BACnet Protocol Implementation Conformance Statement

Date: July 18, 2016
Vendor Name: Amalva UAB
Product Name: C5
Firmware Revision: 2.050
BACnet Protocol Revision: 12

Product Description:
C5 controller with integrated communication module (UDP, 47808 port, 10Mbit Ethernet, RJ45 socket) is designed for control and monitoring of *Komfovent* air handling units.

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	DS-RP-B	Data Sharing-Read Property-B
	DS-RPM-B	Data Sharing-Read Property Multiple-B
	DS-WP-B	Data Sharing-Write Property-B
Device Management	DM-DDB-B	Device Management-Dynamic Device Binding-B
	DM-DOB-B	Device Management-Dynamic Object Binding-B

Segmentation Capability:

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

Standard Object Types Supported:

Analog Input	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Units,Description, Reliability,
Analog Output	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Units,Priority_Array, Relinquish_Default,

Analog Value	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Units,Description, Priority_Array,Relinquish_Default,Max_Pres_Value, Min_Pres_Value,Resolution,
Binary Input	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Polarity,Description
Binary Output	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Polarity,Priority_Array, Relinquish_Default,Active_Text,Inactive_Text,
Binary Value	Object_Identifier,Object_Name,Object_Type,Present_Value, Status_Flags,Event_State,Out_Of_Service,Priority_Array, Relinquish_Default,
Device	Object_Identifier,Object_Name,Object_Type,System_Status, Vendor_Name,Vendor_Identifier,Model_Name,Firmware_Revision, Application_Software_Version,Protocol_Version,Protocol_Revision, Protocol_Services_Supported,Protocol_Object_Types_Supported, Object_List,Max_APDU_Length_Accepted,Segmentation_Supported, APDU_Timeout,Number_Of_APDU_Retries,Device_Address_Binding, Database_Revision,Description,Location,

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:
Not applicable.

Analog input

Name	Object Instance	Range	Unit	Access
Supply air temperature	0	-50.0..+120.0	°C	R
Extract air temperature	1	-50.0..+120.0	°C	R
Outdoor air temperature	2	-50.0..+120.0	°C	R
Exhaust air temperature	3	-50.0..+120.0	°C	R
Water temperature	4	-50.0..+120.0	°C	R
Air quality	5	0..100	%	R
Supply air humidity	6	0..100	%RH	R
Supply air flow	7	0..1000000	variable[1]	R
Exhaust air flow	8	0..1000000	variable[1]	R
Outdoor air filter pressure	9	0..5500	Pa	R
Extract air filter pressure	10	0..5500	Pa	R

Analog output

Name	Object Instance	Range	Unit	Access
Water heater level	0	0..100	%	R
Water cooler level	1	0..100	%	R
Humidifier level	2	0..100	%	R
Heat exchanger level	3	0..100	%	R
Recirculation level	4	0..100	%	R
Supply fan level	5	0..100	%	R
Exhaust fan level	6	0..100	%	R
Outdoor air damper level	7	0..100	%	R
Exhaust air damper level	8	0..100	%	R
El. Heater level	9	0..100	%	R
DX level	10	-100..+100	%	R
Heat pump level	11	-100..+100	%	R

[1] See Analog Value Object Instance 72

Digital input

Name	Object Instance	Range	Unit	Access
OVR	0	0..1		R
External stop	1	0..1		R

Digital output

Name	Object Instance	Range	Unit	Access
Water heating pump	0	0..1		R
Water cooling pump	1	0..1		R

Digital value

Name	Object Instance	Range	Unit	Access
Low supply air flow	0	0..1		R
Low extract air flow	1	0..1		R
VAV calibration fail	2	0..1		R
Change outdoor air filter	3	0..1		R
Change extract air filter	4	0..1		R
Electric heater off	5	0..1		R
High pressure on compressor	6	0..1		R
Low pressure on compressor	7	0..1		R
Service time	8	0..1		R
Service mode	9	0..1		R
Supply air temp. sensor failure	10	0..1		R
Extract air temp. sensor failure	11	0..1		R
Outdoor air temp. sensor failure	12	0..1		R
Exhaust air temp. sensor failure	13	0..1		R
Water temp. sensor failure	14	0..1		R
Return water temp low	15	0..1		R
Internal fire alarm	16	0..1		R
External fire alarm	17	0..1		R
External stop	18	0..1		R
Heat exchanger failure	19	0..1		R
Heat exchanger icing	20	0..1		R
Low supply air temperature	21	0..1		R
High supply air temperature	22	0..1		R
Electric heater overheat	23	0..1		R
Evaporator air temp. sensor failure	24	0..1		R
Evaporator coil temp. sensor failure	25	0..1		R

Digital value

Name	Object Instance	Range	Unit	Access
Compressor failure	26	0..1		R
Supply fan drive failure	27	0..1		R
Supply fan drive overload	28	0..1		R
Supply fan motor failure	29	0..1		R
Supply fan motor overload	30	0..1		R
Exhaust drive failure	31	0..1		R
Exhaust fan drive overload	32	0..1		R
Exhaust fan motor failure	33	0..1		R
Exhaust fan motor overload	34	0..1		R
Rotor drive failure	35	0..1		R
Rotor drive overload	36	0..1		R
Rotor motor failure	37	0..1		R
Rotor motor overload	38	0..1		R
Communication error	39	0..1		R
Controller failure	40	0..1		R
Compressor off	41	0..1		R
Evaporator icing	42	0..1		R

Analog value

Name	Object Instance	Range	Unit	Access	Description
Unit On/Off	0	0..1		R/W	0-Off, 1-On
Current mode	1	0..5		R	0-Off/Standby, 1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special
Mode selection	2	1..6		R/W	1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special, 6-Program
Comfort1 Supply flow	3	0..200000	variable[1]	R/W	
Comfort1 Extract flow	4	0..200000	variable[1]	R/W	
Comfort1 Setpoint	5	+5..+40	°C	R/W	
Comfort2 Supply flow	6	0..200000	variable[1]	R/W	
Comfort2 Extract flow	7	0..200000	variable[1]	R/W	
Comfort2 Setpoint	8	+5..+40	°C	R/W	
Economy1 Supply flow	9	0..200000	variable[1]	R/W	
Economy1 Extract flow	10	0..200000	variable[1]	R/W	
Economy1 Setpoint	11	+5..+40	°C	R/W	
Economy2 Supply flow	12	0..200000	variable[1]	R/W	
Economy2 Extract flow	13	0..200000	variable[1]	R/W	
Economy2 Setpoint	14	+5..+40	°C	R/W	
Special Supply flow	15	0..200000	variable[1]	R/W	
Special Extract flow	16	0..200000	variable[1]	R/W	
Special Setpoint	17	+5..+40	°C	R/W	
Special mode Heating	18	0..1		R/W	0-Disable, 1-Enable
Special mode Cooling	19	0..1		R/W	0-Disable, 1-Enable
Special mode Recirculation	20	0..1		R/W	0-Disable, 1-Enable
Special mode Humidifying	21	0..1		R/W	0-Disable, 1-Enable
Special mode Dehumidifying	22	0..1		R/W	0-Disable, 1-Enable
Flow control mode	23	0..2		R/W	0-CAV, 1-VAV, 2-DCV
Temp. control mode	24	0..3		R/W	0-Supply, 1-Extract, 2-Room, 3-Balance
AQC Enable	25	0..1		R/W	0-Disable, 1-Enable
AQC Setpoint 1	26	10..90	%	R/W	

[1] See Analog Value Object Instance 72

Analog value

Name	Object Instance	Range	Unit	Access	Description
AQC Mode 1	27	1..5		R/W	1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special
AQC Setpoint 2	28	10..90	%	R/W	
AQC Mode 2	29	1..5		R/W	1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special
OCV Enable	30	0..1		R/W	0-Disable, 1-Enable
OCV Winter compensation stop	31	-40.0..+50.0	°C	R/W	
OCV Winter compensation start	32	-40.0..+50.0	°C	R/W	
OCV Summer compensation start	33	-40.0..+50.0	°C	R/W	
OCV Summer compensation stop	34	-40.0..+50.0	°C	R/W	
MTC Enable	35	0..1		R/W	0-Disable, 1-Enable
MTC Setpoint	36	-40.0..+50.0	°C	R/W	
OVR Enable	37	0..1		R/W	0-Disable, 1-Enable
OVR Type	38	0..2		R/W	0-Alltime, 1-If on, 2-If off
OVR Mode	39	0..6		R/W	0-Standby, 1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special, 6-Program
SNC Enable	40	0..1		R/W	0-Disable, 1-Enable
SNC Start temperature	41	15.0..+50.0	°C	R/W	
SNC Stop temperature	42	15.0..+50.0	°C	R/W	
OOD Enable	43	0..1		R/W	0-Disable, 1-Enable
OOD Setpoint	44	10..90	%	R/W	
REC Enable	45	0..1		R/W	0-Disable, 1-Enable
REC Setpoint 1	46	10..90	%	R/W	
REC Mode 1	47	1..5		R/W	1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special
REC Setpoint 2	48	10..90	%	R/W	
REC Mode 2	49	1..5		R/W	1-Comfort1, 2-Comfort2, 3-Economy1, 4-Economy2, 5-Special
REC Min. Fresh Air 1	50	0..100	%	R/W	
REC Min. Fresh Air 2	51	0..100	%	R/W	

Analog value

Name	Object Instance	Range	Unit	Access	Description
REC Winter end	52	-40.0..+50.0	°C	R/W	
REC Winter start	53	-40.0..+50.0	°C	R/W	
REC Summer start	54	-40.0..+50.0	°C	R/W	
REC Summer end	55	-40.0..+50.0	°C	R/W	
REC Default recirculation	56	0..100	%	R/W	
REC Activated recirculation	57	0..100	%	R/W	
Actual alarms reset	58	1		W	
Air heater operation	59	0..2^32	hours	R/W	
Supply fan operation	60	0..2^32	hours	R/W	
Exhaust fan operation	61	0..2^32	hours	R/W	
Heat exchanger thermal efficiency	62	1..100	%	R	255-none
Heat exchanger recovery	63	0..2^32	watt	R	
Thermal energy saving	64	0..100	%	R	
Supply SFP	65	0..655		R	
Exhaust SFP	66	0..655		R	
Day	67	1..31	days	R/W	
Month	68	1..12	months	R/W	
Year	69	2000..2250	years	R/W	
Hours	70	0..23	hours	R/W	
Minutes	71	0..59	minutes	R/W	
Flow units	72	0..3		R/W	0-m^3/h, 1-l/s, 2-m^3/s, 3-Pa

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