Air Handling Unit Controller

US5182

BACnet Protocol Implementation Conformance Statement

Date:	May 5, 2023
Vendor Name:	TCS Basys Controls
Product Name:	Advanced Air Handling Unit
Product Model Number:	US5182
Application Software Version:	1.00
Firmware Revision:	1.00
BACnet Protocol Revision:	1.16

Product Description

The US5182 Advanced Air Handling Unit (AHU) Controller provides advanced control functionality such as air volume control, dehumidification, face and bypass control, and demand ventilation through the use of a CO_2 sensor. The unit is an upgrade from the SZ2182, and can be used as a direct replacement for the SZ2182.

The US5182 AHU Controller's redesigned housing features all connectors on the side rather than on the face, which makes wiring easier and neater. Its large, easy-to-read LCD display can be used for initial setup, monitoring, and for making changes to some settings. The unit also includes additional Input/Output ports, and has the ability to control a digital or analog output directly from an analog input.

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-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)
- Scheduling-Internal-B (SCHED-I-B)
- 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-UTCTimeSynchronization-B (DM-UTC-B)
- Device Management-ReinitializeDevice-B (DM-RD-B)
- Device Management-Backup and Restore-B (DM-BR-B)

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Segmentation Capability

☐ Able to transmit segmented messages Window size_____

☐ Able to receive segmented messages Window size_____

Standard Object Types Supported

- Properties that support Max_Pres_Value and Min_Pres_Value properties use those values as range restrictions when writing.
- No objects are creatable or deletable using the CreateObject or DeleteObject service.
- Properties with "(W)" after the name are writable.

Object Type	Profile	Required Properties	Optional Properties	Proprietary Properties
Device	496-8-1 (Basic)	Object_Identifier (W) Object_Name (W) Object_Type System_Status (W) 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 (W) Number_Of_APDU_Retries (W) Device_Address_Binding Database_Revision Property_List	Location (W) Description Local_Time Local_Date UTC_Offset (W) Daylight_Savings_Status Max_Master (W) Max_Info_Frames (W) Configuration_Files Last_Restore_Time Backup_Failure_Timeout Backup_Preparation_Time Restore_Preparation_Time Restore_Completion_Time Backup_And_Restore_State Last_Restart_Reason Time_Of_Device_Restart Backup_Preparation_Time Restore_Preparation_Time Restore_Completion_Time Backup_And_Restore_State Serial_Number Profile_Name	DST_Start (602) (W) DST_End (603) (W) Manufacture_Date (604) Hardware_Version (605) Bootloader_Version (608)
Analog Input	496-0-2 (RTD Temperature Input)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units Property_List	Description Reliability Min_Pres_Value Max_Pres_Value Resolution Profile_Name Update_Interval	
Analog Input	496-0-3 (Ammeter Input)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units Property_List	Description Reliability Min_Pres_Value Max_Pres_Value Resolution Profile_Name Update_Interval	

Object Type	Profile	Required Properties	Optional Properties	Proprietary Properties
Analog Input	496-0-4 (Voltage Input)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units Property_List	Description Reliability Min_Pres_Value Max_Pres_Value Resolution Profile_Name Update_Interval	
Analog Value	496-2-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Units Property_List	Description Min_Pres_Value Max_Pres_Value Profile_Name	
Analog Value	496-2-2 (Commandable)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Units Property_List	Description Priority_Array Relinquish_Default Min_Pres_Value Max_Pres_Value Profile_Name	
Analog Value	496-2-3 (Ammeter Scaled)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units (W) Property_List	Description Min_Pres_Value Max_Pres_Value Profile_Name	
Analog Value	496-2-4 (Control Error)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units Property_List	Description Min_Pres_Value Max_Pres_Value Profile_Name	
Analog Value	496-2-5 (Voltage Scaled)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units (W) Property_List	Description Min_Pres_Value Max_Pres_Value Profile_Name	

Object Type	Profile	Required Properties	Optional Properties	Proprietary Properties
Analog Output	496-1-1 (Current Generator)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Units Priority_Array Relinquish_Default Property_List	Description Reliability Min_Pres_Value Max_Pres_Value Resolution Profile_Name	
Binary Input	496-3-1 (Digital Input)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Polarity (W) Property_List	Description Active_Text Inactive_Text Profile_Name	
Binary Output	496-4-1 (Relay)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Polarity (W) Priority_Array Relinquish_Default Property_List	Description Inactive_Text Active_Text Change_Of_State_Time Change_Of_State_Count (W) Time_Of_State_Count_Reset Elapsed_Active_Time (W) Time_Of_Active_Time_Reset Minimum_Off_Time Minimum_On_Time Profile_Name	
Binary Value	496-5-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Property_List	Description Active_Text Inactive_Text Profile_Name	
Binary Value	496-5-2 (Commandable)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Property_List	Description Inactive_Text Active_Text Priority_Array Relinquish_Default Profile_Name	
Positive Integer Value	496-48-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Units Property_List	Description Min_Pres_Value Max_Pres_Value Profile_Name	

Object Type	Profile	Required Properties	Optional Properties	Proprietary Properties
Positive Integer Value	496-48-2 (Commandable)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Out_Of_Service Units Property_List	Description Min_Pres_Value Max_Pres_Value Priority_Array Relinquish_Default Profile_Name	
Multi-State Value	496-19-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Number_Of_States Out_Of_Service Property_List	Description State_Text Profile_Name	
Multi-State Value	496-19-2 (Commandable)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Event_State Number_Of_States Out_Of_Service Property_List	Description Priority_Array Relinquish_Default State_Text Profile_Name	
BitString Value	496-39-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Property_List	Description Event_State Bit_Text Out_Of_Service Profile_Name	
CharacterString Value	496-40-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value (W) Status_Flags Property_List	Description Profile_Name	
Schedule	496-17-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value Effective_Period Schedule_Default List_Of_Object_Property_References Priority_For_Writing Status_Flags Out_Of_Service Property_List	Description Weekly_Schedule (W) Exception_Schedule (W) Reliability Profile_Name	
Calendar	496-6-1 (Basic)	Object_Identifier Object_Name Object_Type Present_Value Date_List (W) Status_Flags Event_State Out_Of_Service Property_List	Description Profile_Name	

Object Type	Profile	Required Properties	Optional Properties	Proprietary Properties
File	496-10-1 (Dataflash File),	Object_Identifier Object_Name Object_Type File_Type File_Size Modification_Date Archive (W) Read_Only File_Access_Method Property_List	Description Profile_Name	
File	496-10-2 (Configuration)	Object_Identifier Object_Name Object_Type File_Type File_Size Modification_Date Archive (W) Read_Only File_Access_Method Property_List	Description Profile_Name	
File	496-10-3 (Diagnostic Log File)	Object_Identifier Object_Name Object_Type File_Type File_Size Modification_Date Archive (W) Read_Only File_Access_Method Property_List	Description Profile_Name	
Loop	496-12-1 (Loop Object)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Out_Of_Service Output Units Manipulated_Variable_Reference Controlled_Variable_Reference Controlled_Variable_Value Controlled_Variable_Units Setpoint_Reference Setpoint Action Priority_For_Writing Property_List	Description Reliability Update_Interval Event_State Proportional_Constant (W) Proportional_Constant_Units Integral_Constant (W) Integral_Constant_Units Derivative_Constant Derivative_Constant_Units Maximum_Output (W) Minimum_Output (W)	

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): 9600,19200, 38400, 57600, 76800, 115200

☐ 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