



Advanced Thermal Dispersion Communications for TDP05K Air Measuring Probes

- BACnet Protocol Implementation Conformance Statement

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Protocol Implementation Conformance Statement - PICS

General information Date: 21 December 2021

Vendor Name: Ruskin Vendor ID: 692

Product Name: TDP05k Thermal Dispersion Probe Airflow Measuring System

Product Model Number: TDP05k

Firmware Revision: 1.5.3 Application Software Version: 1.1.0 BACnet Protocol Revision: 14

Product Description: Thermal Dispersion Electronic Airflow Measuring System

BACnet Standard Device Profile: BACnet Application Specific Controller (B-ASC)

BACnet Interoperability Building Blocks supported:

Data Sharing - ReadProperty-B (DS-RP-B) Data Sharing - WriteProperty-B (DS-WP-B)

Device Management - DynamicDeviceBinding-A (DM-DDB-A)
Device Management - DynamicDeviceBinding-B (DM-DDB-B)
Device Management - DynamicObjectBinding-B (DM-DOB-B)
Device Management - DeviceCommunicationControl-B (DM-DCC-B)
Alarm and Event Management - Notification - Internal-B (AE-N-I-B)
Alarm and Event Management - Information-B (AE-INFO-B)
Alarm and Event Management - Alarm Summary-A (AE-ASUM-B)

Segmentation Capability: No

Data Link Layer Options: MS/TP master

baud rates: 9600, 19200, 38400, 76800

Device Address Binding: No static device binding supported

Networking Options: None

Character Sets Supported: ISO 10646 (UTF-8)

Standard objects Th

The device supports the following standard object types:

- Device
- Analog Value
- Notification Class

Advanced Thermal Dispersion Air Measuring Station BACnet objects

Object Name	Description	Туре	Inst	Units
TDP05K ¹	The Device object	DEV	XXXX ²	See Property Table 1
Notification Class	Handles where to send events and notifications	NC	1	See Property Table 2
Airflow Temperature	Average Temperature in SI or Imperial Units	AV	1	See Property Table 3
Actual Airflow Velocity ³	Average station airflow velocity or volume in SI or Imperial Units	AV	2	See Property Table 3

AV - Analog Value

NC - Notification Class

- 1 Name is dependent on line 2 display settings configured on the device. With line 2 parameter set to custom, the device name appends the line 2 test to the BACnet device name.
- 2 Configured in the device settings menu.
- 3 Name is dependent on display settings configured on the device. Prefixed by "Actual" or "Standard" and suffixed by "Velocity" or "Volume" based on settings in the display menu.



Advanced Thermal Dispersion Air Measuring Station BACnet property types

Property Table 1: Device Object			
Property	Туре	Access	Description
Object_Identifier ¹	BACnetObjectIdentifier	R	The object number (instance) for the DEV object
Object_Type	BACnetObjectType	R	The DEV object type – DEVICE
Object_Name	CharacterString	R	The DEV object name
System_Status	BACnetDeviceStatus	R	Reflects the current status of the device
Vendor_Name	CharacterString	R	Manufacturer of the device
Vendor_Identifier	Unsigned16	R	The unique vendor identification code
Model_Name	CharacterString	R	Model of the device
Firmware_Revision	CharacterString	R	Level of firmware installed on the device
Application_Software_Version	CharacterString	R	Version of the application software installed on the device
Protocol_Version	Unsigned	R	Indicates the BACnet protocol version
Protocol_Revision	Unsigned	R	Indicates the BACnet protocol revision
Max_APDU_Length_Accepted	Unsigned	R	Maximum number of octets that may be contained in a single APDU
Segmentation_Supported	BACnetSegmentation	R	Indicates if the device supports segmentation
APDU_Timeout	Unsigned	R	The time in milliseconds between retransmission of an APDU requring acknowledgment
Number_Of_APDU_Retries	Unsigned	R	Maximum number of times an APDU shall be transmitted
Protocol_Services_Supported	BACnetServicesSupported	R	Indicates which standardized protocol services are executed by the device
Protocol_Object_Types_Supported	BACnetOBjectTypesSupported	R	Indicates which standardized object types can be present in the device
Object_List	BACnetARRAY[N] of BACnetObjectIdentifier	R	Indicates the list of objects accessible on the device
Max_Master	Unsigned(0127)	R	The Max Master of the device
Max_Info_Frames	Unsigned	R	The Max Info Frames of the device
Device_Address_Binding	BACnetLIST of BACnetAddressBinding	R	List of Address Bindings
Database_Revision	Unsigned	R	Revision number for the device's database
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	R	Array of the supported object properties

Property Table 2: Notification Class Object			
Property	Type	Access	Description
Object_Identifier ¹	BACnetObjectIdentifier	R	The object number (instance) for the NC object
Object_Type	BACnetObjectType	R	The NC object type – NOTIFICATION_CLASS
Object_Name	CharacterString	R	The NC object name
Notification_Class	Unsigned	R	Indicates the Instance of the Notification_Class
Priority	BACnetARRAY[3] of Unsigned	R	Conveys the priority to be used for event notifications for TO_OFFNORMAL, TO_FAULT, and TO_NORMAL
Ack_Required	BACnetEventTransitionBits	R	Conveys whether acknowledgment shall be required for notification generated for TO_OFFNORMAL, TO_FAULTS, and TO_NORMAL event transitions.
Recipient_List	BACnetLIST of BACnetDestination	R/W	Converys a list of up to 1 recipient destinations to which destinations shall be sent. * Limited to 1 recipient with valid days set to all days, from time as 00:00:00.00, to time as 23:59:59.99 and transitions as (TRUE,TRUE,TRUE)
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	R	Array of the supported object properties



Property Table 3: Analog Value Object				
Property	Туре	Access	Description	
Object_Identifier ¹	BACnetObjectIdentifier	R	The object number (instance) for the AV object	
Object_Type	BACnetObjectType	R	The AV object type – ANALOG_VALUE	
Object_Name	CharacterString	R	The AV object name	
Present_Value	Real	R	The present float value of the AV object, Temperature or Flow, in the set displayed units	
Units ¹	BACnetEngineeringUnits	R	The units of the present value, limits, and deadbands: 62 – Celsius 64 – Fahrenheit 74 – Meters / Second 84 – Feet³ / Minute 887 – Liters / Second 88 – Liters / Minute 135 – Meters³ / Hour 142 – Feet³ / Second	
Out_Of_Service	Boolean	R	Boolean that represents if the reported value is not valid, such as during warm up	
Status_Flags	BACnetStatusFlags	R	4 bits representing if the object is: IN_ALARM, FAULT, OVERRIDDEN, OUT_OF_SERVICE	
Event_State	BACnetEventState	R	Indicates the event state of this object	
High_Limit ¹	Real	R	The device's set high limit that triggers the alarm flags for this object	
Low_Limit ¹	Real	R	The device's set low limit that triggers the alarm flags for this object	
Deadband ¹	Real	R	The device's set deadband for the object's alarm flag triggering	
Time_Delay ¹	Unsigned	R	The time delay in seconds for the object's alarm flag triggering	
Time_Delay_Normal	Unsigned	R	The time delay in seconds for the object's alarm flag to return to normal	
Limit_Enable	BACnetLimitEnable	R	The limit enable bits that represent if the object's alarms have the high and/or low limits enabled: Low_Limit_Enable, High_Limit_Enable	
Event_Enable	BACnetEventTransitionBits	R	Indicates what events are enabled: TO_OFFNORMAL, TO_FAULT, TO_NORMAL *All are enabled if High and/or Low Limits are enabled.	
Acked_Transitions	BACnetEventTransitionBits	R	Indicates the acknowledgment state for events	
Event_Detection_Enable	Boolean	R	Indicates whether or not intrinsic reporting is enabled	
Notification_Class	Unsigned	R	Indicates the instance of the Norification Class to use for events	
Notify_Type	BACnetNotifyType	R	Indicates the notification type – Alarm	
Event_Time_Stamps	BACnetARRAY[3] of BACnetTimeStamp	R	Conveys the times of the last TO_OFFNORMAL, TO_FAULT, and TO_NORMAL events as sequence numbers	
Event_Message_Texts	BACnetARRAY[3] of CharacterString	R	Conveys the message text for the last TO_OFFNORMAL, TO_FAULT, and TO_NORMAL events	
Event_Message_Texts_Config	BACnetARRAY[3] of CharacterString	R	The base text that defines the message text of Event_Message_Texts	
Event_Algorithm_Inhibit	Boolean	R/W	Indicates whether or not the event algorithm is disabled for the object	
Event_Algorithm_Inhibit_Ref	BACnetObjectPropertyReference	R	Indicates the property that controls Event_Algorithm_Inhibit - Unintialized	
Reliability	BACnetReliability	R	Indicates if the Present_Value is reliable	
Reliability_Evaluation_Inhibit	Boolean	R	Indicates whether or not reliability evaluation is disabled for the object	
Property_List	BACnetARRAY[N] of BACnetPropertyIdentifier	R	Array of the supported object properties	

R – Read Access W – Write Access

^{1 –} These properties are configured through the configuration menu on the device