



BACnet Protocol Implementation Conformance Statement

Date: July 8 2011

Vendor Name: Schneider Electric

Product Name: Low Voltage AC Motor Drive

Product Model Number: Altivar 212

Application Software Version: v184 and upper Firmware Revision: v5.2 BACnet Protocol Revision: 6

Product Description:

The Altivar 212 is a high performance adjustable frequency drive specifically designed for HVAC building application. This product supports BACnet (embedded) connecting to the MS/TP LAN.

BACnet Standardized Device Profile (Annex L):

	BACnet Operator Workstation (B-OWS)
	BACnet Building Controller (B-BC)
	BACnet Advanced Application Controller (B-AAC)
X	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, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-RD-B

Segmentation Capability:

	Segmented requests supported Window Size
	Segmented responses supported Window Size

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) _____
X	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.)

<input type="checkbox"/>	Yes	X	No
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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 ?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
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Character Sets Supported:

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

X	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 #0	RO 1 ACT	Indicates status of relay R1	ON/OFF	R
Binary input #1	RO 2 ACT	Indicates status of relay RY	ON/OFF	R
Binary input #6	DI 1 ACT	Value of F	ON/OFF	R
Binary input #7	DI 2 ACT	Value of R	ON/OFF	R
Binary input #8	DI 3 ACT	Value of RES	ON/OFF	R

Binary output object instance summary

ID	Object name	Description	Active/Inactive text	Access
Binary Output #0	RO1 CMD	FL relay out accessible if not assigned	ON/OFF	C
Binary Output #1	RO2 CMD	RY relay out accessible if not assigned	ON/OFF	C

Analog input object instance summary

ID	Object name	Description	Units	Access
Analog Input #0	ANALOG INPUT 1	VIA analogue	%	R
Analog Input #1	ANALOG INPUT 2	VIB analogue	%	R
Analog Input #2	ANALOG OUTPUT 1 ACT	Analogue output	%	R

Analog output object instance summary

ID	Object name	Description	Units	Access
Analog Output #0	ANALOG OUTPUT 1	Analogue output	%	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	Indicates the motor rotation's direction	REV/FWD	R
Binary Value #2	FAULT ACT	Indicates the drive's 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 #6	MAIN REQ	Cumulative operation hours alarm	YES/NO	R
Binary Value #7	DRIVE READY	The VSD is ready and waits a 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	Commands a drive start.	START/STOP	C
Binary Value #11	FWD/REV CMD	Commands a motor direction's change.	REV/FWD	C
Binary Value #14	FAULT RESET	Resets faults	RESET/NO	C
Binary Value #15	MBOX READ	Command to read parameter	READ/RESET	W
Binary Value #16	MBOX WRITE	Command to write parameter	WRITE/RESET	W

Binary Value #18	SP1PRESET	Preset speed operation frequencies 1	SP1/NONE	C
Binary Value #19	SP2PRESET	Preset speed operation frequencies 2	SP2/NONE	C
Binary Value #20	SP3PRESET	Preset speed operation frequencies 3	SP3NONE	C
Binary Value #21	SPTSEL	Frequency priority selection	ENABLED/OFF	C
Binary Value #22	CMDSEL	Common priority selection	ENABLED/OFF	C
Binary Value #23	DAMPER FBK	Damper feedback	ON/OFF	W

Analog value object instance summary

ID	Object name	Description	Units	Access
Analog value #0	OUTPUT SPEED	Output 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	PID regulator feedback value	%	R
Analog value #14	RUN TIME	Operating time	H	R
Analog value #16	INPUT REF1	Velocity / frequency setpoint from BACnet	%	C
Analog value #18	LAST FLT	Error code	-	R
Analog value #19	PREV FLT 1	Previous fault (occurred before LASTFLT)	-	R
Analog value #20	PREV FLT 2	Previous fault (occurred before PREVFLT1)	-	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

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

Additional functions

Besides the services of “datasharing” the communication port 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.