SAUTER modulo 6 System Integrated Building Automation M Bus Control Instruction Manual

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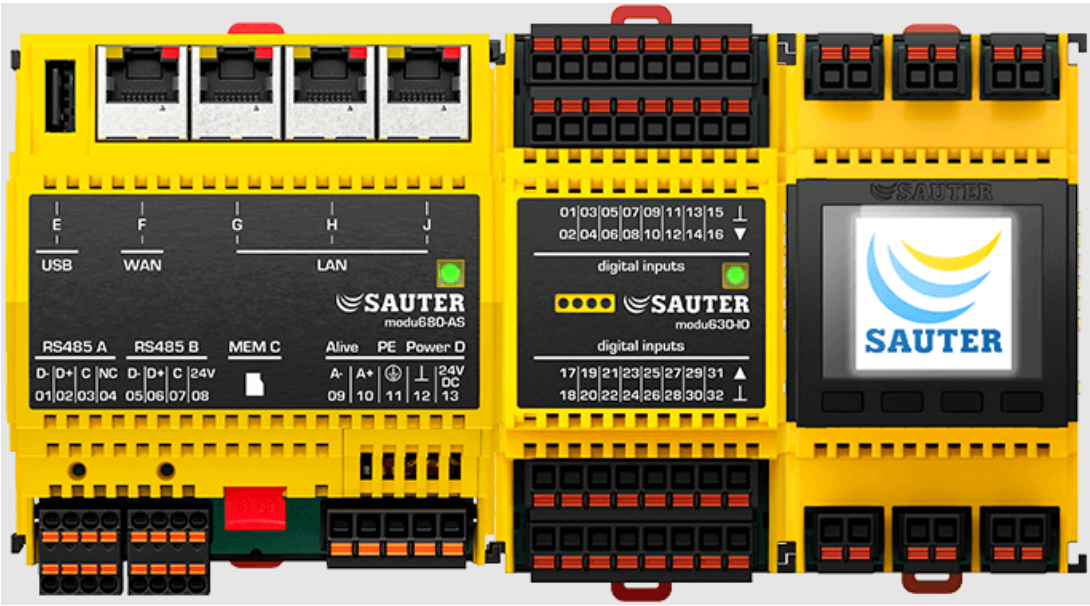


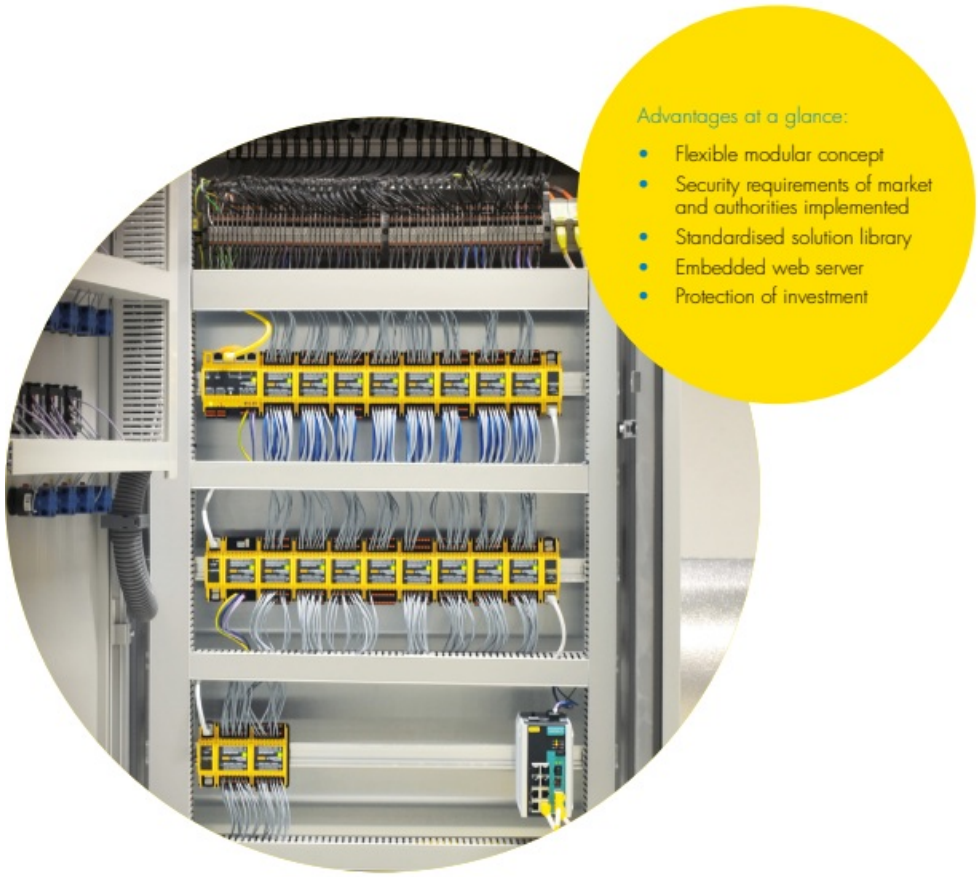
Product Usage Instructions

- Stable and safe overall system
- Modular design for flexibility in building automation projects
- Integration with IoT components and IT solutions
- Selected cybersecurity features for web server
- The modulo 6 system integrates various communication protocols including BACnet, Modbus, M-Bus, MQTT, and RESTful API for seamless connectivity in building automation.
- The system can communicate with traditional BACnet networks and IoT devices using MQTT protocol on a secure connection.
- The integrated moduWeb Unity web server enables access to BACnet objects and relevant information.

INTRODUCTION

Modulo 6 sets new standards in building automation. SAUTER modulo 6 combines tried and tested building technology with the latest digitalisation trends.

- Modern building automation must integrate different data sources and process large amounts of data while at the same time being simple to operate.
- It must be possible to plan projects and put them into operation quickly and easily.
- The modulo 6 system meets these requirements and integrates seamlessly with the Internet of Things (IoT).
- It uses the latest cloud techno-logies while meeting stringent security requirements.
- In times of fast-moving technological trends, high availability of system components is expected. Modernisation of existing systems and efficient commissioning without interrupting operations make a significant contribution towards protecting investments.

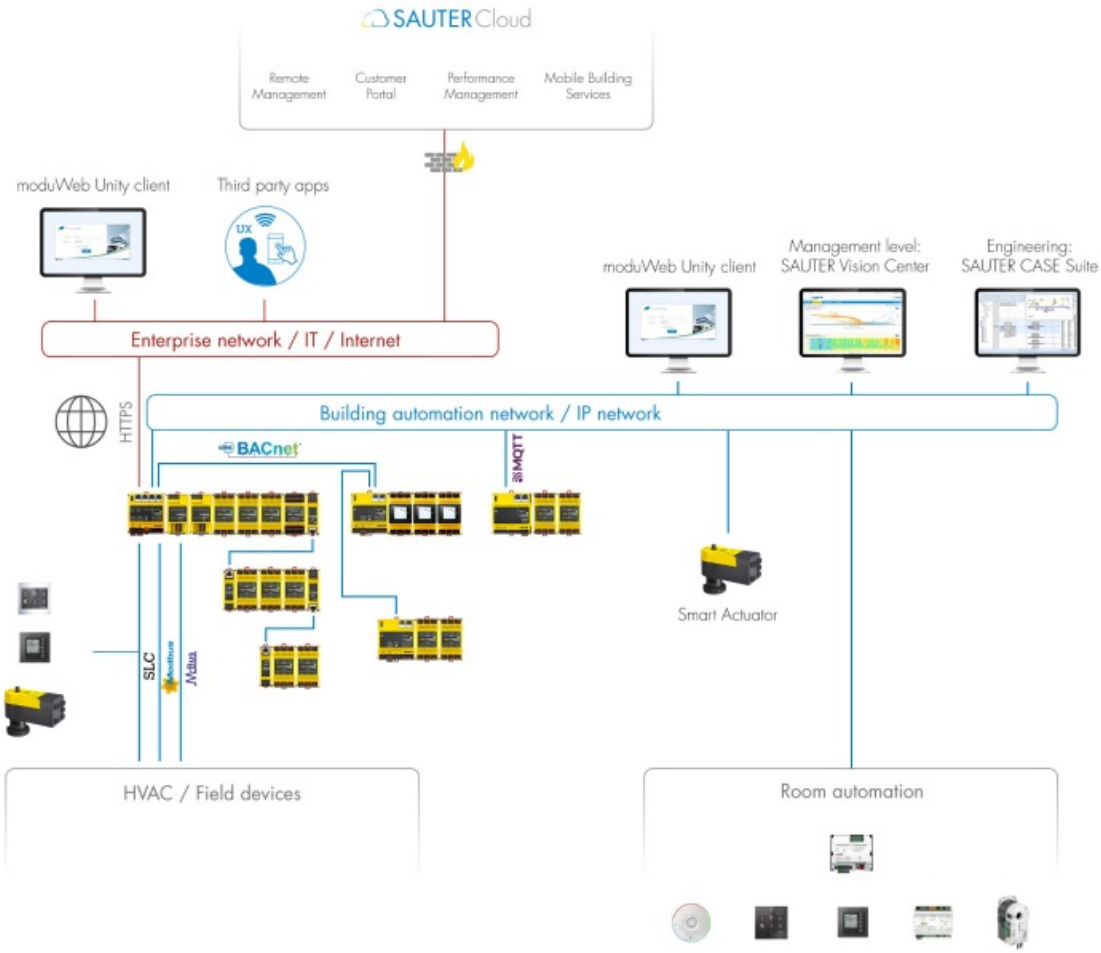


Everything combined in a stable and safe overall system

- Thanks to native support for BACnet, the modulo 6 solution integrates seamlessly into the overall system.
- The modular design of the modulo 6 components and the wide range of I/O modules, COM modules, and stations provides maximum flexibility for the realisation of building automation projects.
- IoT protocols such as MQTT and RESTful API extend the scope of functions and enable IoT components to be implemented and modulo 6 to be incorporated into IT solutions such as reservation systems, ERP systems and information channels, for example, for weather forecasts.

Selected cybersecurity features:

- BACnet Secure Connect
- On-board firewall
- Network separation IT/OT
- Protected access to the web server



Integration from the field level to the IoT and cloud

modulo 6 integrates all communication protocols for heating, ventilation, air conditioning, lighting, blinds, and energy. The open communication standard BACnet (Building Automation Control Network) is the backbone of SAUTER building automation and the interface that our automation stations use to communicate. All modulo 6 automation stations are BTL-certified and ensure interoperability and compatibility with other BACnet devices.

Plugin modules for extending the modulo 6 automation stations support the Modbus and M-Bus communication protocols. Systems such as chillers and air conditioning units can be connected using Modbus.

The M-Bus module for reading electrical and heat meters provides data for energy optimisation and billing.

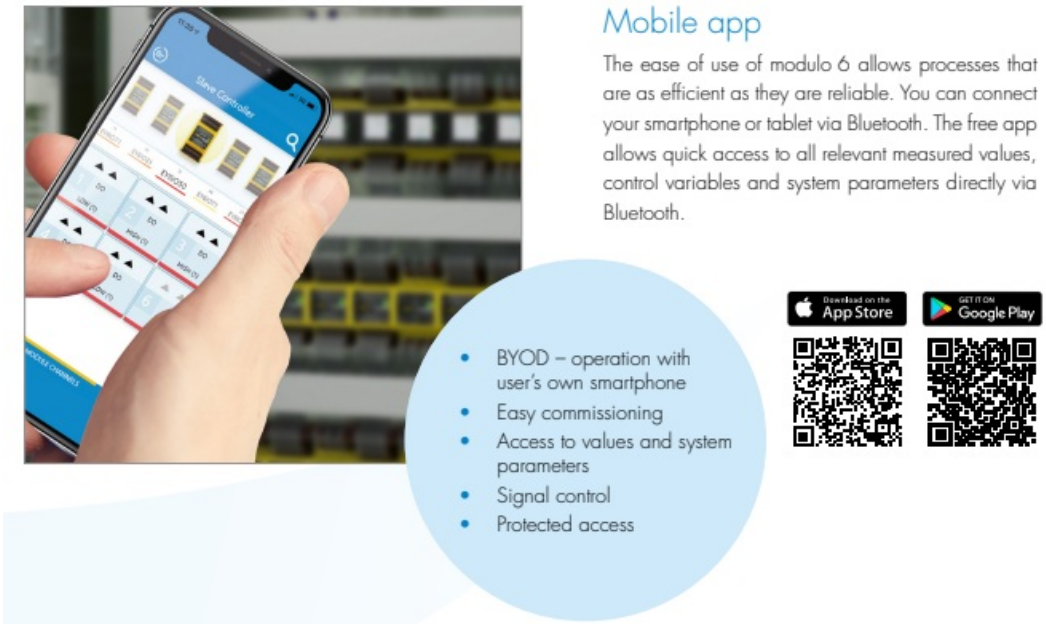
modulo 6 brings together heating, ventilation and air conditioning into a single system. The analysis of operating and usage data in the cloud allows continuous optimisation and forms the basis for sustainable economic operation. The automation station can optionally communicate simultaneously with the traditional BACnet building network and with IoT devices using the MQTT proto-col on a secure, encrypted connection.

RESTful API

The integrated moduWeb Unity web server is parti-cularly suited to small and medium-sized installations. In addition, a standard RESTful API can be en-ab-led so that gateway functionality is also possible.The API allows access to BACnet objects and vari-ous BACnet-relevant information of the automation station.

Operation options

Local operating interface LOI
The universal local LOI, featuring a high-resolution graphic colour display, allows for both viewing and operation. The LOI for priority operation (as per ISO 16484-2) 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 4 buttons. The I/O signals are displayed graphically and numerically. The small display can also map and show the course of analogue and digital signals over time.



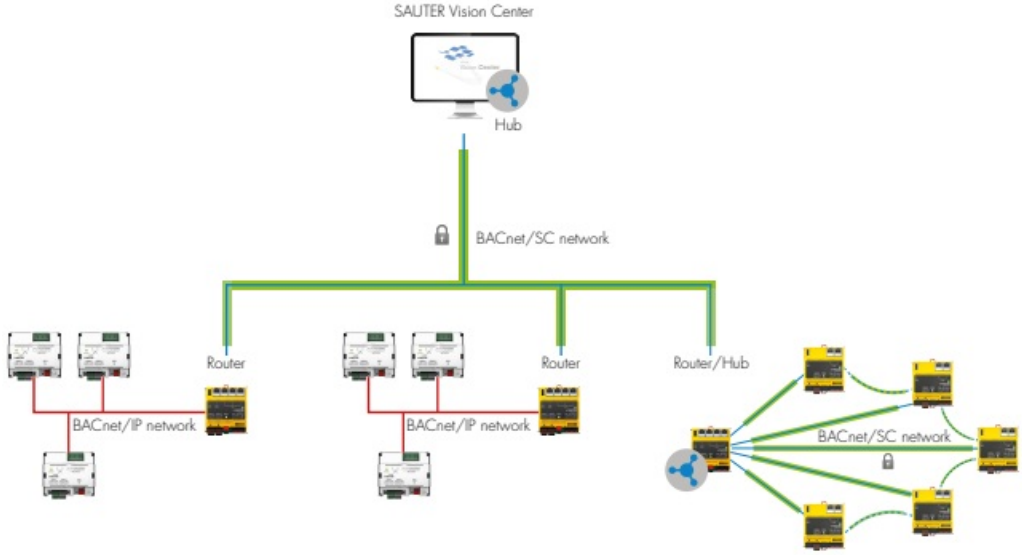
Security by Design

- Integrating IoT devices and intelligent systems makes modern building automation systems more efficient, but also more vulnerable to cyber attacks. In line with the Defence in Depth security concept, SAUTER incorporates multiple security solutions to protect your building automation from threats.
- Defence in Depth ensures that security measures are implemented at different levels, such as network, soft-ware, hardware and physical access. This minimises the risk of security breaches and ensures the protec-tion

of sensitive data and systems that are essential to the operation and security of buildings.

BACnet Secure Connect (BACnet/SC)

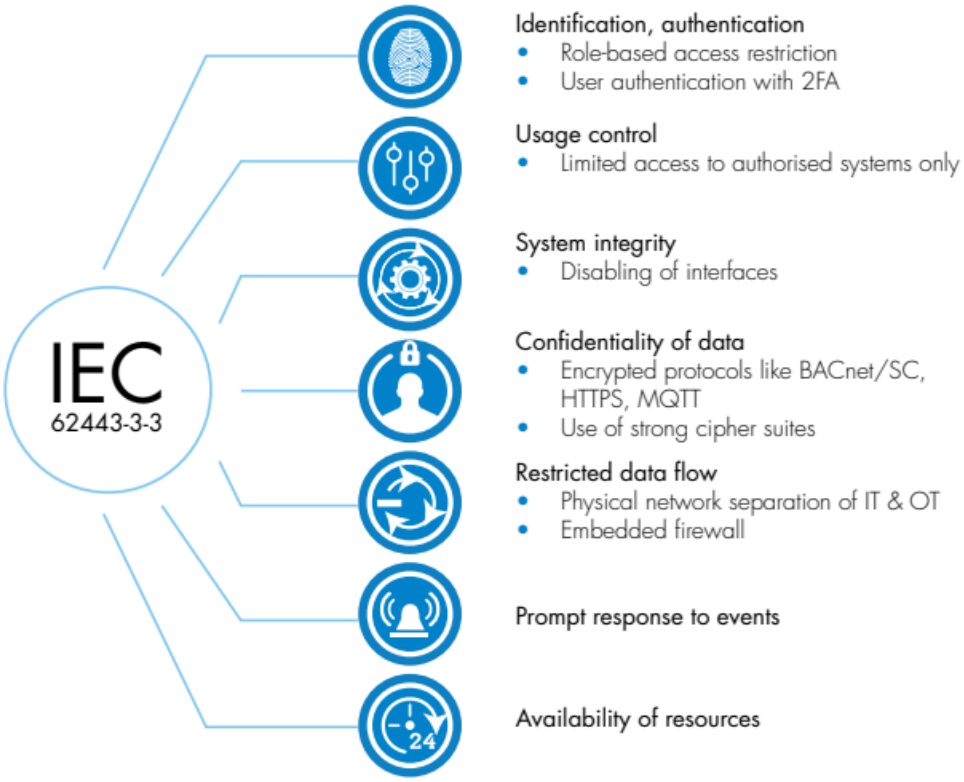
BACnet Secure Connect, the new BACnet connec-tion, is based on TLS 1.3 and allows an encrypted communication between devices. Customers get a private building automation network where they can control certificate issuance and access, or hand it over to SAUTER. BACnet/SC is ideal for enterprise IT. Seamless integration into the existing infrastructure is facilitated by the SAUTER modu630-RT BACnet router.



BACnet/SC scenario: Headquarters for building management of multiple properties with BACnet/IP SAUTER Vision Center can take on the role of the primary hub. This is the central element of the network and configures and controls the communication of the encrypted BACnet objects. The modu630-RT BACnet router can be used both as a BACnet/SC primary hub and as a BACnet/SC failover hub.
Additional scenarios can be found online:

Safety measures related to IEC 62443

This international standard, focused on cybersecurity for industrial automation and control systems (IACS), provides guidelines for securing systems by addressing both technical and process-related risks. The standard emphasizes a risk-based approach. It categorises security levels based on potential threats and defines requirements for secure product development and integration. The standard is in line with various official directives, such as the EU General Data Protection Regulation (GDPR), the NIS and NIS-2 guidelines, the Cyber Resilience Act (CRA), the UK‘s PSTI and the Swiss Data Protection Act, to name a few.



Network access control (NAC)

The NAC functionality, according to IEEE 802.1X / RADIUS requires authentication of devices and users to ensure that only authorised entities have access to network resources. It also ensures the traceability of device and user actions for complete monitoring and control.

moduWeb Unity, the embedded web visualisation
The integrated web server functionality allows for installation, system visualisation, operation and optimisation as well as remote access to all administrative tasks from any location, in accordance with building technical standards. Intuitive, flexible and budget-friendly.

- 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 and a self-explanatory graphical calendar, time programmes, and trend logs allow building technicians to carry out their daily tasks easily and efficiently.
- The functions contribute to compliance with the factors pro-posed in EN 52120 regarding building automation and control systems (BACS).
- As a BACnet client, moduWeb Unity can query and display BACnet objects from other stations. This pro-vides a local building management solution for small and medium-sized installations.

Customisable functionality

Standard functions

Engineering

- Integration, operation and administration of a large number of BACnet stations as well as simple confi-guration of the system visualisation.

Visualisation

- Structured, tabular overview of objects as well as dynamic 2D and 3D system graphics.

Notification

- Consolidated alarm lists of BACnet objects including acknowledgement. Users can be specifically notified of critical alarms by e-mail, SMS or chat.

Additional functions

Reports

- Schedulable automated reporting based on customizable templates. The output is a CSV file, which is sent by email or to an SFTP server.

Touch panel operation

- Support for the SAUTER Touchpanel client applica-tion, which is operated on panel PCs.

Logging

- User activities are traceable, recording options for subsequent data analysis and backup are available.

System management

- Network settings, certificate management and storage, HDA and user administration all in one.

IT security

- Compliance with the IT security requirements of IEC 62443, such as secure HTTPS communication, access control list, firewall, auto-logout, account lockout after repeated incorrect entry, PNAC etc.

RESTful API

- moduWeb Unity can be accessed directly as a web server as well as optionally via the API inter-face (RESTful web services), for example, to integrate cloud solutions.

Find out more on our website!

Product overview

The modulo 6 range enables you to combine heating, ventilation, air conditioning,and energy systems in one system. modulo 6 is backward compatible in terms of program and network technology and will be available for a long time to come. This allows existing systems to be upgraded in budget-friendly stages. The modular concept offers flexible configuration and tailor-made performance. The modules have plugin spring-type terminals and can be lined up in front of each other. A total of up to 24 modules (I/O and COM) is possible.

Automation station
modu680-AS

- B-BC (Building Controller)
- BACnet/IP, BACnet/SC
- Up to 1,600 I/O objects
- Up to 24 modules, 5 COM
- Expandable storage capacity with microSD card, USB
- Bluetooth BLE 4.0
- SLC, Modbus
- 3 x LAN connection (switch)
- 1 x WAN connection
- Web server: commissioning & operation

BACnet

Automation station
modu660-AS

- B-BC (Building Controller)
- BACnet/IP, BACnet/SC
- Up to 800 I/O objects
- Up to 24 modules, 5 COM
- Expandable storage capacity with microSD card, USB
- Bluetooth BLE 4.0
- SLC
- 2 x LAN connection (switch)
- Web server: commissioning & operation (option)

BACnet

BACnet router, BACnet/SC hub
modu630-RT

- B-RTR (BACnet router)
- B-SCHUB (BACnet SC hub)
- B-BBMD (BACnet Broadcast Manager)
- Up to 100 nodes

BACnet

Connection module
modu612-LC

- 24 VDC power supply
- 2 x LAN connection (switch)
- Remote installation via IP network
- Up to 24 I/O modules, 5 COM

Connection module
modu601-LC

- 24 VDC power supply
- Decoupled priority operation

Connection module
modu602-LC

- Up to 2 per station
- Allows modules to be mounted on different DIN rails in the cabinet

I/O module
modu630-IO

- 16 digital inputs (DI/CI)

I/O module
modu631-IO

- 8 digital inputs (DI/CI)
- 8 universal inputs (U,R,T)

I/O module
modu650-IO

- 6 digital outputs (relays, DO)

I/O module
modu670-IO

» 8 digital inputs (DI/CI)
» 8 digital input/outputs (DIO)

I/O module
modu671-IO

» 8 digital inputs (DI/CI)
» 8 analogue outputs (U)

I/O module
modu672-IO

» 4 universal inputs (U,I,R,T,Pot)
» 4 digital outputs (DO)
» 4 analogue outputs (U,I)

COM-Modul
modu620-CM

» Integration of Modbus devices in an RS-485 segment (line)
» Up to 31 unit loads (UL)
» Up to 247 Modbus devices (RTU/ASCII)

Modbus

COM-Modul
modu630-CM

» Integration of M-Bus meters
» Up to 80 unit loads (UL)
» Up to 256 M-bus devices

M-Bus

Operating unit (LOI)
modu600-LO

» Universal operation and indicator unit
» Signal and status display
» Signal labelling
» Overriding of output signals

The standards in building automation:

- Flexible modular concept
- Security requirements of the market and authorities are implemented
- Standardised solution library
- Embedded web server
- Protection of investment

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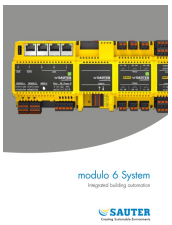
FAQ

- **Q:** What are the main advantages of the modulo 6 System?
- **A:** The system offers stability, safety, flexibility, integration with IoT components, and selected cybersecurity features.
- **Q:** Which communication protocols does modulo 6 support?
- **A:** modulo 6 supports BACnet, Modbus, M-Bus, MQTT, and RESTful API for seamless integration in building automation projects.
- **Q:** How does modulo 6 contribute to efficient building automation?
- **A:** By combining HVAC systems, providing cloud-based data analysis for optimization, and supporting various

communication protocols for connectivity.

Documents / Resources

	SAUTER modulo 6 System Integrated Building Automation M Bus Control [pdf] Instruction Manual modulo 6 System Integrated Building Automation M Bus Control, modulo 6 System, Integrated Building Automation M Bus Control, Building Automation M Bus Control, M Bus Control

References

- SAUTER | Produkte & Software für Gebäudeautomation
- User Manual