BACnet Protocol Implementation Conformance Statement

Date: 2016-07-01
Vendor Name: **Danfoss Drives A/S**
Product Name: **MCA 125 BACnet/IP**
Product Model Number: **MCA 125**
Applications Software Version: **1.02**
Firmware Revision: **1.02**
BACnet Protocol Revision: **14**

Product Description:
The VLT® BACnet MCA 125 is a plug-and-play solution that optimizes the
Use of VLT® HVAC Drive together with building management systems using the BACnet IP protocol.

BACnet Standardized Device Profile (Annex L):

⑥ **BACnet Operator Workstation (B-OWS)**
⑥ **BACnet Building Controller (B-BC)**
■**BACnet Advanced Application Controller (B-AAC)**
⑥BACnet **Application Specific Controller (B-ASC)**
⑥ **BACnet Smart Sensor (B-SS)**
⑥ **BACnet Smart Actuator (B-SA)**

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

Data Sharing-ReadProperty-B	(DS-RP-B)
Data Sharing-ReadPropertyMultiple-B	(DS-RPM-B)
Data Sharing-WriteProperty-B	(DS-WP-B)
Data Sharing-WritePropertyMultiple-B	(DS-WPM-B)
Data Sharing-COV-B	(DS-COV-B)
Alarm and Event-ACK-B	(AE-ACK-B)
Alarm and Event-Notification Internal-B	(AE-N-I-B)
Alarm and Event-Information-B	(AE-INFO-B)
Alarm and Event-Alarm Summary-B	(AE-ASUM-B)
Device Management-Dynamic Device Binding-A	(DM-DDB-A)
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-B	(DM-TS-B)
Device Management-ReinitializeDevice-B	(DM-RD-B)
Device Management-UTCTimeSynchronization-B	(DM-UTC-B)
Device Management-List Manipulation-B	(DM-LM-B)
Scheduling- Scheduling-Internal-B	(SCHED-I-B)
Trending-Viewing and Modifying Trends Internal-B	(T-VMT-I-B)
Alarm and Event Management - Event Log - Internal - B	(AE-EL-I-B)
Device Management-Dynamic Object Binding-A	(DM-DOB-A)
Device Management-Restart-B	(DM-R-B)

Segmentation Capability:

■ Segmented requests supported Window Size __1___
■ Segmented responses supported Window Size __1___

Standard Object Types Supported:

Analog Input
Analog Output
Analog Value
Binary Input
Binary Output
Binary Value
Calendar
Device
Event Enrollment
Loop
Notification Class
Schedule
Multi-state Value
Trend Log
Event Log
CharacterString Value

Object instantiation is static. Refer to tables at end of this document for object details.

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): 9.600; 19.200; 38.400; 76.800
⦶ 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: _____
⦶ Other: _____

Device Address Binding:

Is static device binding supported? ⦶ 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

Character Sets Supported:

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

■ UTF-8 ⦶ 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:

_____
_____
_____

Property	Device Object	Analog Input	Analog Output	Binary Input	Binary Value	M ti S e V

Description	X	X	X	X	X	X
Device Type						
Reliability		X	X	X	X	X
Update_Interval						
Min_Pres_Value		X	X			
Max_Pres_Value		X	X			
Resolution		X	X			
COV_Increment		X	X			
Time_Delay						
Notification Class						
High Limit						
Low Limit						
Dead Band						
Limit Enable						
Event Enable						
Acked Transitions						
Notify Type						
Event Time Stamp						
Event Message Texts						
Event_Message_Texts_Config						
Event_Detection_Enable						
Event_Algorithm_Inhibit_Ref						
Event_Algorithm_Inhibit						
Time_Delay_Normal						
Reliability_Evaluation_Inhibit						
Profile_Name						
Priority Array [For Commandable objects only]					X	X
Relinquish Default [For Commandable objects only]					X	X
Inactive Text				X	X	
Active Text				X	X	
Change_Of_State_Time						
Change_Of_State_Count						
Time_Of_State_Count_Reset						
Elapsed_Active_Time						
Time_Of_Active_Time_Reset						
Alarm Value						
Minimum_Off_Time						
Minimum_On_Time						

Feedback_Value						
State Text						X
Start Time						
Stop Time						
Log_DeviceObjectProperty						
Log_Interval						
COV_Resubscription_Interval						
Client_COV_Increment						
Align_Intervals						
Interval_Offset						
Trigger						
Notification_Threshold						
Records_Since_Notification						
Last_Notify_Record						
Proportional_Constant						
Proportional_Constant_Units						
Integral_Constant						
Integral_Constant_Units						
Derivative_Constant						
Derivative_Constant_Units						
Bias						
Maximum_Output						
Minimum_Output						
Error_Limit						
Record_Count						
Weekly_Schedule						
Exception_Schedule						
Location	X					
Max_Segments_Accepted	X					
VT_Classes_Supported						
Active_VT_Sessions						
Local_Time	X					
Local_Date	X					
UTC_Offset	X					
Daylight_Savings_Status	X					
APDU_Segment_Timeout	X					
Time_Synchronization_Recipients						
Max_Master	X					
Max_Info_Frames	X					
Configuration_Files						
Last_Restore_Time						
Backup_Failure_Timeout						

Backup_Preparation_Time						
Restore_Preparation_Time						
Restore_Completion_Time						
Backup_And_Restore_State						
Active_COV_Subscriptions	X					
Slave_Proxy_Enable						
Manual_Slave_Address_Binding						
Auto_Slave_Discovery						
Slave_Address_Binding						
Last_Restart_Reason	X					
Time_Of_Device_Restart	X					
Restart_Notification_Recipients	X					
UTC_Time_Synchronization_Recipients						
Time_Synchronization_Interval						
Serial_Number	X					

Details of Object Instances:

Device

Object Id	Object Name	Read/Write	Remark
Device:1	FC-102-1	W/R	

Analogue Inputs

Instance ID	Object Name	Present value access	Remark
AI:0	Analog Input 53	Read	Supports COV
AI:1	Analog Input 54	Read	Supports COV
AI:2	Analog In X31/11	Read	MCB 101 General Purpose I/O
AI:3	Analog In X31/12	Read	MCB 101 General Purpose I/O
AI:4	Analog Input X42/1	Read	MCB 109 Analog I/O w. RTC
AI:5	Analog Input X42/3	Read	MCB 109 Analog I/O w. RTC
AI:6	Analog Input X42/5	Read	MCB 109 Analog I/O w. RTC
AI:7	Analog Input X48/2 [mA]	Read	MCB114 Sensor Input
AI:8	Temp. Input X48/4	Read	MCB114 Sensor Input
AI:9	Temp. Input X48/7	Read	MCB114 Sensor Input
AI:10	Temp. Input X48/10	Read	MCB114 Sensor Input

Analogue Outputs

Instance ID	Object Name	Present value access	Remark
AO:0	Terminal 42 Output Bus Control	W/R	
AO:1	Pulse out #27 Bus Control	W/R	
AO:2	Pulse out #29 Bus Control	W/R	
AO:3	Analogue Out X31/8 [mA]	W/R	MCB 101 General Purpose I/O
AO:4	Analog Output X42/7	W/R	MCB 109 Analog I/O w. RTC
AO:5	Analogue output X42/9	W/R	MCB 109 Analog I/O w. RTC
AO:6	Analogue output X42/11	W/R	MCB 109 Analog I/O w. RTC

Analogue Values

Instance ID	Object Name	Present value access	Remark
AV:0	Speed Act Value	Read	Supports COV
AV:1	Input Reference 1	W/R	Commandable

AV:2	Input Reference 2	W/R	Commandable
AV:3	Output Speed	Read	
AV:4	PID Feedback	Read	
AV:5	Motor Current	Read	Supports COV
AV:6	Power	Read	Supports COV
AV:15	Motor Thermal	Read	Supports COV
AV:21	Operating Hours	Read	
AV:22	Running Hours	Read	
AV:23	kWh Counter	Read	
AV:24	Motor Voltage	Read	
AV:25	Frequency	Read	Supports COV
AV:26	Torque	Read	Supports COV
AV:27	DC Link Voltage	Read	
AV:28	Heatsink Temp	Read	
AV:29	Inverter Thermal	Read	
AV:30	Setpoint 1	W/R	
AV:31	Bus Feedback 1	W/R	
AV:35	Setpoint 2	W/R	
AV:36	Bus Feedback 2	W/R	
AV:40	Setpoint 3	W/R	
AV:41	Bus Feedback 3	W/R	
AV:45	Running Bypass	Read	MCO 104 Electronic Bypass
AV:50	Alarm Log: Error Code	Read	
AV:51	Fault Code	Read	
AV:52	PID Start Speed	W/R	
AV:53	On Reference Bandwidth	W/R	
AV:54	PID Proportional Gain	W/R	
AV:55	PID Integral Time	W/R	
AV:56	PID Differentiation Time	W/R	
AV:57	PID Diff Gain Limit	W/R	
AV:58	Sensorless Readout	Read	Supports COV
AV:59	PID Output	Read	
AV:60	PID Setpoint	Read	
AV:61	Alarm Word	Read	
AV:62	Alarm Word 2	Read	
AV:65	External Reference	Read	
AV:66	Warning Word	Read	
AV:67	Warning Word 2	Read	
AV:70	Feedback[Unit]	Read	Supports COV

Binary Inputs

Instance ID	Object Name	Present value access	Remark
BI:0	Digital input Term 33	Read	
BI:1	Digital input Term 32	Read	
BI:2	Digital input Term 29	Read	

BI:3	Digital input Term 27	Read	
BI:4	Digital input Term 19	Read	
BI:5	Digital input Term 18	Read	
BI:6	Digital input Term 37	Read	
BI:7	Digital input X31/2	Read	MCB 101 General Purpose I/O
BI:8	Digital input X31/3	Read	MCB 101 General Purpose I/O
BI:9	Digital input X31/4	Read	MCB 101 General Purpose I/O

Binary Outputs

Instance ID	Object Name	Present value access	Remark
BO:0	Digital Output Term 27	W/R	
BO:1	Digital Output Term 29	W/R	
BO:2	Digital output X31/6	W/R	MCB 101 General Purpose I/O
BO:3	Digital output X31/7	W/R	MCB 101 General Purpose I/O
BO:4	Relay 1	W/R	
BO:5	Relay 2	W/R	
BO:6	Relay 7 output	W/R	MCB 105 Relay card
BO:7	Relay 8 output	W/R	MCB 105 Relay card
BO:8	Relay 9 output	W/R	MCB 105 Relay card

Binary Values

Instance ID	Object Name	Present value access	Remark
BV:1	RUN/STOP command	W/R	Commandable
BV:2	REF 1/REF 2 Select	W/R	Commandable
BV:3	Fault Reset Command	W/R	
BV:4	RUN/STOP Monitor	Read	
BV:5	OK/FAULT Monitor	Read	
BV:6	HAND/AUTO Reference	Read	
BV:21	Warning	Read	
BV:22	Trip	Read	
BV:23	Triplock	Read	
BV:24	Coasting	W/R	Commandable
BV:25	CW/CWW	W/R	Commandable
BV:26	Jog	W/R	Commandable
BV:27	Reset	W/R	Commandable
BV:28	Reset KWh Counter	W/R	Commandable
BV:29	Reset Running Hours Counter	W/R	
BV:30	ReVStatus	Read	
BV:31	Speed Reference	Read	
BV:32	Bus Control	Read	

BV:33	Running	Read	
BV:34	Ramp 1/Ramp 2	W/R	Commandable
BV:35	ECB Test Mode	Read	MCO 104 Electronic Bypass
BV:36	ECB Drive Mode	Read	MCO 104 Electronic Bypass
BV:37	ECB Auto Bypass Enable	Read	MCO 104 Electronic Bypass
BV:38	ECB Bypass Mode	Read	MCO 104 Electronic Bypass

Multistate Value

Object Id	Object Name	Read/Write	Remark
MSV:0	Smart Logic Controller State	Read	
MSV:1	Active Setup	W/R	Commandable
MSV:3	Configuration Mode	W/R	

Notification class

Object Id	Object Name	Read/Write	Remark
NC:0	Warning Notifier	W/R	
NC:2	Trip Notifier	W/R	
NC:3	Triplock Notifier	W/R	
NC:100	NC 100	W/R	
NC:200	NC 200	W/R	
NC:300	NC 300	W/R	
NC:400	NC 400	W/R	

Loop

Object Id	Object Name	Read/Write	Remark
LO: 1	Drive close loop	W/R	

Schedule

Object Id	Object Name	Read/Write	Remark
SO:0	Drive schedule 0	W/R	
SO:1	Drive schedule 1	W/R	
SO:2	Drive schedule 2	W/R	
SO:3	Drive schedule 3	W/R	
SO:4	Drive schedule 4	W/R	
SO:5	Drive schedule 5	W/R	

Calendar

Object Id	Object Name	Read/Write	Remark
CO:0	Exception Calendar 0	W/R	
CO:1	Exception Calendar 1	W/R	
CO:2	Exception Calendar 2	W/R	

CO:3	Exception Calendar 3	W/R	
CO:4	Exception Calendar 4	W/R	
CO:5	Exception Calendar 5	W/R	

Trend

Object Id	Object Name	Read/Write	Remark
TL:0	Trend Log 0	W/R	Maintains last 750 values
TL:1	Trend Log 1	W/R	Maintains last 750 values
TL:2	Trend Log 2	W/R	Maintains last 750 values
TL:3	Trend Log 3	W/R	Maintains last 750 values
TL:4	Trend Log 4	W/R	Maintains last 750 values
TL:5	Trend Log 5	W/R	Maintains last 750 values
TL:6	Trend Log 6	W/R	Maintains last 750 values

Event Log

Object Id	Object Name	Read/Write	Remark
EL:0	Event Log 0	W/R	Last 600 Events are maintained

CharacterString Value

Object Id	Object Name	Read/Write	Remark
CSV:0	Cascade Status	Read	
CSV:1	Pump Status	Read	

Event Enrollment

Object Id	Object Name	Read/Write	Remark
EE:0	Event Enrollment 0	W/R	
EE:1	Event Enrollment 1	W/R	
EE:2	Event Enrollment 2	W/R	
EE:3	Event Enrollment 3	W/R	
EE:4	Event Enrollment 4	W/R	
EE:5	Event Enrollment 5	W/R	
EE:6	Event Enrollment 6	W/R	
EE:7	Event Enrollment 7	W/R	
EE:8	Event Enrollment 8	W/R	
EE:9	Event Enrollment 9	W/R	
EE:10	Event Enrollment 10	W/R	
EE:11	Event Enrollment 11	W/R	
EE:12	Event Enrollment 12	W/R	
EE:13	Event Enrollment 13	W/R	