

BACnet Protocol Implementation Conformance Statement

Date: March 7, 2018

Vendor Name: Schneider Electric

Product Name: Altivar Process

Product Model Number: ATV630, ATV650, ATV660, ATV690

Application Software Version: v1.1

Firmware Revision: v1.7

BACnet Protocol Revision: 14

Product Description:

Variable Speed Drives for Asynchronous and Synchronous Motors

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): DS-RP-B, DS-RPM-B, DS-WP-B, DS-WPM-B, DS-COV-B, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-RD-B

Segmentation Capability:

- Segmented requests supported Window Size 3
- Segmented responses supported Window Size 3

Standard Object Types Supported:

Object instantiation is static, i.e. objects cannot be created or deleted. Refer to tables at end of 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): Auto, 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: _____
- 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

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:

Object/Property Support Matrix

The following table summarizes the Object Types/Properties Supported:

Binary input object instance summary

ID	Object name	Description	Active/Inactive text	Access
Binary input #1	RO1 ACT	Indicates status of relay R1	ON/OFF	R
Binary input #2	RO2 ACT	Indicates status of relay R2	ON/OFF	R
Binary input #3	RO3 ACT	Indicates status of relay R3 (1)	ON/OFF	R
Binary input #6	DI 1 ACT	Value of LI1	ON/OFF	R
Binary input #7	DI 2 ACT	Value of LI2	ON/OFF	R
Binary input #8	DI 3 ACT	Value of LI3	ON/OFF	R
Binary input #9	DI 4 ACT	Value of LI3	ON/OFF	R
Binary input #10	DI 5 ACT	Value of LI5	ON/OFF	R
Binary input #11	DI 6 ACT	Value of LI6	ON/OFF	R

Binary output object instance summary

ID	Object name	Description	Active/Inactive text	Access
Binary output #0	RO1 CMD	R1 relay out accessible if not assigned	ON/OFF	C
Binary output #1	RO2 CMD	R2 relay out accessible if not assigned	ON/OFF	C
Binary output #2	RO3 CMD	R3 relay out accessible if not assigned	ON/OFF	C

Binary value object instance summary

ID	Object name	Description	Active/Inactive text	Access
Binary value #0	RUN/STOP ACT	Indicates the drive status	RUNS/READY	R
Binary value #1	FWD/REV ACT	Indicate the motor rotation direction	REV/FWD	R
Binary value #2	FAULT ACT	indicate if the drive fault status	FAULTED/NONE	R
Binary value #4	HAND/AUTO ACT	Indicates if the drive is locally controller or not	HAND/AUTO	R
Binary value #7	DRIVE READY	The VSD is ready and wait for start command	READY/NOT READY	R
Binary value #8	AT SETPOINT	The VSD has reached the target speed	REACHED /NO	R
Binary value #10	RUN/STOP CMD	Command a drive start	START/STOP	C
Binary value #11	FWD/REV CMD	Command a motor direction change	REV/FWD	C
Binary value #14	FAULT RESET	Reset fault (rising edge)	RESET/NO	W
Binary value #15	MBOX READ	Command to read a parameter	READ/RESET	W
Binary value #16	MBOX WRITE	Command to write a parameter	WRITE/RESET	W
Binary value #18	C311CMD	CMD word 3 bit 11	ON/OFF	C
Binary value #19	C312CMD	CMD word 3 bit 12	ON/OFF	C
Binary value #20	C313CMD	CMD word 3 bit 13	ON/OFF	C
Binary value #21	C314CMD	CMD word 3 bit 14	ON/OFF	C
Binary value #22	C315CMD	CMD word 3 bit 15	ON/OFF	C
Binary value #23	STORE CONFIG	HELP	INACTIVE/STORE	R

Analog input object instance summary

ID	Object name	Description	Units	Access
Analog input #0	ANALOG INPUT 1	Analog input value 1	%	R
Analog input #1	ANALOG INPUT 2	Analog input value 2	%	R
Analog input #2	ANALOG INPUT 3	Analog input value 3	%	R

Analog Input #16	ANALOG OUTPUT 1	Analog output 1status	%	R
Analog Input #17	ANALOG OUTPUT 2	Analog output 2 status	%	R

Analog output object instance summary

ID	Object name	Description	Units	Access
Analog output #0	AO1 COMMAND	Analog output value 1	%	C
Analog output #1	AO2 COMMAND	Analog output value 2	%	C

Analog value object instance summary

ID	Object name	Description	Units	Access
Analog value #0	OUTPUT SPEED	Outpt speed	Rpm	R
Analog value #1	OUTPUT FREQ	Output frequency	Hz	R
Analog value #2	DC BUS VOLT	DC bus voltage	V	R
Analog value #3	OUTPUT VOLT	Motor voltage	V	R
Analog value #4	CURRENT	Motor current	A	R
Analog value #5	TORQUE	Motor torque	%	R
Analog value #6	POWER	Motor power	%	R
Analog value #7	DRIVE TEMP	Drive thermal state	%	R
Analog value #8	KWH(R)	Energy counter (erasable)	kWh	R
Analog value #10	PRC PID FBCK	PID regularator feedback	-	R
Analog value #11	PRC PID DEV	PID regularator feedback	-	R
Analog value #14	RUN TIME	Operating time	H	R
Analog value #15	MOTOR TEMP	Motor temperature	%	R
Analog value #16	INPUT REF 1	Velocity/frequency setpoint from BacNet	%	C
Analog value #18	LAST FAULT	Current fault n	-	R
Analog value #19	PREV FLT 1	Previous fault n-1	-	R
Analog value #20	PREV FLT 2	Previous fault n-2	-	R
Analog value #23	ACCEL1 TIME	Acceleration time	S	W
Analog value #24	DECEL1 TIME	Deceleration time	S	W
Analog value #25	MBOX PARAM	Parameter number	-	W
Analog value #26	MBOX DATA	Parameter value	-	W
Analog value #27	EXT PID STPT	PID regulator setpoint from Bacnet	-	C
Analog value #28	COM SCAN OUT1	General purpose AV ==> Comm scan	-	C
Analog value #29	COM SCAN OUT2	General purpose AV ==> Comm scan	-	C
Analog value #30	COM SCAN OUT3	General purpose AV ==> Comm scan	-	C
Analog value #31	COM SCAN OUT4	General purpose AV ==> Comm scan	-	C
Analog value #32	COM SCAN OUT5	General purpose AV ==> Comm scan	-	C
Analog value #33	COM SCAN OUT6	General purpose AV ==> Comm scan	-	C
Analog value #34	COM SCAN OUT7	General purpose AV ==> Comm scan	-	C
Analog value #35	COM SCAN OUT8	General purpose AV ==> Comm scan	-	C
Analog value #36	COM SCAN IN1	General purpose AV <== Comm scan	-	R
Analog value #37	COM SCAN IN2	General purpose AV <== Comm scan	-	R
Analog value #38	COM SCAN IN3	General purpose AV <== Comm scan	-	R
Analog value #39	COM SCAN IN4	General purpose AV <== Comm scan	-	R
Analog value #40	COM SCAN IN5	General purpose AV <== Comm scan	-	R
Analog value #41	COM SCAN IN6	General purpose AV <== Comm scan	-	R
Analog value #42	COM SCAN IN7	General purpose AV <== Comm scan	-	R
Analog value #43	COM SCAN IN8	General purpose AV <== Comm scan	-	R

NOTE : For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable

Additional functions

Besides the services of "datasharing" the communication card provides the following functions.

Full parameters access.

By the use of indirect access, it is possible to read or write any of the internal parameters of the VSD. This functionality is assured by these four objects:

MBOX DATA, MBOX PARAM, MBOX READ, MBOX WRITE.

- Reading:

Write the logic address of the parameter to the present value property of the object MBOX PARAM.
Set present value property of the object MBOX READ to "read".

The current value of the parameter can be read in the present value property of MBOX DATA.

- Writing a parameter:

Write the logic address of the parameter to the present value property of the object MBOX PARAM.

Write the new value in the present value property of the object MBOX DATA.

Set present value property of the object MBOX WRITE to "write".

Note: MBOX READ and MBOX WRITE automatically return back to inactive once command sent. Always return 0 when read