



SAUTER BACnet PICS

SAUTER modu630-RT

BACnet Protocol Implementation Conformance Statement

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Note:

This statement corresponds to the ANSI/ASHRAE 135-2020 release. Changes are taking place constantly, without prior notification.

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Legend:

This document contains tables with symbols and abbreviations for which the following legend applies:

<input checked="" type="checkbox"/>	yes, supported	<input type="checkbox"/>	no, not supported
-, n/a	not applicable	CC	Conformance Code
()	comments in parenthesis	R	Required Readable
(R)	Network Port specific	W	Required Readable and Writable
O	(Conditionally) Optional	OD	Dynamic object deletion
OC	Dynamic object creation	COV	Change of value
OOS	Out-Of-Service writeable	IR/AR	Intrinsic / Algorithmic change reporting
CMD	Object commandable		

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I. BACnet Protocol Implementation Conformance Statement

I.1 SAUTER modulo 6 BACnet Device

Date	
Vendor Name	Fr. Sauter AG (Vendor ID: 80)
Product Name	modulo 6 BACnet Router and SC-Hub
Product Model Number	SAUTER modu630-RT: EY6RT30F001
Applications Software Version	1.0.5 (CASE Engine Interface, Function Index)
Firmware Revision	1.0.1 (BACnet Firmware)
BACnet Protocol Revision	Version 1, Revision 24

I.1.1 BACnet Conformance Certificate (BCC):

BACnet Profile	B-RTR, B-BBMD, B-SCHUB
Date	Jan. 9 th , 2024
Test Report	VG 2022_1014559
BTL-Listing	BTL-31125
Firmware Version	1.0.1
Model	EY6RT30F001

I.1.2 Product Description

The modu630-RT BACnet Router and SC-Hub is a configurable BACnet Router belonging to the SAUTER modulo 6 product range of native BACnet devices. As a router, it enables routing between two different BACnet networks, for example one BACnet/IP network and a BACnet/SC network. The device also supports BACnet Broadcast Management as well as BACnet Foreign Device functionalities on a BACnet/IP network as well as the Hub functionality on a BACnet/SC network. The unit supports routing between two different physical interfaces (e. g. WAN, LAN) thanks to its two Ethernet interfaces, as well as within the same physical interface thanks to its onboard switch.

I.1.3 BACnet Standardized Device Profile (Annex L)

- B-RTR BACnet Router
- B-BBMD BACnet Broadcast Management Device
- B-SCHUB BACnet Secure Connect Hub

I.1.4 BACnet Interoperability Building Blocks (Annex K)

Supports following BIBBs:

Data Sharing-	BIBB	A	B
Read Property-	DS-RP-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Read Property Multiple-	DS-RPM-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Write Property-	DS-WP-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Write Property Multiple-	DS-WPM-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Change Of Value Unsubscribed-	DS-COVU-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Read Range-	DS-RR-	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Device Management-	BIBB	A	B
Dynamic Device Binding-	DM-DDB-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dynamic Object Binding-	DM-DOB-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Device Communication Control-	DM-DCC-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Reinitialize Device-	DM-RD-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Backup and Restore-	DM-BR-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Restart-	DM-R-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
List Manipulation-	DM-LM-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Time Synchronization-	DM-TS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
UTC Time Synchronization-	DM-UTC-	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Network Management-	BIBB	A	B
Router Configuration-	NM-RC-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
BBMD Configuration-	NM-BBMD-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Foreign Device Registration-	NM-FDR-	<input checked="" type="checkbox"/>	-
Secure Connect Hub-	NM-SCH-	-	<input checked="" type="checkbox"/>

The table below consolidates all BIBBs required for B-RTR and B-SCHUB profile as of Annex L. Supplementary BIBBs are in *italics*.

Data Sharing	Alarm & Event Management	Scheduling	Trending	Device & Network Management
DS-RP-B DS-RPM-B DS-WP-B DS-WPM-B DS_COVU-B DS-RR-B				DM-DDB-A, -B DM-DOB-B DM-DCC-B DM-RD-B DM-BR-B DM-R-B DM-LM-B DM-TS-B DM-UTC-B NM-RC-B NM-BBMDC-B NM-FDR-A NM-SCH-B

I.1.5 Segmentation Capability

- Able to transmit segmented messages
- Able to receive segmented messages

Window Size: 4
 Window Size: 4

I.1.6 Object Types

Standard and proprietary object types are supported and may be present in the device.

Note:

Present-Value and Reliability properties are writable when Out-Of-Service = True.

Standard and proprietary objects may support optional functionality (Overview):

Object Type	ID	OC	OD	CMD	OOS	COV	IR/AR
Device	8	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-
File	10	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-
NetworkPort	56	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-

Some standard objects may have proprietary properties in addition (Clause 23). There are no specific property range restrictions except those within the system SAUTER modulo 6 and the range restrictions of the BACnet Standard. Supported standard and proprietary objects may support the following optional and proprietary properties and in addition to the standard conformance code some writable properties:

I.1.6.1 Device & Network Management

Device (DEV = 8)

Standard Property	CC	R	W	Range Restriction
Object-Identifier	R	<input checked="" type="checkbox"/>		
Object-Name	R	<input checked="" type="checkbox"/>		
Object-Type	R	<input checked="" type="checkbox"/>		
System-Status	R	<input checked="" type="checkbox"/>		
Vendor-Name	R	<input checked="" type="checkbox"/>		
Vendor-Identifier	R	<input checked="" type="checkbox"/>		
Model-Name	R	<input checked="" type="checkbox"/>		
Firmware-Revision	R	<input checked="" type="checkbox"/>		
Application-Software-Version	R	<input checked="" type="checkbox"/>		
Location	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(up to 64 characters)
Description	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(up to 128 characters)
Protocol-Version	R	<input checked="" type="checkbox"/>		
Protocol-Revision	R	<input checked="" type="checkbox"/>		
Protocol-Services-Supported	R	<input checked="" type="checkbox"/>		
Protocol-Object-Types-Supported	R	<input checked="" type="checkbox"/>		
Object-List	R	<input checked="" type="checkbox"/>		
Structured-Object-List	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Max-APDU-Length-Accepted	R	<input checked="" type="checkbox"/>		
Segmentation-Supported	R	<input checked="" type="checkbox"/>		
Max-Segments-Accepted	O	<input checked="" type="checkbox"/>		
Local-Time	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(time sync service)
Local-Date	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(time sync service)
UTC-Offset	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-1440..1440 (configurable)
Daylight-Savings-Status	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(automatic DST)
APDU-Segment-Timeout	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
APDU-Timeout	R	<input checked="" type="checkbox"/>		
Number-Of-APDU-Retries	R	<input checked="" type="checkbox"/>		
Device-Address-Binding	R	<input checked="" type="checkbox"/>		
Database-Revision	R	<input checked="" type="checkbox"/>		
Configuration-Files	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Last-Restore-Time	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Backup-Failure-Timeout	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Backup-Preparation-Time	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Restore-Preparation-Time	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Restore-Completion-Time	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Backup-And-Restore-State	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Active-COV-Subscriptions	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Last-Restart-Reason	O	<input checked="" type="checkbox"/>		
Time-Of-Device-Restart	O	<input checked="" type="checkbox"/>		
Restart-Notification-Recipients	O	<input checked="" type="checkbox"/>		(up to 10 recipients)
Serial-Number	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Property-List	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Profile-Name	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Proprietary Property	ID	R	W	Property Datatype Range Restriction
Hardware-Revision	8208	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Production-Date	8278	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sauter-Battery-OK-Indication	8380	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sauter-Identification-Flag-Enable	8411	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

File (FL = 10)

Standard Property	CC	R	W	Range Restriction
Object-Identifier	R	<input checked="" type="checkbox"/>		
Object-Name	R	<input checked="" type="checkbox"/>		
Object-Type	R	<input checked="" type="checkbox"/>		
Description	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
File-Type	R	<input checked="" type="checkbox"/>		
File-Size	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0 (delete)
Modification-Date	R	<input checked="" type="checkbox"/>		
Archive	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Read-Only	R	<input checked="" type="checkbox"/>		
File-Access-Method	R	<input checked="" type="checkbox"/>		
Property-List	R	<input checked="" type="checkbox"/>		
Profile-Name	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Network Port (NP = 56)

Depending on the value of Network_Type property, the object properties required change. Properties are splitted into Base properties which are independent of the Network_Type value, and a subset of properties related to the specific value of the Network_Type Property.

Base properties (present on any Network_Type value)

Standard Property	CC	R	W	Range Restriction
Object_Identifier	R	<input checked="" type="checkbox"/>		
Object_Name	R	<input checked="" type="checkbox"/>		
Object_Type	R	<input checked="" type="checkbox"/>		
Description	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Writable only when Protocol_Level = BACNET_APPLICATION
Status_Flags	R	<input checked="" type="checkbox"/>		
Reliability	R	<input checked="" type="checkbox"/>		
Out_Of_Service	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Network_Type	R	<input checked="" type="checkbox"/>		
Protocol_Level	R	<input checked="" type="checkbox"/>		
Reference_Port	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Changes_Pending	R	<input checked="" type="checkbox"/>		
Command	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Current_Health	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Command_Validation_Result	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Property_List	R	<input checked="" type="checkbox"/>		
Profile_Name	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Case 1: Network_Type == ETHERNET & Protocol_Level == PHYSICAL

Standard Property	CC	R	W	Range Restriction
MAC_Address	(R)	<input checked="" type="checkbox"/>		
Link_Speed	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Network_Interface_Name	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(R): The properties that are required based on the Network_Type and Protocol_Level are identified in the sub-tables with a (R) conformance code.

Case 2: Network_Type == IPV4 & Protocol_Level == BACNET_APPLICATION

Standard Property	CC	R	W	Range Restriction
Network_Number	(R)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Network_Number_Quality	(R)	<input checked="" type="checkbox"/>		
APDU_Length	(R)	<input checked="" type="checkbox"/>		
MAC_Address	(R)	<input checked="" type="checkbox"/>		
BACnet_IP_Mode	(R)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
BACnet_IP_UDP_Port	(R)	<input checked="" type="checkbox"/>		
BBMD_Broadcast_Distribution_Table	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
BBMD_Accept_FD_Registrations	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
BBMD_Foreign_Device_Table	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
FD_BBMD_Address	O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
FD_Subscription_Lifetime	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(R): The properties that are required based on the Network_Type and Protocol_Level are identified in the sub-tables with a (R) conformance code.

Proprietary Property	ID	R	W	Property Datatype Range Restriction
Sauter_home_port	8422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Case 3: Network_Type == IPV4 & Protocol_Level == PROTOCOL

Standard Property	CC	R	W	Range Restriction
IP_Address	(R)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_Subnet_Mask	(R)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_Default_Gateway	(R)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_DNS_Server	(R)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_DHCP_Enable	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_DHCP_Lease_Time	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_DHCP_Lease_Time_Remaining	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IP_DHCP_Server	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

(R): The properties that are required based on the Network_Type and Protocol_Level are identified in the sub-tables with a (R) conformance code.

Case 4: Network_Type == SECURE_CONNECT & Protocol_Level == BACNET_APPLICATION

Standard Property	CC	R	W	Range Restriction
Network_Number	(R)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Network_Number_Quality	(R)	<input checked="" type="checkbox"/>		
APDU_Length	(R)	<input checked="" type="checkbox"/>		
MAC_Address	(R)	<input checked="" type="checkbox"/>		
Max_BVLC_Length_Accepted	(R)	<input checked="" type="checkbox"/>		
Max_NPDU_Length_Accepted	(R)	<input checked="" type="checkbox"/>		
SC_Primary_Hub_URI	(R)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SC_Failover_Hub_URI	(R)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SC_Minimum_Reconnect_Time	(R)	<input checked="" type="checkbox"/>		
SC_Maximum_Reconnect_Time	(R)	<input checked="" type="checkbox"/>		
SC_Connect_Wait_Timeout	(R)	<input checked="" type="checkbox"/>		
SC_Disconnect_Wait_Timeout	(R)	<input checked="" type="checkbox"/>		
SC_Heartbeat_Timeout	(R)	<input checked="" type="checkbox"/>		
SC_Hub_Connector_State	(R)	<input checked="" type="checkbox"/>		
Operational_Certificate_File	(R)	<input checked="" type="checkbox"/>		
Issuer_Certificate_Files	(R)	<input checked="" type="checkbox"/>		
Certificate_Signing_Request_File	(R)	<input checked="" type="checkbox"/>		
SC_Primary_Hub_Connection_Status	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Failover_Hub_Connection_Status	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Hub_Function_Enable	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Hub_Function_Accept_URIs	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Hub_Function_Binding	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Hub_Function_Connection_Status	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
SC_Failed_Connection_Requests	O	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Proprietary Property	ID	R	W	Property Datatype Range Restriction
Sauter_home_port	8422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

BACnet Protocol Implementation Conformance Statement

I.1.7 Data Link Layer Options

- BACnet IP, (Annex J)
- BACnet IP, (Annex J) BACnet Broadcast Management Device (BBMD)
- BACnet IP, (Annex J) Network Address Translation (NAT Traversal)
- BACnet Secure Connect (Annex AB)
 - BACnet Secure Connect Node
 - If direct connections are supported:
 - Maximum number of simultaneous direct connections initiated: none
 - Maximum number of simultaneous direct connections accepted: none
 - BACnet Secure Connect Hub Function
 - Maximum number of simultaneous hub connections accepted: 10
 - HTTPS Proxy Support
 - List the types of HTTPS proxies supported: none
 - Additional cipher suites supported beyond those required for TLS V1.3
 - The additional cipher suites supported using the cipher suite names as of the TLS Cipher Suite Registry at IANA (See RFC 8446):
 - none
 - Additional Transport Layer Security versions other than V1.3 supported
 - The TLS versions other than V1.3 that are supported, including the supported cipher suites for the version beyond those required, using the cipher suite names as defined by the TLS version supported:
 - none
 - Generates private keys internally, and provides matching certificate signing requests.
 - DNS host name resolution supported (RFC 1123)
 - mDNS host name resolution supported (RFC 6762)

I.1.8 Device Address Binding

- Static device binding supported ¹

I.1.9 Networking Options

- Router, Clause 6
 - Routing configurations: BACnet/IP – BACnet/SC
- Annex H, BACnet Tunneling Router over IP

I.1.10 Character Sets

Supports following character sets²:

- | | | |
|---|---|-------------------------------------|
| <input checked="" type="checkbox"/> ISO 10646 (UTF-8) | <input type="checkbox"/> IBM™/Microsoft™ DBCS | <input type="checkbox"/> ISO 8859-1 |
| <input type="checkbox"/> ISO 10646 (UCS-2) | <input type="checkbox"/> ISO 10646 (UCS-4) | <input type="checkbox"/> JIS 0208 |

Outgoing character strings are communicated according to the selected character set (Sauter-character-set).

Incoming character strings with character sets other than ISO 10646 (UTF-8) will be mapped to ISO 10646 (UTF-8) internally.

¹ This is currently necessary for two-way communication with MS/TP slaves and certain other devices.

² Indicating support for multiple character sets does not imply that they can all be supported simultaneously.



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