

BACnet Protocol Implementation Conformance Statement

Date: 29.08.2011
Vendor Name: TROX GmbH
Product Name: EM-BAC-MOD-01
Product Model Number: M536HD7
Application Software Version: 2.0 (EASYLAB)
Firmware Revision: 2.0 (EASYLAB)
BACnet Protocol Revision: 12

Product Description:

Expansion module for EASYLAB TCU3 controller providing a BACnet MS/TP Interface.

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-ReadProperty-B (DS-RP-B)
Data Sharing-WriteProperty-B (DS-WP-B)
Data Sharing-COV-Unsolicited-B (DS-COVU-B)
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-ReinitializeDevice-B (DM-RD-B)

Segmentation Capability:

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

Standard Object Types Supported:

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

- 1) Whether objects of this type are dynamically creatable using the CreateObject service
- 2) Whether objects of this type are dynamically deletable using the DeleteObject service
- 3) List of the optional properties supported
- 4) List of all properties that are writable where not otherwise required by this standard
- 5) List of all properties that are conditionally writable where not otherwise required by this standard
- 6) List of proprietary properties and for each its property identifier, datatype, and meaning
- 7) List of any property range restrictions

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): 9600, 19200, 38400, 76800
- 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:

Configuration Switches

Hexadecimal Switches X, Y		Network-Address		
DIP Switch 1 Controller	OFF EASYLAB TCU3		ON Other	
DIP Switch 2	OFF	ON	OFF	ON
DIP Switch 3	OFF	OFF	ON	ON
Baudrate	9600	19200	38400	76800

Device Object

Property	Remark / Value	RW
Object_Identifier	device, default instance: 32900 + Address Switch	RW-E
Object_Name	max. 50 Bytes, default "EM-BACnet"	RW-E
Object_Type	DEVICE (8)	R
System_Status	OPERATIONAL (0)	R
Vendor_Name	"TROX GmbH"	R
Vendor_Identifier	329	R
Model_Name	"EM-BAC-MOD-01"	R
Firmware_Revision	"2.0" (EASYLAB)	R
Application_Software_Version	"2.0" (EASYLAB)	R
Protocol_Version	1	R
Protocol_Revision	12	R
Protocol_Services_Supported	read-property, write-property, device-communication-control, reinitialize-device, who-has, who-is	R
Protocol_Object_Types_Supported	DEVICE, ANALOG_VALUE, BINARY_VALUE, MULTISTATE_VALUE	R
Object_List	EASYLAB: device, analog-value 1...25, binary-value 1...18, multistate-value 1...8	R
Max_APDU_Length_Accepted	275	R
Segmentation_Supported	NO_SEGMENTATION (3)	R
APDU_Timeout	3000	R
Number_Of_APDU_Retries	0	R
Device_Address_Binding	-	R
Database_Revision	0	R
Description	Controller Type "EASYLAB"	R
Max_Master	default 127	RW-E
Max_Info_Frames	default 1	RW-E
R: Read Property, W: Write Property, -E: Storage in EEPROM		

Analog Value Objects

Property	Remark / Value	RW
Object_Identifier	analog-value, instance 1 ... 25	R
Object_Name		R
Object_Type	ANALOG_VALUE (2)	R
Present_Value		
Status_Flags	IN_ALARM: 0 FAULT: 0 OVERRIDDEN: 0 OUT_OF_SERVICE: 0	R
Event_State		R
Out_Of_Service	FALSE (0)	R
Units		R
R: Read Property, W: Write Property		

Controller EASYLAB TCU3				
Instance	Object_Name	Units	Event_State	Present_Value
1	"VolflowSet"	liters-per-second (87)	0	R
2	"VolflowAct"	liters-per-second (87)	0	R
3	"VolTotalExh"	liters-per-second (87)	0	R
4	"VolTotalSup"	liters-per-second (87)	0	R
5	"PressSet"	pascals (53)	0	R
6	"PressAct"	pascals (53)	0	R
7	"VelocitySet"	meters-per-second (74)	0	R
8	"VelocityAct"	meters-per-second (74)	0	R
9	"WireSensorPos"	percent (98)	0	R
10	"DampPos"	percent (98)	0	R
11	"DampPosMax_FH"	percent (98)	0, 1, 255	R
12	"DampPosMin_FH"	percent (98)	0, 1, 255	R
13	"DampPosMax_RE"	percent (98)	0, 1, 255	R
14	"DampPosMin_RE"	percent (98)	0, 1, 255	R
15	"DampPosMax_TE"	percent (98)	0, 1, 255	R
16	"DampPosMin_TE"	percent (98)	0, 1, 255	R
17	"DampPosMax_RS"	percent (98)	0, 1, 255	R
18	"DampPosMin_RS"	percent (98)	0, 1, 255	R
19	"VolOffset_T"	percent (98)	0	RW
20	"VolOffset_P"	percent (98)	0	RW
21	"SystemDevices"	no-units (95)	0	R
22	"VolflowExh"	liters-per-second (87)	0	RW
23	"VolflowSup"	liters-per-second (87)	0	RW
24	"SC_SetPos"	percent (98)	0, 1, 255 (RW)	RW
25	"SC_GetPos"	percent (98)	0	R

Binary Value Objects

Property	Remark / Value	RW
Object_Identifier	binary-value, instance 1 ... 18 / 1 ... 13	R
Object_Name		R
Object_Type	BINARY_VALUE (5)	R
Present_Value	INACTIVE (0) / ACTIVE (1)	
Status_Flags	IN_ALARM: 0 FAULT: 0 OVERRIDDEN: 0 OUT_OF_SERVICE: 0	R
Event_State	NORMAL (0)	R
Out_Of_Service	FALSE (0)	R
Inactive_Text		R
Active_Text		R
R: Read Property, W: Write Property, COVU: Unsolicited Change of Value Notification		

Controller EASYLAB TCU3				
Instance	Object_Name	Inactive_Text	Active_Text	Present_Value
1	"LocalAlarm"	"Normal"	"Alarm"	R COVU
2	"SummaryAlarm"	"Normal"	"Alarm"	R COVU
3	"PressAlarm"	"Normal"	"Alarm"	R COVU
4	"ManOP_Disable"	"Inactive"	"Active"	RW
5	"PressSetSel"	"Setpoint1"	"Setpoint2"	RW
6	"DI1"	"Off"	"On"	R
7	"DI2"	"Off"	"On"	R
8	"DI3"	"Off"	"On"	R
9	"DI4"	"Off"	"On"	R
10	"DI5"	"Off"	"On"	R
11	"DI6"	"Off"	"On"	R
12	"DO1"	"Off"	"On"	R
13	"DO2"	"Off"	"On"	R
14	"DO3"	"Off"	"On"	R
15	"DO4"	"Off"	"On"	R
16	"DO5"	"Off"	"On"	R
17	"DO6"	"Off"	"On"	R
18	"SC_Alarm"	"Normal"	"Alarm"	R

Multistate Value Objects

Property	Remark / Value	RW
Object_Identifier	multistate-value, instance 1 ... 8 / 1 ... 6	R
Object_Name		R
Object_Type	MULTISTATE_VALUE (19)	R
Present_Value	State	
Status_Flags	IN_ALARM: 0 FAULT: 0 OVERRIDDEN: 0 OUT_OF_SERVICE: 0	R
Event_State	NORMAL (0)	R
Out_Of_Service	FALSE (0)	R
Number_Of_States		R
State_Text		R
R: Read Property, W: Write Property, -E: Storage in EEPROM		

Controller EASYLAB TCU3					
Instance	Number_Of_States	Object_Name	State	State_Text	Present_Value
1	3	“COV-Mode”	1 2 3 (default)	“Disabled” “Local Broadcast” “Global Broadcast”	RW-E
2	6	“Mode”	1 2 3 4 5 6	“No preset” “Standard Mode” “Low Mode” “High Mode” “Shut off Mode” “Open Mode”	RW
3	6	“ModeAct”	1 2 3 4 5 6	“No preset” “Standard Mode” “Low Mode” “High Mode” “Shut off Mode” “Open Mode”	R
4	6	“RoomModeAct”	1 2 3 4 5 6	“No preset” “Standard Mode” “Low Mode” “High Mode” “Shut off Mode” “Open Mode”	R
5	4	“SwitchPos”	1 2 3 4	“Not defined” “SwitchLevel1” “SwitchLevel2” “SwitchLevel3”	R
6	3	“Sunblind”	1 2 3	“Sunblind_NoPreset” “Sunblind_Close” “Sunblind_Open”	RW
7	2	“SC_SetLockHighPrio”	1 2	“SC_Unlock” “SC_Lock”	RW
8	2	“SC_GetLockHighPrio”	1 2	“SC_LockDeactivated” “SC_LockActivated”	R