

**ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)**

(This annex is part of this Standard and is required for its use.)

**BACnet Protocol Implementation Conformance Statement****Date:** ...**Vendor Name:** EMU Electronic AG**Product Name:** M-BUS Center 250**Product Model Number:** Test**Application Software Version:** 0.0.0.3433**Firmware Revision:** 4531**BACnet Protocol Revision:** 14**Product Description:**

The **M-BUS Center 250** is a data management device for connected M-Bus devices. After a M-Bus device is registered to the **M-BUS Center 250** the M-BUS device can be read out, the M-Bus data can be logged at a adjustable time and the M-Bus device can be read out via BACnet/IP as a simple sensor. Simple actor is not possible, due the limitations of some M-Bus devices.

The **M-BUS Center 250** shows a Device Object for the Link device itself and a Device with Device Object and several Analog Input Block for each registered M-Bus device

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

- BACnet Operator Workstation (B-OWS)
- BACnet Advanced Operator Workstation (B-AWS)
- BACnet Operator Display (B-OD)
- 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):****Data sharing services:**

<b>Name</b>	<b>BIBB</b>
Data Sharing-ReadProperty-B	DS-RP-B
Data Sharing-ReadPropertyMultiple-B	DS-RPM-B
Data Sharing-WriteProperty-A	DS-WP-B
Data Sharing-WritePropertyMultiple-B	DS-WPM-B

**Device and network management services:**

<b>Name</b>	<b>BIBB</b>
Device Management-DeviceCommunicationControl-B	DM-DCC-B
Device Management-Dynamic Device Binding-B	DM-DDB-B
Device Management-Dynamic Object Binding-B	DM-DOB-B
Network Management-Router Configuration-B	NM-RC-B

**Segmentation Capability:**

- Able to transmit segmented messages Window Size 16
- Able to receive segmented messages Window Size 16

**Standard Object Types Supported:**

- Device related parameters are supported in the Device Object
- All registered M-Bus devices are mapped to BACnet Devices containing a Device Object and several Analog input objects

<b>Object EMU</b>	<b>ObjectType</b>
M-BUS Center 250	Device
<b>Objects for registered M-Bus devices</b>	
Registered M-Bus Device	Device
Values contained in registered M-Bus Device	Analog Input

**M-BUS Center 250**

Property Identifier	Property Datatype	Conformance Code	Value
Object_Identifier	BACnetObjectIdentifier	R	(device, xxxxx)
Object_Name	CharacterString	W	"M-BUS Center 250"
Object_Type	BACnetObjectType	R	Device
System_Status	BACnetDeviceStatus	R	OPERATIONAL
Vendor_Name	CharacterString	R	"EMU Electronic AG"
Vendor_Identifier	Unsigned16	R	512
Model_Name	CharacterString	R	"EMU MBus Logger"
Firmware_Revision	CharacterString	R	Depending on Firmware
Application_Software_Version	CharacterString	R	Depending on Application
Location	CharacterString	W	Set by Web GUI or over BACNet
Description	CharacterString	W	Set by Web GUI or over BACNet
Protocol_Version	Unsigned	R	1
Protocol_Revision	Unsigned	R	14
Protocol_Services_Supported	BACnetServicesSupported	R	readProperty readPropertyMultiple writeProperty writePropertyMultiple deviceCommunicationControl i-Am i-Have who-Has who-Is
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	device
Object_List	BACnetArray[N] of Object Identifier	R	device
Max_APDU_Length_Accepted	Unsigned	R	16
Apdu-segment-timeout	Unsigned	O/R	2000
Segmentation_Supported	BACnetSegmentation	R	SEGMENTED_BOTH
LocalTime	Time	O/R	?
LocalDate	Date	O/R	?
Daylight-savings-status	Unsigned	R	?
APDU_Timeout	Unsigned	W	3000
Number_Of_APDU_Retries	Unsigned	W	5
DatabaseRevision	Unsigned	R	?
Device-address-binding	BACnetAddressBinding	R	?
Max-segment-accepted	Unsigned	O/R	16

**Registered M-Bus Devices and Built In Devices**

Property Identifier	Property Datatype	Conformance Code	Value
Object_Identifier	BACnetObjectIdentifier	R	(device, xxxxx)
Object_Name	CharacterString	W	MBUS Vendorname + [MBUS Name or Web Gui Name or string set over BACNet] + MBUS Serialnumber (hex)
Object_Type	BACnetObjectType	R	Device
System_Status	BACnetDeviceStatus	R	OPERATIONAL
Vendor_Name	CharacterString	R	"EMU Electronic AG"
Vendor_Identifier	Unsigned16	R	512
Model_Name	CharacterString	R	"MBUS Device"
Firmware_Revision	CharacterString	R	Depending on Firmware
Application_Software_Version	CharacterString	R	Depending on Application
Location	CharacterString	W	Set by Web GUI or over BACNet
Description	CharacterString	W	Set by Web GUI or over BACNet
Protocol_Version	Unsigned	R	1
Protocol_Revision	Unsigned	R	14
Protocol_Services_Supported	BACnetServicesSupported	R	readProperty readPropertyMultiple writeProperty writePropertyMultiple deviceCommunicationControl i-Am i-Have who-Has who-Is
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	R	analog-input device
Object_List	BACnetArray[N] of Object Identifier	R	device Analog Input x
Max_APDU_Length_Accepted	Unsigned	R	16
Apdu-segment-timeout	Unsigned	O/R	2000
Segmentation_Supported	BACnetSegmentation	R	SEGMENTED_BOTH
LocalTime	Time	O/R	?
LocalDate	Date	O/R	?
Daylight-savings-status	Unsigned	R	?
APDU_Timeout	Unsigned	W	3000
Number_Of_APDU_Retries	Unsigned	W	5
DatabaseRevision	Unsigned	R	?
Device-address-binding	BACnetAddressBinding	R	?
Max-segment-accepted	Unsigned	O/R	16
Proprietary 100000	Unsigned	O	mbus_primary_address
Proprietary 100001	Unsigned	O	mbus_secondary_address
Proprietary 100002	CharacterString	O	mbus_vendorname

**Analog Input Built in Sensors**

<b>Property Identifier</b>	<b>Property Datatype</b>	<b>Conformance Code</b>	<b>Value</b>
Object_Identifier	BACnetObjectIdentifier	R	Analog Input-0..N
Object_Name	CharacterString	R	Depending on Built in Sensor Value Description or set by Web GUI
Object_Type	BACnetObjectType	R	Analog-input
Present_Value	REAL	R	MBUS Value
Description	CharacterString	O	Same as in object-name
Status_Flags	BACnetStatusFlags	R	IN_ALARM, FAULT, OVERRIDDEN, OUT_OF_SERVICE
Event_State	BACnetEventState	R	normal, fault , offnormal, high-limit , low-limit ,
Reliability	BACnetReliability	O	Depending on Built in sensors are on or off NO_FAULT_DETECTED RELIABILITY_NO_SENSOR
Out_Of_Service	BOOLEAN	R	FALSE
Update_Interval	Unsigned	O	Depending on MBUS readout cycle
Units	BACnetEngineering-Units	R	Depending on MBUS- Vaue Unit

**Analog Input Object MBus**

Property Identifier	Property Datatype	Conformance Code	Value
Object_Identifier	BACnetObjectIdentifier	R	Analog Input-0..N
Object_Name	CharacterString	R	Depending on MBUS Value Description or set by Web GUI
Object_Type	BACnetObjectType	R	Analog-input
Present_Value	REAL	R	MBUS Value
Description	CharacterString	O	Same as in object-name
Status_Flags	BACnetStatusFlags	R	IN_ALARM, FAULT, OVERRIDDEN, OUT_OF_SERVICE
Event_State	BACnetEventState	R	normal, fault , offnormal, high-limit , low-limit ,
Out_Of_Service	BOOLEAN	R	FALSE
Update_Interval	Unsigned	O	Depending on MBUS readout cycle
Units	BACnetEngineering-Units	R	Depending on MBUS-Value Unit

**Data Link Layer Options:**

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) \_\_\_\_\_
- MS/TP master (Clause 9), baud rate(s): \_\_\_\_\_
- MS/TP slave (Clause 9), baud rate(s): \_\_\_\_\_
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): \_\_\_\_\_
- Point-To-Point, modem, (Clause 10), baud rate(s): \_\_\_\_\_
- LonTalk, (Clause 11), medium: \_\_\_\_\_
- BACnet/ZigBee (ANNEX O)
- 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 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)
- Does the BBMD support registrations by Foreign Devices?  Yes  No
- Does the BBMD support network address translation?  Yes  No

**Network Security Options:**

- Non-secure Device - is capable of operating without BACnet Network Security
- Secure Device - is capable of using BACnet Network Security (NS-SD BIBB)
- Multiple Application-Specific Keys:
- Supports encryption (NS-ED BIBB)
- Key Server (NS-KS BIBB)

**Character Sets Supported:**

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

- ISO 10646 (UTF-8)  IBM™/Microsoft™ DBCS  ISO 8859-1
- ISO 10646 (UCS-2)  ISO 10646 (UCS-4)  JIS X 0208

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

---



---



---

**ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)**