BACnet Protocol Implementation Conformance Statement

Date: December 16, 2015
Vendor Name: ABB Inc
Product Name: Low Voltage AC Motor Drive
Product Model Number: ACS320-xxU (USA regional variant)
Applications Software Version: 4050 Firmware Revision: 0528 BACnet Protocol Revision: 7

Product Description:

The ACS320 is a high-performance adjustable frequency drive specifically designed for commercial automation applications. This product supports native BACnet, connecting directly to the MS/TP LAN. All standard MS/TP baud rates are supported, as well as master mode functionality. Over BACnet, the drive can be fully controlled as a standard adjustable frequency drive. In addition, up to 13 configurable I/O are available over BACnet to the user application.

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-WP-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 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): 9600, 19200, 38400, 76800
■ MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
☐ 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:

Property	Object Type						
	Device	Binary Input	Binary Output	Binary Value	Analog Input	Analog Output	Analog Value
Object Identifier	✓	✓	✓	✓	✓	✓	✓
Object Name	✓	✓	✓	✓	✓	✓	✓
Object Type	✓	✓	✓	✓	✓	✓	✓
System Status	✓						
Vendor Name	✓						
Vendor Identifier	✓						
Model Name	✓						
Firmware Revision	✓						
Appl Software Revision	✓						
Protocol Version	✓						
Protocol Revision	✓						
Services Supported	✓						
Object Types Supported	✓						
Object List	✓						
Max APDU Length	✓						
Segmentation Support	✓						
APDU Timeout	✓						
Number APDU Retries	✓						
Max Master	✓						
Max Info Frames	✓						
Device Address Binding	✓						
Database Revision	✓						
Present Value		✓	✓	✓	✓	✓	✓
Status Flags		✓	✓	✓	✓	✓	✓
Event State		✓	✓	✓	✓	✓	✓
Out-of-Service		✓	✓	✓	✓	✓	✓
Units					✓	✓	✓
Priority Array			✓	✓ *		✓	✓ *
Relinquish Default			✓	✓ *		✓	✓ *
Polarity		✓	✓				
Active Text		✓	✓	✓			
Inactive Text		✓	✓	✓			

* For commandable values only.

Binary Input Object Instance Summary

The following table summarizes the Binary Input Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BI0	RO 1 ACT	Indicates status of Relay Output 1.	ON/OFF	R
BI1	RO 2 ACT	Indicates status of Relay Output 2. (requires OREL-xx option)	ON/OFF	R
BI2	RO 3 ACT	Indicates status of Relay Output 3. (requires OREL-xx option)	ON/OFF	R
BI3	RO 4 ACT	Indicates status of Relay Output 4. (requires OREL-xx option)	ON/OFF	R
BI6	DI 1 ACT	Indicates status of Digital Input 1.	ON/OFF	R
BI7	DI 2 ACT	Indicates status of Digital Input 2.	ON/OFF	R
BI8	DI 3 ACT	Indicates status of Digital Input 3.	ON/OFF	R
BI9	DI 4 ACT	Indicates status of Digital Input 4.	ON/OFF	R
BI10	DI 5 ACT	Indicates status of Digital Input 5.	ON/OFF	R
BI12	TO ACT	Indicates status of Transistor Output .	ON/OFF	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Binary Output Object Instance Summary

The following table summarizes the Binary Output Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BO0	RO1 CMD	Controls output state of Relay 1.	ON/OFF	C
BO1	RO2 CMD	Controls output state of Relay 2. (requires OREL-xx option)	ON/OFF	C
BO2	RO3 CMD	Controls output state of Relay 3. (requires OREL-xx option)	ON/OFF	C
BO3	RO4 CMD	Controls output state of Relay 4. (requires OREL-xx option)	ON/OFF	C
BO6	TO CMD	Controls output state of Transistor.	ON/OFF	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Binary Value Object Instance Summary

The following table summarizes the Binary Value Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BV0	RUN/STOP ACT	Indicates drive's run status, regardless of control source.	RUN/STOP	R
BV1	FWD/REV ACT	Indicates rotational direction of the motor, regardless of control source.	REV/FWD	R
BV2	FAULT ACT	Indicates current fault status of drive.	FAULT/OK	R
BV3	EXT 1/2 ACT	Indicates whether External 1 or External 2 is active control source.	EXT2/EXT1	R
BV4	HAND/AUTO ACT	Indicates whether drive is in Hand or Auto control.	HAND/AUTO	R
BV5	ALARM ACT	Indicates current alarm status of drive.	ALARM/OK	R
BV6	MAINT REQ	Indicates current maintenance status of drive.	MAINT/OK	R
BV7	DRIVE READY	Indicates drive is ready to accept a run command.	READY/NOT READY	R
BV8	AT SETPOINT	Indicates drive has reached its commanded setpoint.	YES/NO	R
BV9	RUN ENA ACT	Indicates status of Run Enable command, regardless of its source.	ENABLE/DISABLE	R
BV10	RUN/STOP CMD	Command to start drive (drive must be configured for BACnet control).	RUN/STOP	C
BV11	FWD/REV CMD	Command to change rotational direction of motor (drive must be configured for BACnet control).	REV/FWD	C
BV12	RUN ENA CMD	Command to assert Run Enable command (drive must be configured for BACnet control).	ENABLE/DISABLE	C
BV13	EXT 1/2 CMD	Commanded to select External 1 or External 2 as active control source (drive must be configured for BACnet control).	EXT2/EXT1	C
BV14	FAULT RESET	Commanded to reset fault (drive must be configured for BACnet control).	RESET/NO	C
BV15	MBOX READ	Command to read parameter value specified by AV25, MBOX PARAM. The parameter value is returned in AV26, MBOX DATA.	READ/RESET	W
BV16	MBOX WRITE	Commanded to write data value specified by AV26, MBOX DATA, to the parameter value specified by AV25, MBOX PARAM.	WRITE/RESET	W
BV17	LOCK PANEL	Commanded to lock panel and prevent parameter changes.	LOCK/UNLOCK	W
BV18	CTL OVERRIDE CMD	Commands the drive into BACnet Control Override. In this mode, BACnet acquires drive control from its normal	ON/OFF	C

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
		source. Note that HAND mode of the panel has priority over BACnet Control Override.		
BV19	CTL OVERRIDE ACT	Indicates if drive has been placed in BACnet Control Override by commanding BV18. In this mode, BACnet acquires drive control from its normal source. Note that HAND mode of the panel has priority over BACnet Control Override.	ON/OFF	R
BV20	START ENABLE 1	Command to assert Start Enable 1 (drive must be configured for BACnet control).	ENABLE/DISABLE	C
BV21	START ENABLE 2	Command to assert Start Enable 2 (drive must be configured for BACnet control).	ENABLE/DISABLE	C
BV22	HEATING CMD	Command to automatically assert Motor Heating DC current injection, when drive is stopped (drive must be configured for BACnet control). In this mode, “DISABLE” turns off the ongoing Motor Heating operation immediately (after the drive has received the command).	ENABLE/DISABLE	C
BV23	HEATING STS	Indicates the status of Motor Heating DC current injection (drive must be configured for BACnet control). ”ON” means there is actual heating current flowing in the motor circuit.	ON/OFF	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Input Object Instance Summary

The following table summarizes the Analog Input Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AI0	ANALOG INPUT 1	Indicates the input level of Analog Input 1.	Percent	R
AI1	ANALOG INPUT 2	Indicates the input level of Analog Input 2.	Percent	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Output Object Instance Summary

The following table summarizes the Analog Output Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AO0	AO 1 COMMAND	Controls Analog Output 1 (drive must be configured for BACnet control).	Percent	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Value Object Instance Summary

The following table summarizes the Analog Value Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AV0	OUTPUT SPEED	Motor speed.	RPM	R
AV1	OUTPUT FREQ	Output frequency.	Hertz	R
AV2	DC BUS VOLT	DC bus voltage.	Volts	R
AV3	OUTPUT VOLT	AC output voltage.	Volts	R
AV4	CURRENT	Output current of drive.	Amps	R
AV5	TORQUE	Output torque of motor as a percentage of nominal torque.	Percent	R
AV6	POWER	Output power in kW.	Kilowatts	R
AV7	DRIVE TEMP	Heatsink temperature.	°C	R
AV8	KWH ®	Drive's resettable energy usage (reset by writing 0).	kWh	W
AV9	KWH (NR)	Drive's cumulative energy usage. This value is not resettable.	kWh	R
AV10	PRC PID FBCK	Process PID feedback signal.	Percent	R
AV11	PRC PID DEV	Deviation of Process PID output signal from its setpoint.	Percent	R
AV12	EXT PID FBCK	External PID feedback signal.	Percent	R
AV13	EXT PID DEV	Deviation of External PID output signal from its setpoint.	Percent	R
AV14	RUN TIME ®	Drive's resettable run time (reset by writing 0).	Hours	W
AV15	MOTOR TEMP	Motor temperature as setup in Group 35.	°C	R
AV16	INPUT REF 1	Input Reference 1 (drive must be configured for BACnet control).	Percent	C
AV17	INPUT REF 2	Input Reference 2 (drive must be configured for BACnet control).	Percent	C
AV18	LAST FLT	Indicates most recent fault in fault log.	None	R
AV19	PREV FLT 1	Indicates previous fault in fault log.	None	R
AV20	PREV FLT 2	Indicates oldest fault in fault log.	None	R
AV21	AO 1 ACT	Indicates output level of Analog Output 1.	Milliamps	R
AV23	ACCEL1 TIME	Sets Ramp1 acceleration time.	Seconds	W
AV24	DECEL1 TIME	Sets Ramp 1 deceleration time.	Seconds	W
AV25	MBOX PARAM	Sets parameter number to be used by mailbox function (see BV15 & BV16).	None	W
AV26	MBOX DATA	Sets (W) or indicates ® the data value of mailbox function (see BV15 & BV16).	None	W
AV27	EXT PID STPT	Setpoint for the External PID controller (drive must be configured for BACnet control).	Percent	C
AV28	HEATING CURRENT	Sets Motor Heating DC current reference (% of the motor nominal current)	Percent	W

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

BACnet Protocol Implementation Conformance Statement

Date: December 16, 2015
Vendor Name: ABB Inc
Product Name: Low Voltage AC Motor Drive
Product Model Number: ACS320-xxE
Applications Software Version: 403C **Firmware Revision: 0526** **BACnet Protocol Revision: 7**

Product Description:

The ACS320 is a high-performance adjustable frequency drive specifically designed for commercial automation applications. This product supports native BACnet, connecting directly to the MS/TP LAN. All standard MS/TP baud rates are supported, as well as master mode functionality. Over BACnet, the drive can be fully controlled as a standard adjustable frequency drive. In addition, up to 13 configurable I/O are available over BACnet to the user application.

BACnet Standardized Device Profile (Annex L):

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List all BACnet Interoperability Building Blocks Supported (Annex K): DS-RP-B, DS-WP-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:

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☐ ISO 8802-3, Ethernet (Clause 7)
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☐ ANSI/ATA 878.1, RS-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): 9600, 19200, 38400, 76800
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s):_____
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☐ 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:

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Object/Property Support Matrix

The following table summarizes the Object Types/Properties Supported:

Property	Object Type						
	Device	Binary Input	Binary Output	Binary Value	Analog Input	Analog Output	Analog Value
Object Identifier	✓	✓	✓	✓	✓	✓	✓
Object Name	✓	✓	✓	✓	✓	✓	✓
Object Type	✓	✓	✓	✓	✓	✓	✓
System Status	✓						
Vendor Name	✓						
Vendor Identifier	✓						
Model Name	✓						
Firmware Revision	✓						
Appl Software Revision	✓						
Protocol Version	✓						
Protocol Revision	✓						
Services Supported	✓						
Object Types Supported	✓						
Object List	✓						
Max APDU Length	✓						
Segmentation Support	✓						
APDU Timeout	✓						
Number APDU Retries	✓						
Max Master	✓						
Max Info Frames	✓						
Device Address Binding	✓						
Database Revision	✓						
Present Value		✓	✓	✓	✓	✓	✓
Status Flags		✓	✓	✓	✓	✓	✓
Event State		✓	✓	✓	✓	✓	✓
Out-of-Service		✓	✓	✓	✓	✓	✓
Units					✓	✓	✓
Priority Array			✓	✓ *		✓	✓ *
Relinquish Default			✓	✓ *		✓	✓ *
Polarity		✓	✓				
Active Text		✓	✓	✓			
Inactive Text		✓	✓	✓			

* For commandable values only.

Binary Input Object Instance Summary

The following table summarizes the Binary Input Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BI0	RO 1 ACT	Indicates status of Relay Output 1.	ON/OFF	R
BI1	RO 2 ACT	Indicates status of Relay Output 2. (requires OREL-xx option)	ON/OFF	R
BI2	RO 3 ACT	Indicates status of Relay Output 3. (requires OREL-xx option)	ON/OFF	R
BI3	RO 4 ACT	Indicates status of Relay Output 4. (requires OREL-xx option)	ON/OFF	R
BI6	DI 1 ACT	Indicates status of Digital Input 1.	ON/OFF	R
BI7	DI 2 ACT	Indicates status of Digital Input 2.	ON/OFF	R
BI8	DI 3 ACT	Indicates status of Digital Input 3.	ON/OFF	R
BI9	DI 4 ACT	Indicates status of Digital Input 4.	ON/OFF	R
BI10	DI 5 ACT	Indicates status of Digital Input 5.	ON/OFF	R
BI12	TO ACT	Indicates status of Transistor Output .	ON/OFF	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Binary Output Object Instance Summary

The following table summarizes the Binary Output Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BO0	RO1 CMD	Controls output state of Relay 1.	ON/OFF	C
BO1	RO2 CMD	Controls output state of Relay 2. (requires OREL-xx option)	ON/OFF	C
BO2	RO3 CMD	Controls output state of Relay 3. (requires OREL-xx option)	ON/OFF	C
BO3	RO4 CMD	Controls output state of Relay 4. (requires OREL-xx option)	ON/OFF	C
BO6	TO CMD	Controls output state of Transistor.	ON/OFF	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Binary Value Object Instance Summary

The following table summarizes the Binary Value Objects supported:

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
BV0	RUN/STOP ACT	Indicates drive's run status, regardless of control source.	RUN/STOP	R
BV1	FWD/REV ACT	Indicates rotational direction of the motor, regardless of control source.	REV/FWD	R
BV2	FAULT ACT	Indicates current fault status of drive.	FAULT/OK	R
BV3	EXT 1/2 ACT	Indicates whether External 1 or External 2 is active control source.	EXT2/EXT1	R
BV4	HAND/AUTO ACT	Indicates whether drive is in Hand or Auto control.	HAND/AUTO	R
BV5	ALARM ACT	Indicates current alarm status of drive.	ALARM/OK	R
BV6	MAINT REQ	Indicates current maintenance status of drive.	MAINT/OK	R
BV7	DRIVE READY	Indicates drive is ready to accept a run command.	READY/NOT READY	R
BV8	AT SETPOINT	Indicates drive has reached its commanded setpoint.	YES/NO	R
BV9	RUN ENA ACT	Indicates status of Run Enable command, regardless of its source.	ENABLE/DISABLE	R
BV10	RUN/STOP CMD	Command to start drive (drive must be configured for BACnet control).	RUN/STOP	C
BV11	FWD/REV CMD	Command to change rotational direction of motor (drive must be configured for BACnet control).	REV/FWD	C
BV12	RUN ENA CMD	Command to assert Run Enable command (drive must be configured for BACnet control).	ENABLE/DISABLE	C
BV13	EXT 1/2 CMD	Commanded to select External 1 or External 2 as active control source (drive must be configured for BACnet control).	EXT2/EXT1	C
BV14	FAULT RESET	Commanded to reset fault (drive must be configured for BACnet control).	RESET/NO	C
BV15	MBOX READ	Command to read parameter value specified by AV25, MBOX PARAM. The parameter value is returned in AV26, MBOX DATA.	READ/RESET	W
BV16	MBOX WRITE	Commanded to write data value specified by AV26, MBOX DATA, to the parameter value specified by AV25, MBOX PARAM.	WRITE/RESET	W
BV17	LOCK PANEL	Commanded to lock panel and prevent parameter changes.	LOCK/UNLOCK	W
BV18	CTL OVERRIDE CMD	Commands the drive into BACnet Control Override. In this mode, BACnet acquires drive control from its normal	ON/OFF	C

Instance ID	Object Name	Description	Active/Inactive Text	Present Value Access Type
		source. Note that HAND mode of the panel has priority over BACnet Control Override.		
BV19	CTL OVERRIDE ACT	Indicates if drive has been placed in BACnet Control Override by commanding BV18. In this mode, BACnet acquires drive control from its normal source. Note that HAND mode of the panel has priority over BACnet Control Override.	ON/OFF	R
BV20	START ENABLE 1	Command to assert Start Enable 1 (drive must be configured for BACnet control).	ENABLE/DISABLE	C
BV21	START ENABLE 2	Command to assert Start Enable 2 (drive must be configured for BACnet control).	ENABLE/DISABLE	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Input Object Instance Summary

The following table summarizes the Analog Input Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AI0	ANALOG INPUT 1	Indicates the input level of Analog Input 1.	Percent	R
AI1	ANALOG INPUT 2	Indicates the input level of Analog Input 2.	Percent	R

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Output Object Instance Summary

The following table summarizes the Analog Output Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AO0	AO 1 COMMAND	Controls Analog Output 1 (drive must be configured for BACnet control).	Percent	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.

Analog Value Object Instance Summary

The following table summarizes the Analog Value Objects supported:

Instance ID	Object Name	Description	Units	Present Value Access Type
AV0	OUTPUT SPEED	Motor speed.	RPM	R
AV1	OUTPUT FREQ	Output frequency.	Hertz	R
AV2	DC BUS VOLT	DC bus voltage.	Volts	R
AV3	OUTPUT VOLT	AC output voltage.	Volts	R
AV4	CURRENT	Output current of drive.	Amps	R
AV5	TORQUE	Output torque of motor as a percentage of nominal torque.	Percent	R
AV6	POWER	Output power in kW.	Kilowatts	R
AV7	DRIVE TEMP	Heatsink temperature.	°C	R
AV8	KWH ®	Drive's resettable energy usage (reset by writing 0).	kWh	W
AV9	KWH (NR)	Drive's cumulative energy usage. This value is not resettable.	kWh	R
AV10	PRC PID FBCK	Process PID feedback signal.	Percent	R
AV11	PRC PID DEV	Deviation of Process PID output signal from its setpoint.	Percent	R
AV12	EXT PID FBCK	External PID feedback signal.	Percent	R
AV13	EXT PID DEV	Deviation of External PID output signal from its setpoint.	Percent	R
AV14	RUN TIME ®	Drive's resettable run time (reset by writing 0).	Hours	W
AV15	MOTOR TEMP	Motor temperature as setup in Group 35.	°C	R
AV16	INPUT REF 1	Input Reference 1 (drive must be configured for BACnet control).	Percent	C
AV17	INPUT REF 2	Input Reference 2 (drive must be configured for BACnet control).	Percent	C
AV18	LAST FLT	Indicates most recent fault in fault log.	None	R
AV19	PREV FLT 1	Indicates previous fault in fault log.	None	R
AV20	PREV FLT 2	Indicates oldest fault in fault log.	None	R
AV21	AO 1 ACT	Indicates output level of Analog Output 1.	Milliamps	R
AV23	ACCEL1 TIME	Sets Ramp1 acceleration time.	Seconds	W
AV24	DECEL1 TIME	Sets Ramp 1 deceleration time.	Seconds	W
AV25	MBOX PARAM	Sets parameter number to be used by mailbox function (see BV15 & BV16).	None	W
AV26	MBOX DATA	Sets (W) or indicates ® the data value of mailbox function (see BV15 & BV16).	None	W
AV27	EXT PID STPT	Setpoint for the External PID controller (drive must be configured for BACnet control).	Percent	C

NOTE: For Present Value Access Types, R = Read-only, W = Writeable, C = Commandable. Commandable values support priority arrays & relinquish defaults.


ABB
HVAC DEFAULT