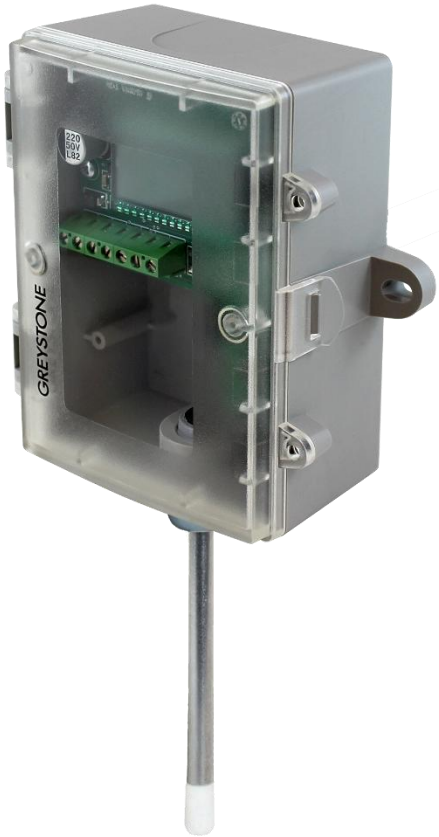
GREYSTONE
ENERGY SYSTEMS INC

HTX2 Series

SETUP GUIDE BACnet® COMMUNICATION



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BACnet

Object Type	Dynamically Creatable	Dynamically Deletable	Object Identifier	Object Name
Device	No	No	381001	DP 001
Analog Input	No	No	AI 1 AI 2 AI 3 AI 4 AI 5	Temperature Relative Humidity Dewpoint Temperature Wet Bulb Temperature Enthalpy
Analog Value	No	No	AV 1 AV 2 AV 3 AV 4	Temperature Offset RH Offset Atmospheric Pressure Altitude
Binary Value	No	No	BV 1 BV 2	Temperature Unit Enthalpy Unit
Multi-State Value	No	No	MSV1	Display Mode

The BACnet Device object allows configuration of the device. Device object properties are shown below.

Property	Default Value	Property Data Type	Access
Object Identifier	381003	BACnetObjectIdentifier(numeric)	Read / Write
Object Name	DW 003	CharacterString (32)	Read / Write
Object Type	DEVICE (8)	BACnetObjectType	Read
System Status	OPERATIONAL (0)	BACnetDeviceStatus	Read
Vendor Name	Greystone Energy Systems	CharacterString	Read
Vendor Identifier	381	Unsigned16	Read
Model Name	DEWPOINT	CharacterString	Read
Firmware Revision	1.0	CharacterString	Read
Application Software Version	V1.0	CharacterString	Read
Location	150 English Drive, Moncton, NB	CharacterString (32)	Read / Write
Description	Dewpoint Sensor	CharacterString (32)	Read / Write
Protocol Version	1	Unsigned	Read
Protocol Revision	14	Unsigned	Read
Protocol Services Supported	See description below	BACnetServicesSupported	Read
Protocol Object Types Supported	See description below	BACnetObjectTypesSupported	Read
Object List	See description below	BACnetArray	Read
Maximum APDU Length Accepted	50, B'0000'	Unsigned	Read
Segmentation Supported	NO_SEGMENTATION (3)	BACnetSegmentation	Read
APDU Timeout	6,000	Unsigned	Read / Write
Number of APDU Retries	3	Unsigned	Read / Write
Max Master	127	Unsigned	Read / Write
Max Info Frames	1	Unsigned	Read
Device Address Binding	empty	BACnetAddressBinding	Read
Database Revision	0	Unsigned	Read
Property List		BACnetArray	Read

Object Identifier

Initial default number is 381003, where 381 is the vendor ID and 003 is the default network MAC address. When the MAC address is initially changed the value is updated and saved. For example, if the MAC address is set to 50 via the menu for startup, then the device instance will be set to 381050. This property is also writable via BACnet. If the Device:Object_Identifier is written to via BACnet then the MAC address is no longer appended to the vendor ID to create this value.

Object Name

Initial string is "DW 003" where DW is the device model name and 003 is the default network address. Can be written with a new string of maximum length of 32 characters and the value is saved. The "003" is the MAC address and is automatically changed if the MAC address is changed. Once written to via BACnet, the MAC address no longer gets appended to the value.

Protocol Services Supported
readProperty, readPropertyMultiple, writeProperty, deviceCommunicationControl, who-Has, who-Is, subscribeCOV, subscribeCOVProperty
Binary bit string = {00000100 00001011 01000000 00000000 01100010 0}

Protocol Object Types Supported
Analog_Input, Analog_Value, Binary_Value, Device, Multi-State_Value
Binary bit string = {10100100 10000000 00010000 00000000 00000000 00000000 0000000}

Object List ((Device, Instance 3), (Analog Input, Instance 1), (Analog Input, Instance 2), (Analog Input, Instance 3), (Analog Input, Instance 4), (Analog Input, Instance 5), (Analog Value, Instance 1), (Analog Value, Instance 2), (Analog Value, Instance 3), (Analog Value, Instance 4), (Binary Value, Instance 1), (Binary Value, Instance 2), (Multi State Value, Instance 1)

APDU Timeout Value is 6,000. Can be modified from 1 to 10,000.

Number Of APDU Retries Value is 3. Can be modified from 1 to 10.
Max Master Value is 127. Value is saved. Can be modified from 1 to 127.
Database Revision Value is 0 to 255.

The analog input BACnet objects allow reading of sensor values. Analog input object properties are shown below.

Analog Input Object Temperature (Present Value = temperature sensor reading in °F or °C, resolution = 0.1°, range = -30-50 °C or -22-122 °F)

Property	Default Value	Property Data Type	Access
Object Identifier	AI1 (Analog Input 1)	BACnetObjectIdentifier	Read
Object Name	Temperature	CharacterString (32)	Read
Object Type	ANALOG_INPUT (0)	BACnetObjectType	Read
Present Value	current reading	Real	Read
Description	-35 to 50C, resolution=0.1C Or -22 to 122F, resolution=0.1F	CharacterString (32)	Read
Device Type	Temperature Sensor	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000) or (1100) if no sensor	BACnetStatusFlags	Read
Event State	NORMAL (0) or FAULT (1) if no sensor	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Units	degrees-Celsius (62) or degrees-Fahrenheit (64)	BACnetEngineeringUnits	Read
COV Increment	2 (for C) Or 4 (for F)	Real	Read
Property List		BACnetArray	Read

Analog Input Object
Relative Humidity

(Present Value = RH sensor reading in %RH, resolution is 0.1%, range = 0-100 %RH)

Property	Default Value	Property Data Type	Access
Object Identifier	AI2 (Analog Input 2)	BACnetObjectIdentifier	Read
Object Name	Relative Humidity	CharacterString (32)	Read
Object Type	ANALOG_INPUT (0)	BACnetObjectType	Read
Present Value	current reading	Real	Read
Description	0 to 100%,resolution=0.1%RH	CharacterString (32)	Read
Device Type	RH Sensor	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000) or (1100) if no sensor	BACnetStatusFlags	Read
Event State	NORMAL (0) or FAULT (1) if no sensor	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Units	Percent-relative-humidity (29)	BACnetEngineeringUnits	Read
COV Increment	10	Real	Read
Property List		BACnetArray	Read

Analog Input Object
Dewpoint Temperature

(Present Value = dewpoint temperature calculation in °F or °C, resolution = 0.1°, range = -30-50 °C or -22-122 °F)

Property	Default Value	Property Data Type	Access
Object Identifier	AI3 (Analog Input 3)	BACnetObjectIdentifier	Read
Object Name	Dew point Temperature	CharacterString (32)	Read
Object Type	ANALOG_INPUT (0)	BACnetObjectType	Read
Present Value	current reading	Real	Read
Description	-30 to 50C, resolution=0.1C Or -22 to 122F, resolution=0.1F	CharacterString (32)	Read
Device Type	Dew Point Sensor	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000) or (1100) if no sensor	BACnetStatusFlags	Read
Event State	NORMAL (0) or FAULT (1) if no sensor	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Units	degrees-Celsius (62) or degrees-Fahrenheit (64)	BACnetEngineeringUnits	Read
COV Increment	2 (for C) Or 4 (for F)	Real	Read
Property List		BACnetArray	Read

Analog Input Object
Wet Bulb Temperature

(Present Value = wet bulb temperature calculation in °F or °C, resolution = 0.1°, range = -30-50 °C or -22-122 °F)

Property	Default Value	Property Data Type	Access
Object Identifier	AI4 (Analog Input 4)	BACnetObjectIdentifier	Read
Object Name	Wet Bulb Temperature	CharacterString (32)	Read
Object Type	ANALOG_INPUT (0)	BACnetObjectType	Read
Present Value	current reading	Real	Read
Description	-30 to 50C, resolution=0.1C Or -22 to 122F, resolution=0.1F	CharacterString (32)	Read
Device Type	Wet Bulb Temperature Sensor	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000) or (1100) if no sensor	BACnetStatusFlags	Read
Event State	NORMAL (0) or FAULT (1) if no sensor	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Units	degrees-Celsius (62) or degrees-Fahrenheit (64)	BACnetEngineeringUnits	Read
COV Increment	2 (for C) Or 4 (for F)	Real	Read
Property List		BACnetArray	Read

Analog Input Object Enthalpy (Present Value = enthalpy calculation in J/kg or BTU/lb, resolution = 1, range = 0-340 kJ/kg or 0-146 BTU/lb)

Property	Default Value	Property Data Type	Access
Object Identifier	AI5 (Analog Input 5)	BACnetObjectIdentifier	Read
Object Name	Enthalpy	CharacterString (32)	Read
Object Type	ANALOG_INPUT (0)	BACnetObjectType	Read
Present Value	current reading	Real	Read
Description	0 to 340kJ/kG,resolution=1kJ/kG Or 0 to 146BTU/lb, resolution=1	CharacterString (32)	Read
Device Type	Enthalpy Sensor	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000) or (1100) if no sensor	BACnetStatusFlags	Read
Event State	NORMAL (0) or FAULT (1) if no sensor	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Units	kilojoules-per-kilogram-dry-air (149) or btus-per-pound-dry-air (24)	BACnetEngineeringUnits	Read
COV Increment	10	Real	Read
Property List		BACnetArray	Read

The analog value BACnet objects allow sensor calibration and parameter selection. Analog value object properties are shown below.

Analog Value Object Temperature Offset (Present Value defaults to 0 for no offset. Can be set from –10 to +10 Δ°F or -5.0 to +5.0 Δ°C)
(Units depend on the device units, either °C or °F), (resolution = 0.1°C/F)

Property	Default Value	Property Data Type	Access
Object Identifier	AV1 (Analog Value 1)	BACnetObjectIdentifier	Read
Object Name	Temperature Offset	CharacterString (32)	Read
Object Type	ANALOG_VALUE (2)	BACnetObjectType	Read
Present Value	0	Real	Read / Write
Description	-5.0 to 5.0C, resolution=0.1C Or -10.0 to 10.0F, resolution=0.1F	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Out of Service	FALSE (0)	Boolean	Read
Units	delta-degrees-Fahrenheit (120) or Δ°C (121)	BACnetEngineeringUnits	Read
Property List		BACnetArray	Read

Analog Value Object RH Offset (Present Value defaults to 0 for no offset. Can be set from –10 to +10 %RH, resolution = 1)

Property	Default Value	Property Data Type	Access
Object Identifier	AV2 (Analog Value 2)	BACnetObjectIdentifier	Read
Object Name	RH Offset	CharacterString (32)	Read
Object Type	ANALOG_VALUE (2)	BACnetObjectType	Read
Present Value	0	Real	Read / Write
Description	-10 to 10%RH, resolution=1%RH	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Out of Service	FALSE (0)	Boolean	Read
Units	percent-relative-humidity (29)	BACnetEngineeringUnits	Read
Property List		BACnetArray	Read

Analog Value Object Atmospheric Pressure (Present Value = 1013 hectopascals. Can be set from 812 to 1013 hPa, resolution = 1 hPa)
(Atmospheric pressure is directly linked with Altitude)

Property	Default Value	Property Data Type	Access
Object Identifier	AV3 (Analog Value 3)	BACnetObjectIdentifier	Read
Object Name	Atmospheric Pressure	CharacterString (32)	Read
Object Type	ANALOG_VALUE (2)	BACnetObjectType	Read
Present Value	1013	Real	Read / Write
Description	812 to 1013hPa, resolution=1hPa	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Out of Service	FALSE (0)	Boolean	Read
Units	hectopascals (hPa) (133)	BACnetEngineeringUnits	Read
Property List		BACnetArray	Read

Analog Value Object Altitude (Present Value defaults to 0 feet. Can be set from 0 to 6000 feet, resolution = 1 ft)
(Altitude is directly linked with Atmospheric pressure)

Property	Default Value	Property Data Type	Access
Object Identifier	AV4 (Analog Value 4)	BACnetObjectIdentifier	Read
Object Name	Altitude	CharacterString (32)	Read
Object Type	ANALOG_VALUE (2)	BACnetObjectType	Read
Present Value	0	Real	Read / Write
Description	0 to 6000ft, resolution=1ft	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Out of Service	FALSE (0)	Boolean	Read
Units	feet (33)	BACnetEngineeringUnits	Read
Property List		BACnetArray	Read

The binary value BACnet object allows configuration of the device. Binary value object properties are shown below.

Binary Value Object Temperature Units (Present Value defaults to 0 (INACTIVE) for Celsius. Can be set to 1 (ACTIVE) for Fahrenheit)

Property	Default Value	Property Data Type	Access
Object Identifier	BV1 (Binary Value 1)	BACnetObjectIdentifier	Read
Object Name	Temperature Units	CharacterString (32)	Read
Object Type	BINARY_VALUE (5)	BACnetObjectType	Read
Present Value	INACTIVE (0)	BACnetBinaryPV	Read / Write
Description	0=Celsius, 1=Fahrenheit	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Property List		BACnetArray	Read

Binary Value Object Enthalpy Units (Present Value defaults to 0 (INACTIVE) for kJ/kg. Can be set to 1 (ACTIVE) for BTU/lb)

Property	Default Value	Property Data Type	Access
Object Identifier	BV2 (Binary Value 2)	BACnetObjectIdentifier	Read
Object Name	Enthalpy Units	CharacterString (32)	Read
Object Type	BINARY_VALUE (5)	BACnetObjectType	Read
Present Value	INACTIVE (0)	BACnetBinaryPV	Read / Write
Description	0=kJ/kG, 1=BTU/lb	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Reliability	NO_FAULT_DETECTED (0)	BACnetReliability	Read
Out of Service	FALSE (0)	Boolean	Read
Property List		BACnetArray	Read

The Multi-State Value BACnet object allows configuration of the device. **Multi-State Value** object properties are shown below.

Multi-State Value object (Present Value defaults to 1. Can be changed to control what is displayed on the LCD)
Display Mode

Property	Default Value	Property Data Type	Access
Object Identifier	MSV1	BACnetObjectIdentifier	Read
Object Name	Display Mode	CharacterString (32)	Read
Object Type	ANALOG_VALUE (19)	BACnetObjectType	Read
Present Value	1	Real	Read / Write
Description	See Below	CharacterString (32)	Read
Status Flags	{false, false, false, false} (0000)	BACnetStatusFlags	Read
Event State	NORMAL (0)	BACnetEventState	Read
Out of Service	FALSE (0)	Boolean	Read
Number of States	15	BACnetEngineeringUnits	Read
Property List		BACnetArray	Read

* Notes This object controls the information that is displayed on the LCD in the normal operating mode.
The available settings are: 1 = Dew Point T
2 = Temperature
3 = Wet Bulb T
4 = RH
5 = Enthalpy
6 = Temperature plus dewpoint toggle every 5 seconds
7 = T + T_wettoggle
8 = T + RHtoggle
9 = T + En toggle
10 = T_dew + T_wettoggle
11 = T_dew + RH toggle
12 = T_dew + En toggle
13 = T_wet + RH toggle
14 = T_wet + En toggle
15 = RH + En toggle

BACnet Protocol Implementation Conformance Statement (PICS)

Date : November 24, 2025
Vendor Name : Greystone Energy Systems
Product Name : High Accuracy Humidity/Temperature Transmitter
Product Model Number : HTX2
Application Software Version : 1.0
Firmware Revision : 1.6
BACnet Protocol Revision : 14

Product Description : The Greystone High Accuracy Humidity/Temperature Transmitters with native BACnet MS/TP protocol for network communication. They measure room temperature, dewpoint temperature, wet bulb temperature, RH and enthalpy levels and reports values back to a building automation system (BAS). The device features an LCD to display measured values and for setup.

BACnet Standardized Device Profile (Annex L) : BACnet Application Specific Controller (B-ASC)

BACnet Interoperability Building Blocks Supported (Annex K) :
DS-RP-B, DS-RPM-B, DS-WP-B, DS-COV-B, DS-COVP-B, DM-DDB-B, DM-DOB-B,DM-DCC-B

Segmentation Capability : Not supported

Standard Object Types Supported :

Object Type	Dynamically Creatable	Dynamically Deletable	Optional Properties Supported	Writable Properties
Device	No	No	Location, Description, Max_Master, Max_Info_Frames	Object_Identifier, Object_Name, Location, Description, APDU_Timeout, Max_Master, Number_Of_APDU_Retries
Analog Input	No	No	Description, Reliability, Device_Type	
Analog Value	No	No	Description	Present_Value
Binary Value	No	No	Description, Reliability	Present_Value
Muti-State Value	No	No	Description, Reliability	Present_Value

Data Link Layer Options : MS/TP master (Clause 9),
Baud rates : 9600, 19200, 38400, 57600, 76800, 115200

Device Address Binding : Not supported

Networking Options : None

Character Set Supported : ISO 10646 (UTF-8)

