

# BACnet Protocol Implementation Conformance Statement



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## 1. Vorwort

Dieses Dokument beschreibt die in der Geräteserie Universal-Gateway//compact implementierten BACnet-Funktionalitäten. Bitte beachten Sie, dass nicht in allen verwendeten Kombinationen alle BACnet Funktionalitäten auch tatsächlich zur Verfügung stehen. Verschiedene Funktionen und Objekte sind für bestimmte Anwendungsfälle reserviert (z.B. Life-Safety-Objekte im Zusammenhang mit Brandmelde- und Einbruchmeldeanlagen).

## 2. Literaturhinweise

ANSI/ASHRAE Standard 135-2008 BACnet - A Data Communication Protocol for Building Automation and Control Networks:

Dies ist das offizielle Standardwerk der ASHRAE zum Thema BACnet. Es behandelt den kompletten ASHRAE-Standard 135-2008 (BACnet). Zu diesem Werk gibt es einige Erweiterungen und Anhänge, welche von der BACnet-Homepage geladen werden können (<http://www.bacnet.org>).

Diese Literatur kann bezogen werden bei Promotor-Verlag, Postfach 211053, D-76160 Karlsruhe, <http://www.cci-promotor.de> oder  
Bezug direkt vom ASHRAE-Online-Buchladen:  
<http://www.ashrae.org/>

### 2.1. Interessante Links zum Thema BACnet im World Wide Web

- [www.bacnet.org](http://www.bacnet.org)

Offizielle Homepage der ASHRAE zum Thema BACnet

Dies ist die wohl wichtigste Informationsquelle für technische Informationen zum Thema BACnet.

- [www.big-eu.org](http://www.big-eu.org)

Homepage der europäischen BACnet Interest Group mit Informationen über Aktivitäten und Veranstaltungen der BACnet Interest Group Europe

- [www.mbs-software.de](http://www.mbs-software.de)

Homepage der MBS GmbH mit Informationen über BACnet-Produkte, Feldbus-Gateway-Produkte und Softwareentwicklungen.

## 2.2. Eingetragene Warenzeichen

In diesem Buch werden Warenzeichen und Produktbezeichnungen verschiedener Firmen verwendet. Die folgenden Bezeichnungen sind eingetragene Warenzeichen der jeweiligen Hersteller und werden in diesem Buch nicht gesondert aufgeführt:

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- LONTalk ist eingetragenes Warenzeichen der Echelon, Inc.

## 2.3. Copyright

©2011 MBS GmbH  
Römerstraße 15  
D-47809 Krefeld

Telefon: +49 / 21 51 / 72 94 - 0  
Telefax: +49 / 21 51 / 72 94 – 54

E-Mail: [info@mbs-software.de](mailto:info@mbs-software.de)

Internet: <http://www.mbs-software.de>

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## 2.4. Dokumentrevision

Rev.-Nr.	Datum	Autor	Bemerkung
1.0	14.01.2011	LSK	
1.1	18.01.2011	LSK	Ergänzungen und Korrekturen: Baudrate, Routing, Revision
1.2	28.03.2011	FRS	Kleine Textkorrekturen, Letzte Seite ergänzt
1.3	04.04.2011	FRS	Ergänzung für UGW micro

### 3. BACnet PICS UGW compact / UGW micro

<b>Date:</b>	14.02.2011
<b>Vendor Name:</b>	MBS GmbH
<b>Product Name:</b>	<b>MBS Universal-Gateways</b>
<b>Product Model Number:</b>	1.0
<b>Application Software Version:</b>	V1_11A
<b>Firmware Revision:</b>	1.1
<b>BACnet Protocol Version:</b>	1
<b>BACnet Protocol Revision:</b>	7

#### **Product Description:**

The MBS Universal-Gateways provides access to BACnet-networks acting as a BACnet-Client (if configured) and BACnet-Server.

#### **BACnet Standardized Device Profile (Annex L):**

- BACnet Operator Workstation (B-OWS)**
- BACnet Building Controller (B-BC)**
- BACnet Advanced Application Controller (B-AAC)**
- BACnet Application Specific Controller (B-ASC)**
- BACnet Smart Sensor (B-SS)**
- BACnet Smart Actuator (B-SA)**

#### **List all BACnet Interoperability Building Blocks Supported (Annex K):**

##### **1. Data-Sharing BIBBs**

Data Sharing Read-Property-A	DS-RP-A
Data Sharing Read-Property-B	DS-RP-B
Data Sharing Read-Property-Multiple-A	DS-RPM-A
Data Sharing Read-Property-Multiple-B	DS-RPM-B
Data Sharing Write-Property-A	DS-WP-A
Data Sharing Write-Property-B	DS-WP-B
Data Sharing Write-Property-Multiple-A	DS-WPM-A
Data Sharing Write-Property-Multiple-B	DS-WPM-B
Data Sharing COV-A	DS-COV-A
Data Sharing COV-B	DS-COV-B
Data Sharing COVP-B	DS-COVP-B

## 2. Alarm and Event BIBBs

Alarm and Event-Notification-Internal B	AE-N-I-B
Alarm and Event-Notification-External B	AE-N-E-B
Alarm and Event-ACK-B	AE-ACK-B
Alarm and Event-Alarm Summary-B	AE-ASUM-B
Alarm and Event-Enrollment Summary-B	AE-ESUM-B
Alarm and Event-Event Information-B	AE-INFO-B
Alarm and Event-LifeSafety-B	AE-LS-B

## 3. Scheduling BIBBs

Scheduling-Internal-B	SCHEM-I-B*
Scheduling-External-B	SCHEM-E-B*

\* These functions are not available in the product Universal-Gateway micro.

## 4. Trending BIBBs

Trending-Viewing and Modifying Trends Internal-B	T-VMT-I-B*
Trending-Viewing and Modifying Trends External-B	T-VMT-E-B*
Trending-Automated Trend Retrieval-B	T-ATR-B*

\* These functions are not available in the product Universal-Gateway micro.

## 5. Device Management BIBBs

Device Management-Dynamic Device Binding-B	DM-DDB-B
Device Management-Dynamic Object Binding-B	DM-DOB-B
Device Management-DeviceCommunicationControl-B	DM-DCC-B
Device Management-TimeSynchronization-A	DM-TS-A*
Device Management-TimeSynchronization-B	DM-TS-B*
Device Management-UTCTimeSynchronization-A	DM-UTC-A*
Device Management-UTCTimeSynchronization-B	DM-UTC-B*
Device Management-ReinitializeDevice-B	DM-RD-B
Device Management-List Manipulation-B	DM-LM-B

\* These functions are not available in the product Universal-Gateway micro.

## 6. Network Management BIBBs

No Network Management BIBBs supported.

### Segmentation Capability:

- |                                                                   |                 |
|-------------------------------------------------------------------|-----------------|
| <input checked="" type="checkbox"/> Segmented requests supported  | Window Size: 16 |
| <input checked="" type="checkbox"/> Segmented responses supported | Window Size: 16 |

(Changeable by driver Configuration)

### Data Link Layer Options:

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ANSI/ATA 878.1, RS-485 ARCNET (Clause 8)      baud rate(s) \_\_\_\_\_
- MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 76800, 115200
- MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800, 115200
- Point-To-Point, EIA 232 (Clause 10)      baud rate(s) \_\_\_\_\_
- Point-To-Point, modem, (Clause 10)      baud rate(s) \_\_\_\_\_
- LonTalk, (Clause 11) medium: \_\_\_\_\_
- Other: \_\_\_\_\_

### Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

- Yes
- No

### Networking Options:

- Router, Clause 6

(Yes, if multiple datalayer are activated. Changeable by driver configuration)

- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)
- Does the BBMD support registrations by Foreign Devices?  
Number of FD-Entries: 50 (configurable)

### Character Sets Supported:

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

- ANSI X3.4
- IBM™/Microsoft™ DBCS
- ISO 8859-1
- ISO 10646 (UCS-2)
- ISO 10646 (UCS-4)
- JIS C 6226

**If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:**

This BACnet-Gateway provides interfaces for several communication protocols, either proprietary or standard. For a complete list of supported protocols visit:

[www.mbs-software.de](http://www.mbs-software.de)

## Standard Object Types Supported:

The supported object-types are:

Analog-Input	(0)
Analog-Output	(1)
Analog-Value	(2)
Binary-Input	(3)
Binary-Output	(4)
Binary-Output	(5)
Calendar	(6)*
Command	(7)
Device	(8)
Event-Enrollment	(9)
File	(10)
Multistate-Input	(13)
Multistate-Output	(14)
Notification-Class	(15)
Schedule	(17)*
Multistate-Value	(19)
Trend-Log	(20)*
LifeSafety-Point	(21)
LifeSafety-Zone	(22)

**\* These functions are not available in the product Universal-Gateway micro.**

Creation and Deletion of objects is not supported.

**Analog-Input**

Property Identifier	Property Datatype	Conformance Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	REAL	R <sub>1</sub>	R <sub>1</sub> /W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	R/W
Out_Of_Service	BOOLEAN	R	R/W
Update_Interval	Unsigned	O	-/R/W
Units	BACnetEngineeringUnits	R	R/W
Min_Pres_Value	REAL	O	-/R/W
Max_Pres_Value	REAL	O	-/R/W
Resolution	REAL	O	-/R/W
COV_Increment	REAL	O <sub>2</sub>	-/R/W
Time_Delay	Unsigned	O <sub>3</sub>	-/R/W
Notification_Class	Unsigned	O <sub>3</sub>	-/R/W
High_Limit	REAL	O <sub>3</sub>	-/R/W
Low_Limit	REAL	O <sub>3</sub>	-/R/W
Deadband	REAL	O <sub>3</sub>	-/R/W
Limit_Enable	BACnetLimitEnable	O <sub>3</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>3</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>3</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>3</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>3</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> This property is required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> This property is required if the object supports COV reporting.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Analog-Output**

Property Identifier	Property Datatype	Conformance Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	REAL	W	W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Units	BACnetEngineeringUnits	R	R/W
Min_Pres_Value	REAL	O	-/R/W
Max_Pres_Value	REAL	O	-/R/W
Resolution	REAL	O	-/R/W
Priority_Array	BACnetPriorityArray	R	R
Relinquish_Default	REAL	R	R/W
COV_Increment	REAL	O <sub>1</sub>	-/R/W
Time_Delay	Unsigned	O <sub>2</sub>	-/R/W
Notification_Class	Unsigned	O <sub>2</sub>	-/R/W
High_Limit	REAL	O <sub>2</sub>	-/R/W
Low_Limit	REAL	O <sub>2</sub>	-/R/W
Deadband	REAL	O <sub>2</sub>	-/R/W
Limit_Enable	BACnetLimitEnable	O <sub>2</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>2</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>2</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>2</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>2</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> This property is required if the object supports COV reporting.

<sup>2</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Analog-Value**

Property Identifier	Property Datatype	Conformance Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	REAL	R <sub>4</sub>	R/W
Description	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Units	BACnetEngineeringUnits	R	R/W
Priority_Array	BACnetPriorityArray	O <sub>1</sub>	-/R
Relinquish_Default	REAL	O <sub>1</sub>	-/R/W
COV_Increment	REAL	O <sub>2</sub>	-/R/W
Time_Delay	Unsigned	O <sub>3</sub>	-/R/W
Notification_Class	Unsigned	O <sub>3</sub>	-/R/W
High_Limit	REAL	O <sub>3</sub>	-/R/W
Low_Limit	REAL	O <sub>3</sub>	-/R/W
Deadband	REAL	O <sub>3</sub>	-/R/W
Limit_Enable	BACnetLimitEnable	O <sub>3</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>3</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>3</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>3</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>3</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> If Present\_Value is commandable, then both of these properties shall be present.

<sup>2</sup> This property is required if the object supports COV reporting.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

<sup>4</sup> If Present\_Value is commandable, then it is required to be writable. This property is required to be writable when Out\_Of\_Service is TRUE.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Binary-Input**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	BACnetBinaryPV	R <sub>1</sub>	R/W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Polarity	BACnetPolarity	R	R/W
Inactive_Text	CharacterString	O <sub>2</sub>	-/R/W
Active_Text	CharacterString	O <sub>2</sub>	-/R/W
Change_Of_State_Time	BACnetDateTime	O <sub>3</sub>	-/R
Change_Of_State_Count	Unsigned	O <sub>3</sub>	-/R
Time_Of_State_Count_Reset	BACnetDateTime	O <sub>3</sub>	-/R
Elapsed_Active_Time	Unsigned32	O <sub>4</sub>	-/R
Time_Of_Active_Time_Reset	BACnetDateTime	O <sub>4</sub>	-/R
Time_Delay	Unsigned	O <sub>5</sub>	-/R/W
Notification_Class	Unsigned	O <sub>5</sub>	-/R/W
Alarm_Value	BACnetBinaryPV	O <sub>5</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>5</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>5</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>5</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>5</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> This property is required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.

<sup>3</sup> If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.

<sup>4</sup> If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.

<sup>5</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Binary-Output**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	BACnetBinaryPV	W	R/W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Polarity	BACnetPolarity	R	R/W
Inactive_Text	CharacterString	O <sub>1</sub>	-/R/W
Active_Text	CharacterString	O <sub>1</sub>	-/R/W
Change_Of_State_Time	BACnetDateTime	O <sub>2</sub>	-/R
Change_Of_State_Count	Unsigned	O <sub>2</sub>	-/R
Time_Of_State_Count_Reset	BACnetDateTime	O <sub>2</sub>	-/R
Elapsed_Active_Time	Unsigned32	O <sub>3</sub>	-/R
Time_Of_Active_Time_Reset	BACnetDateTime	O <sub>3</sub>	-/R
Minimum_Off_Time	Unsigned32	O	-/R/W
Minimum_On_Time	Unsigned32	O	-/R/W
Priority_Array	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	R	R/W
Time_Delay	Unsigned	O <sub>4</sub>	-/R/W
Notification_Class	Unsigned	O <sub>4</sub>	-/R/W
Feedback_Value	BACnetBinaryPV	O <sub>4</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>4</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>4</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>4</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>4</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.

<sup>2</sup> If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.

<sup>3</sup> If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Binary-Value**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	BACnetBinaryPV	R <sub>1</sub>	-/R/W
Description	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Inactive_Text	CharacterString	O <sub>2</sub>	-/R/W
Active_Text	CharacterString	O <sub>2</sub>	-/R/W
Change_Of_State_Time	BACnetDateTime	O <sub>3</sub>	-/R
Change_Of_State_Count	Unsigned32	O <sub>3</sub>	-/R
Time_Of_State_Count_Reset	BACnetDateTime	O <sub>3</sub>	-/R
Elapsed_Active_Time	Unsigned32	O <sub>4</sub>	-/R
Time_Of_Active_Time_Reset	BACnetDateTime	O <sub>4</sub>	-/R
Minimum_Off_Time	Unsigned32	O	-/R/W
Minimum_On_Time	Unsigned32	O	-/R/W
Priority_Array	BACnetPriorityArray	O <sub>5</sub>	-/R/W
Relinquish_Default	BACnetBinaryPV	O <sub>5</sub>	-/R/W
Time_Delay	Unsigned	O <sub>6</sub>	-/R/W
Notification_Class	Unsigned	O <sub>6</sub>	-/R/W
Alarm_Value	BACnetBinaryPV	O <sub>6</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>6</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>6</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>6</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>6</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> If Present\_Value is commandable, then it is required to be writable. This property is required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> If one of the optional properties Inactive\_Text or Active\_Text is present, then both of these properties shall be present.

<sup>3</sup> If one of the optional properties Change\_Of\_State\_Time, Change\_Of\_State\_Count, or Time\_Of\_State\_Count\_Reset is present, then all of these properties shall be present.

<sup>4</sup> If one of the optional properties Elapsed\_Active\_Time or Time\_Of\_Active\_Time\_Reset is present, then both of these properties shall be present.

<sup>5</sup> If Present\_Value is commandable, then both of these properties shall be present.

<sup>6</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Calendar\***

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
Present_Value	BOOLEAN	R	R
Date_List	List of BACnetCalendarEntry	R	R/W
Profile_Name	CharacterString	O	-/R/W

\* These functions are not available in the product Universal-Gateway micro.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

## Command

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
Present_Value	Unsigned	W	W
In_Process	BOOLEAN	R	R
All_Writes_Successful	BOOLEAN	R	R
Action	BACnetARRAY[N] of BACnetActionList	R	R/W
Action_Text	BACnetARRAY[N] of CharacterString	O	-/R/W
Profile_Name	CharacterString	O	-/R/W

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Device**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
System_Status	BACnetDeviceStatus	R	R
Vendor_Name	CharacterString	R	R
Vendor_Identifier	Unsigned16	R	R
Model_Name	CharacterString	R	R
Firmware_Revision	CharacterString	R	R
Application_Software_Version	CharacterString	R	R
Location	CharacterString	O	-/R
Description	CharacterString	O	-/R
Protocol_Version	Unsigned	R	R
Protocol_Revision	Unsigned	R	R
Protocol_Services_Supported	BACnetServicesSupported	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	R
Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	R	R
Structured_Object_List	BACnetARRAY[N]of BACnetObjectIdentifier	O	-
Max_APDU_Length_Accepted	Unsigned	R	R
Segmentation_Supported	BACnetSegmentation	R	R
Max_Segments_Accepted	Unsigned	O <sub>1</sub>	-/R
VT_Classes_Supported	List of BACnetVTClass	O <sub>2</sub>	-
Active_VT_Sessions	List of BACnetVTSession	O <sub>2</sub>	-
Local_Time*	Time	O <sub>3,4</sub>	R
Local_Date*	Date	O <sub>3,4</sub>	R
UTC_Offset	INTEGER	O <sub>4</sub>	R
Daylight_Savings_Status	BOOLEAN	O <sub>4</sub>	R
APDU_Segment_Timeout	Unsigned	O <sub>1</sub>	-/R
APDU_Timeout	Unsigned	R	R
Number_Of_APDU_Retries	Unsigned	R	R
List_Of_Session_Keys	List of BACnetSessionKey	O	-
Time_Synchronization_Recipients	List of BACnetRecipient	O <sub>5</sub>	-/R
Max_Master	Unsigned(1..127)	O <sub>6</sub>	-/R
Max_Info_Frames	Unsigned	O <sub>6</sub>	-/R
Device_Address_Binding	List of BACnetAddressBinding	R	R
Database_Revision	Unsigned	R	R
Configuration_Files	BACnetARRAY[N] of BACnetObjectIdentifier	O <sub>7</sub>	-
Last_Restore_Time	BACnetTimeStamp	O <sub>7</sub>	-
Backup_Failure_Timeout	Unsigned16	O <sub>8</sub>	-
Active_COV_Subscriptions	List of BACnetCOVSubscription	O <sub>9</sub>	-/R
Slave_Proxy_Enable	BACnetARRAY[N] of BOOLEAN	O <sub>10</sub>	-/R
Manual_Slave_Address_Binding	List of BACnetAddressBinding	O <sub>10</sub>	-/R
Auto_Slave_Discovery	BACnetARRAY[N] of BOOLEAN	O <sub>11</sub>	-/R
Slave_Address_Binding	List of BACnetAddressBinding	O <sub>12</sub>	-/R
Last_Restart_Reason	BACnetRestartReason	O <sub>13</sub>	-
Time_Of_Device_Restart	BACnetTimeStamp	O <sub>13</sub>	-
Restart_Notification_Recipients	List of BACnetRecipient	O <sub>13</sub>	-

UTC_Time_Synchronization_Recipients	List of BACnetRecipient	O <sub>5</sub>	-/R
Time_Synchronization_Interval	Unsigned	O <sub>14</sub>	-/R
Align_Intervals	BOOLEAN	O <sub>14</sub>	-
Interval_Offset	Unsigned	O <sub>14</sub>	-
Profile_Name	CharacterString	O	-

- <sup>1</sup> Required if segmentation of any kind is supported.
- <sup>2</sup> If one of the properties VT\_Classes\_Supported or Active\_VT\_Sessions is present, then both of these properties shall be present. Both properties are required if support for VT Services is indicated in the PICS.
- <sup>3</sup> If the device supports the execution of the TimeSynchronization service, then these properties shall be present.
- <sup>4</sup> If the device supports the execution of the UTCTimeSynchronization service, then these properties shall be present.
- <sup>5</sup> If this property is present, then Time\_Synchronization\_Interval, Align\_Intervals and Interval\_Offset shall be present. If present, this property shall be writable.
- <sup>6</sup> These properties are required if the device is an MS/TP master node.
- <sup>7</sup> These properties are required if the device supports the backup and restore procedures.
- <sup>8</sup> This property must be present and writable if the device supports the backup and restore procedures.
- <sup>9</sup> This property is required if the device supports execution of either the SubscribeCOV or SubscribeCOVProperty service.
- <sup>10</sup> This property shall be present and writable if the device is capable of being a Slave-Proxy device.
- <sup>11</sup> This property shall be present if the device is capable of being a Slave-Proxy device that implements automatic discovery of slaves.
- <sup>12</sup> This property shall be present if the device is capable of being a Slave-Proxy device.
- <sup>13</sup> These properties are required if the device supports the restart procedure as described in Clause 19.3.
- <sup>14</sup> If either Time\_Synchronization\_Recipients or UTC\_Time\_Synchronization\_Recipients is present, then this property shall be present and writable.

**\* These functions are not available in the product Universal-Gateway micro.**

**Event-Enrollment**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
Event_Type	BACnetEventType	R	R
Notify_Type	BACnetNotifyType	R	R/W
Event_Parameters	BACnetEventParameter	R	R/W
Object_Property_Reference	BACnetDeviceObjectPropertyReference	R	R/W
Event_State	BACnetEventState	R	R
Event_Enable	BACnetEventTransitionBits	R	R/W
Acked_Transitions	BACnetEventTransitionBits	R	R
Notification_Class	Unsigned	R	R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	R	R
Profile_Name	CharacterString	O	-/R/W

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**File**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
File_Type	CharacterString	R	R/W
File_Size	Unsigned	R <sub>1</sub>	R/W
Modification_Date	BACnetDateTime	R	R/W
Archive	BOOLEAN	W	W
Read_Only	BOOLEAN	R	R/W
File_Access_Method	BACnetFileAccessMethod	R	R/W
Record_Count	Unsigned	O <sub>2</sub>	-/R/W
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> If the file size can be changed by writing to the file, and File\_Access\_Method is STREAM\_ACCESS, then this property shall be writable.

<sup>2</sup> This property shall be present only if File\_Access\_Method is RECORD\_ACCESS. If the number of records can be changed by writing to the file, then this property shall be writable.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Multistate-Input**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	R <sub>1</sub>	R/W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O <sub>2</sub>	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Number_Of_States	Unsigned	R	R/W
State_Text	BACnetARRAY[N]of CharacterString	O	-/R/W
Time_Delay	Unsigned	O <sub>3</sub>	-/R/W
Notification_Class	Unsigned	O <sub>3</sub>	-/R/W
Alarm_Values	List of Unsigned	O <sub>3</sub>	-/R/W
Fault_Values	List of Unsigned	O <sub>3</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>3</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>3</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>3</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>3</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> This property is required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> This property shall be required if Fault\_Values is present.

<sup>3</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Multistate-Output**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	W	W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Number_Of_States	Unsigned	R	R/W
State_Text	BACnetARRAY[N]of CharacterString	O	-/R/W
Priority_Array	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	R	R/W
Time_Delay	Unsigned	O <sub>1</sub>	-/R/W
Notification_Class	Unsigned	O <sub>1</sub>	-/R/W
Feedback_Value	Unsigned	O <sub>1</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>1</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>1</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>1</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>1</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Notification-Class**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
Notification_Class	Unsigned	R	R/W
Priority	BACnetARRAY[3] of Unsigned	R	R/W
Ack_Required	BACnetEventTransitionBits	R	R/W
Recipient_List	List of BACnetDestination	R	R/W
Profile_Name	CharacterString	O	-/R/W

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Schedule\***

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Any	R	R/W
Description	CharacterString	O	-/R/W
Effective_Period	BACnetDateRange	R	R/W
Weekly_Schedule	BACnetARRAY[7]of BACnetDailySchedule	O <sub>1</sub>	-/R/W
Exception_Schedule	BACnetARRAY[N]of BACnetSpecialEvent	O <sub>1</sub>	-/R/W
Schedule_Default	Any	R	R/W
List_Of_Object_Property_References	List of BACnetDeviceObjectPropertyReference	R	R/W
Priority_For_Writing	Unsigned(1..16)	R	R/W
Status_Flags	BACnetStatusFlags	R	R
Reliability	BACnetReliability	R	R/W
Out_Of_Service	BOOLEAN	R	R/W
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> At least one of these properties is required.

**\* These functions are not available in the product Universal-Gateway micro.**

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Multistate-Value**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	Unsigned	R <sub>1</sub>	R/W
Description	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	O <sub>2</sub>	-/R/W
Out_Of_Service	BOOLEAN	R	R/W
Number_Of_States	Unsigned	R	R/W
State_Text	BACnetARRAY[N] of CharacterString	O	-/R/W
Priority_Array	BACnetPriorityArray	O <sub>3</sub>	-/R/W
Relinquish_Default	Unsigned	O <sub>3</sub>	-/R/W
Time_Delay	Unsigned	O <sub>4</sub>	-/R/W
Notification_Class	Unsigned	O <sub>4</sub>	-/R/W
Alarm_Values	List of Unsigned	O <sub>4</sub>	-/R/W
Fault_Values	List of Unsigned	O <sub>4</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>4</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>4</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>4</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>4</sub>	-/R
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> If Present\_Value is commandable, then it is required to also be writable. This property is required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> This property shall be required if Fault\_Values is present.

<sup>3</sup> If Present\_Value is commandable, then both of these properties shall be present.

<sup>4</sup> These properties are required if the object supports intrinsic reporting.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**Trend-Log\***

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Description	CharacterString	O	-/R/W
Enable	BOOLEAN	W	W
Start_Time	BACnetDateTime	O <sub>1,2</sub>	-/R/W
Stop_Time	BACnetDateTime	O <sub>1,2</sub>	-/R/W
Log_DeviceObjectProperty	BACnetDeviceObjectPropertyReference	O <sub>1</sub>	-/R/W
Log_Interval	Unsigned	O <sub>1,3</sub>	-/R/W
COV_Resubscription_Interval	Unsigned	O	-/R/W
Client_COV_Increment	BACnetClientCOV	O	-/R/W
Stop_When_Full	BOOLEAN	R	R/W
Buffer_Size	Unsigned32	R	R/W
Log_Buffer	List of BACnetLogRecord	R	R
Record_Count	Unsigned32	W	W
Total_Record_Count	Unsigned32	R	R
Notification_Threshold	Unsigned32	O <sub>4</sub>	-/R/W
Records_Since_Notification	Unsigned32	O <sub>4</sub>	-/R
Last_Notify_Record	Unsigned32	O <sub>4</sub>	-/R
Event_State	BACnetEventState	R	R
Notification_Class	Unsigned	O <sub>4</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>4</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>4</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>4</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	O <sub>4</sub>	-/R
Profile_Name	CharacterString	O	-/R/W
Logging_Type	BACnetLoggingType	R	R/W
Align_Intervals	BOOLEAN	O <sub>5</sub>	-/R/W
Interval_Offset	Unsigned	O <sub>5</sub>	-/R/W
Trigger	BOOLEAN	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Reliability	BACnetReliability	O	-/R/W

<sup>1</sup> These properties are required to be present if the monitored property is a BACnet property.

<sup>2</sup> If present, these properties are required to be writable.

<sup>3</sup> If present, this property is required to be writable when Logging\_Type has the value POLLED or the value COV. Also, if present this property is required to be read-only if Logging\_Type has the value TRIGGERED.

<sup>4</sup> These properties are required to be present if the object supports intrinsic reporting.

<sup>5</sup> These properties are required to be present if the object supports clock-aligned logging.

**\* These functions are not available in the product Universal-Gateway micro.**

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**LifeSafety-Point**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	BACnetLifeSafetyState	R	R
Tracking_Value	BACnetLifeSafetyState	R <sub>1</sub>	R/W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	R <sub>1</sub>	R/W
Out_Of_Service	BOOLEAN	R	R/W
Mode	BACnetLifeSafetyMode	W	W
Accepted_Modes	List of BACnetLifeSafetyMode	R	R/W
Time_Delay	Unsigned	O <sub>2</sub>	-/R/W
Notification_Class	Unsigned	O <sub>2</sub>	-/R/W
Life_Safety_Alarm_Values	Values List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Alarm_Values	List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Fault_Values	List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>2</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>2</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>2</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY [3] of BACnetTimeStamp	O <sub>2</sub>	-/R
Silenced	BACnetSilencedState	R	R/W
Operation_Expected	BACnetLifeSafetyOperation	R	R/W
Maintenance_Required	BACnetMaintenance	O	-/R/W
Setting	Unsigned8	O	-/R/W
Direct_Reading	REAL	O <sub>3</sub>	-/R/W
Units	BACnetEngineeringUnits	O <sub>3</sub>	-/R/W
Member_Of	List of BACnetDeviceObjectReference	O	-/R/W
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> These properties are required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> These properties are required if the object supports intrinsic alarming.

<sup>3</sup> If either of these properties is present, then both must be present.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

**LifeSafety-Zone**

Property Identifier	Property Datatype	Conf. Code	UGW-compact
Object_Identifier	BACnetObjectIdentifier	R	R
Object_Name	CharacterString	R	R
Object_Type	BACnetObjectType	R	R
Present_Value	BACnetLifeSafetyState	R	R
Tracking_Value	BACnetLifeSafetyState	R <sub>1</sub>	R/W
Description	CharacterString	O	-/R/W
Device_Type	CharacterString	O	-/R/W
Status_Flags	BACnetStatusFlags	R	R
Event_State	BACnetEventState	R	R
Reliability	BACnetReliability	R <sub>1</sub>	R/W
Out_Of_Service	BOOLEAN	R	R/W
Mode	BACnetLifeSafetyMode	W	W
Accepted_Modes	List of BACnetLifeSafetyMode	R	R/W
Time_Delay	Unsigned	O <sub>2</sub>	-/R/W
Notification_Class	Unsigned	O <sub>2</sub>	-/R/W
Life_Safety_Alarm_Values	List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Alarm_Values	List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Fault_Values	List of BACnetLifeSafetyState	O <sub>2</sub>	-/R/W
Event_Enable	BACnetEventTransitionBits	O <sub>2</sub>	-/R/W
Acked_Transitions	BACnetEventTransitionBits	O <sub>2</sub>	-/R
Notify_Type	BACnetNotifyType	O <sub>2</sub>	-/R/W
Event_Time_Stamps	BACnetARRAY [3] of BACnetTimeStamp	O <sub>2</sub>	-/R
Silenced	BACnetSilencedState	R	R/W
Operation_Expected	BACnetLifeSafetyOperation	R	R/W
Maintenance_Required	BOOLEAN	O	-/R/W
Zone_Members	List of BACnetDeviceObjectReference	R	R/W
Member_Of	List of BACnetDeviceObjectReference	O	-/R/W
Profile_Name	CharacterString	O	-/R/W

<sup>1</sup> These properties are required to be writable when Out\_Of\_Service is TRUE.

<sup>2</sup> These properties are required if the object supports intrinsic alarming.

Each property can be set into its state (not present / required / writeable) according to the UGW compact code.

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**MBS GmbH**  
Römerstraße 15  
D-47809 Krefeld  
[www.mbs-software.de](http://www.mbs-software.de)  
[info@mbs-software.de](mailto:info@mbs-software.de)

