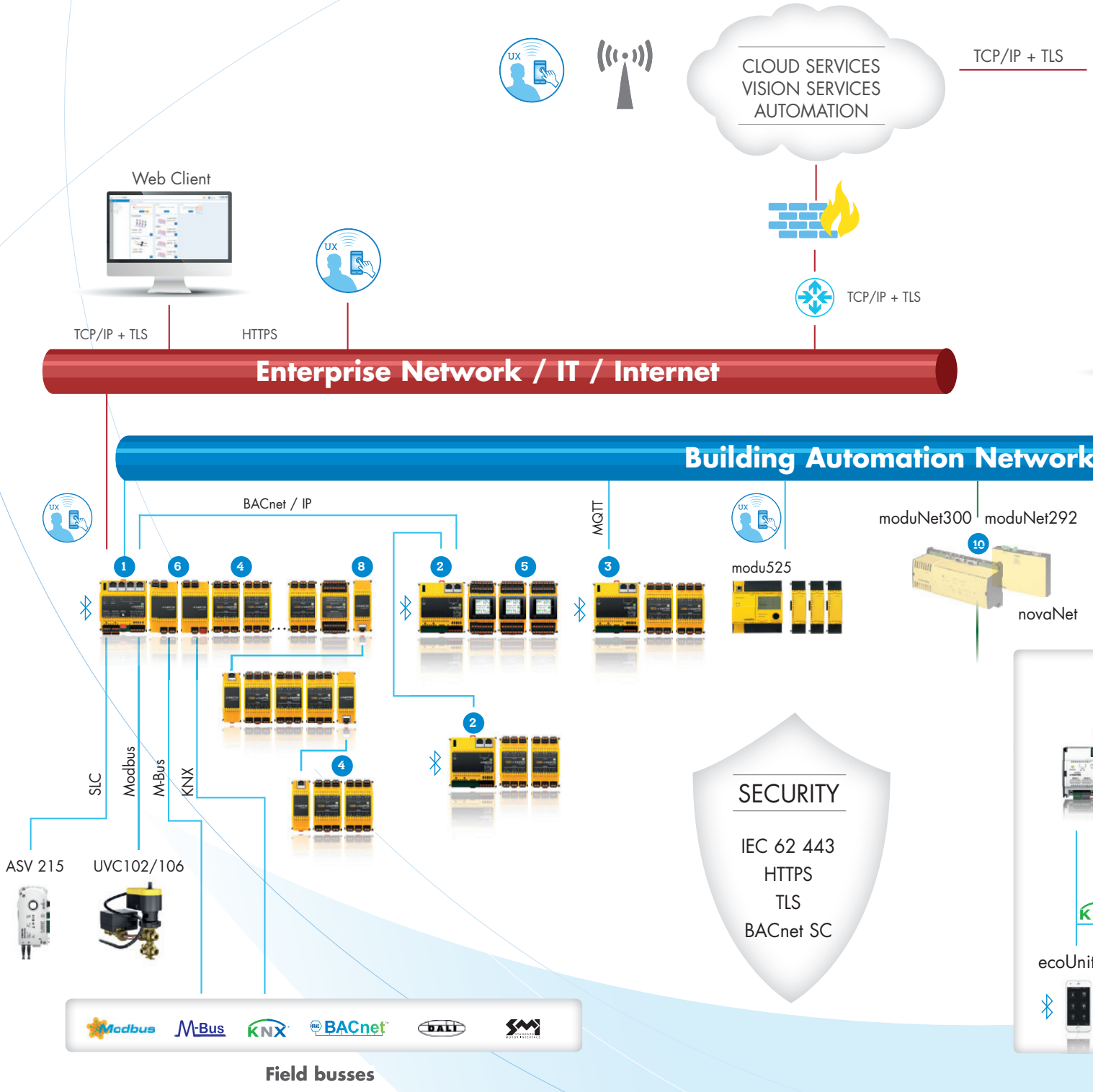
The current version supports all generations of SAUTER products from EY3600 through modulo 2 and modulo 5 to modulo 6.

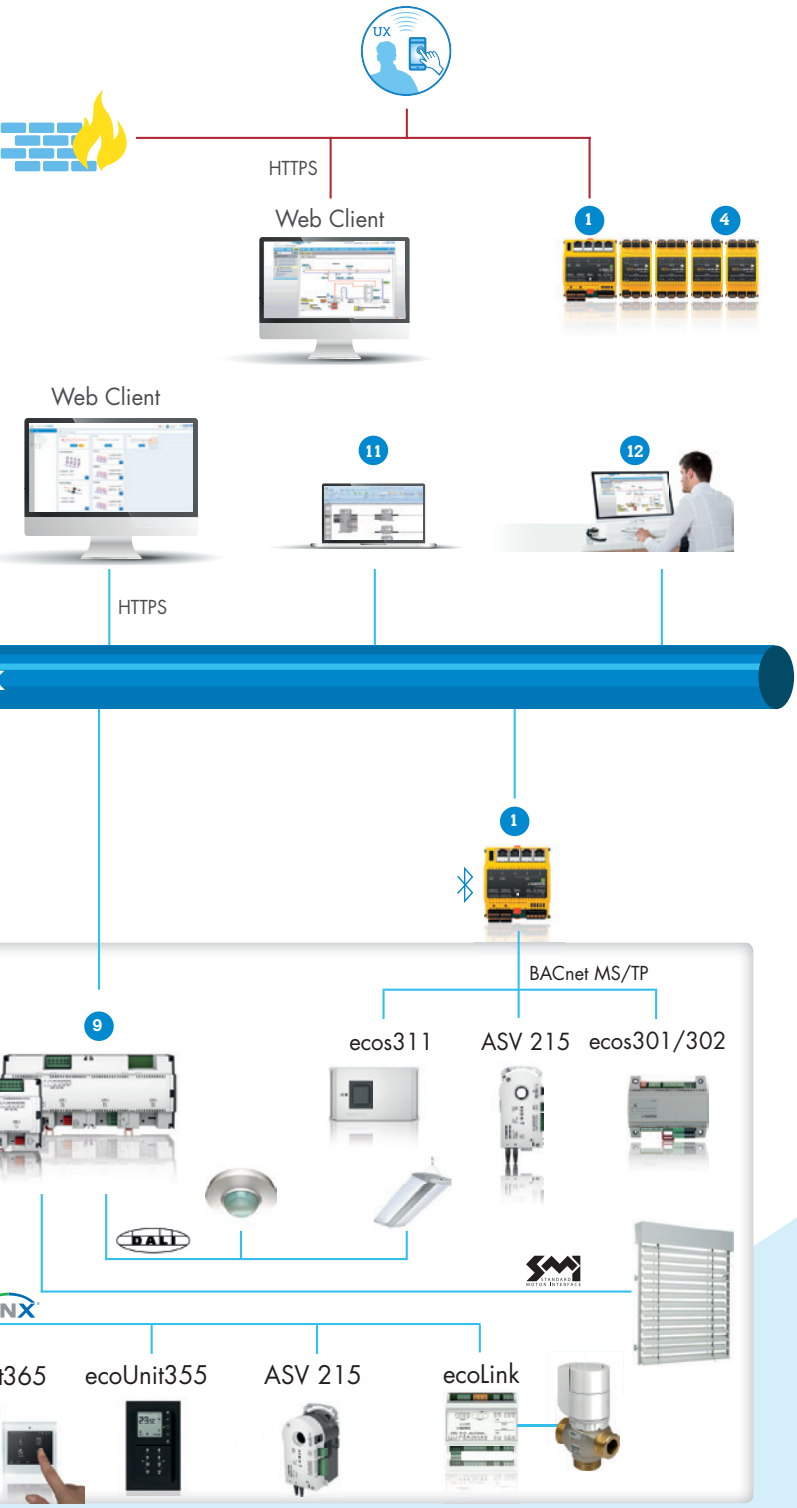
SENG

The future of CASE software lies in SAUTER Engineering Next Generation (SENG) and the cloud

» Library-based plant configuration
» Engineering Software as a Service (SaaS)
» Project data management in the cloud

SAUTER modulo 6 topology





Room Automation

Our current type designations:

1	modu680-AS	BACnet automation station and monitoring	EY6AS80F021
2	modu660-AS	BACnet automation station	EY6AS60F011
3	modu612-LC	IP coupler for I/O modules, with web server	EY6LC12F011
4	modu630-IO	16 x DI/CI inputs I/O module	EY6IO30F001
	modu631-IO	8 x UI(DI/CI/AI) + 8 x DI/CI I/O moduleul	EY6IO31F001
	modu650-IO	6 x relays (2A) outputs I/O module	EY6IO50F001
	modu670-IO	8 x DI/CI/DO(OC) + 8 x DI/CI IO-module	EY6IO70F001
	modu671-IO	8 x AO + 8 x DI/CI IO-module	EY6IO71F001
	modu672-IO	4 x UO(DO/AO) + 4 x UI(DI/CI/AI) IO-module	EY6IO72F001
5	modu600-LO	Operating and indicating unit for I/O module	EY6LO00F001
6	modu620-CM	Modbus RTU (RS-485) communication module	EY6CM20F011
	modu630-CM	M-Bus communication module	EY6CM30F031
	modu630-CM	KNX-TP communication module	EY6CM40F041
	modu650-CM	DALI communication module	EY6CM50F051
	modu660-CM	SMI communication module	EY6CM60F061
7	modu601-LC	Module for separate power supply to I/O modules	EY6LC01F001
8	modu602-LC	Connection kit for I/O modules in the cabinet	EY6LC02F001
9	ecos504/505	room automation	
10	novaNet modulo 2, EY3600		
11	CASE Suite		
12	MBE (SAUTER Vision Services)		

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