



GREYSTONE
ENERGY SYSTEMS INC



HN SERIES

Humidity/Temperature Transmitter

Setup Guide for BACnet® Communication



Object Type (BACnetObjectType)	Object Identifier (BACnetObjectIdentifier)	Object Name (CharacterString (32))	Notes	Present Value (Real)	Description (CharacterString(32))	Device Type (CharacterString(32))	Status Flags (BACnetStatusFlags)	Event State (BACnetEventState)	Reliability (BACnetReliability)	Out of Service (Boolean)	Units (BACnetEngineering Units)	COV increment (Real)	Property List (BACnetArray)
Device	381001	HN-001		381001									
Analog Input	AI 1	Relative Humidity	0-100%RH, Resolution = 0.1%RH	Current Reading	Relative Humidity	RH Sensor	{false, false, false, false} (0000) or (1100) if no sensor	NORMAL (0) or FAULT (1) if no sensor	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	FALSE (0)	percent-relative-humidity (29)	10	
	AI 2	Temperature	-40 to 50 °C, Resolution = 0.1 °C -40 to 122 °F, Resolution = 0.1 °F	Current Reading	Temperature Reading	Temperature Sensor	{false, false, false, false} (0000) or (1100) if no sensor	NORMAL (0) or FAULT (1) if no sensor	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	FALSE (0)	degrees-Celsius (62) or degrees-Fahrenheit (64)	2	
Analog Value	AV 1	Humidity Offset	±10 %RH, Resolution = 1 %RH	0	RH Offset	NA	{false, false, false, false} (0000)	NORMAL (0)	NA	FALSE (0)	percent-relative-humidity (29)		
	AV 2	Temperature Offset	5 to 5 Δ°C, Resolution = 0.1 Δ°C -10 to 10 Δ°F, Resolution = 0.1 Δ°F	0	Temperature Offset	NA	{false, false, false, false} (0000)	NORMAL (0)	NA	FALSE (0)	°F (120) or Δ°C (121)		
	AV 3	Relay Setpoint	Setpoint to activate Relay, resolution 1%RH, range 20 to 90%RH or 5 to 40 °C, Resolution = 1 °C 40 to 100 °F, Resolution = 1 °F	70%RH (26C, 79F)	20 to 90%RH (5 to 40 °C, 40 to 100 °F)	NA	{false, false, false, false} (0000) or (1100) if no relay	NORMAL (0) or FAULT (1) if no relay	NA	FALSE (0)	°C (62) or °F (64) or %RH (29)		
	AV 4	Relay Hysteresis	Hysteresis for relay activation, resolution 1%RH, range 5 to 20%RH, 1 C/F, range 1 to 5 C, or 2-10F	10%RH (2C/4F)	5 to 20%RH (1 to 5 C or 2-10/F)	NA	{false, false, false, false} (0000) or (1100) if no relay	NORMAL (0) or FAULT (1) if no relay	NA	FALSE (0)	°C (62) or °F (64) or %RH (29)		
	AV 5	Relay On Time	Delay time before relay activated/deactivated, resolution 1 second, range 255 seconds	0	0 to 255 Seconds	NA	{false, false, false, false} (0000) or (1100) if no relay	NORMAL (0) or FAULT (1) if no relay	NA	FALSE (0)	seconds (73)		
Binary Value	BV 1	Temperature Units	0 = °C, 1 = °F	INACTIVE (0) - BACnetBinaryPV	Celsius (0) or Fahrenheit (1)	NA	{false, false, false, false} (0000)	NORMAL (0)	NO_FAULT_DETECTED (0)	FALSE (0)	NA		
	BV 2	Relay Test	0 = Normal, 1 = Test	INACTIVE (0) - BACnetBinaryPV	Normal (0) or Test (1)	NA	{false, false, false, false} (0000)	NORMAL (0) or FAULT (1) if no relay	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	FALSE (0)	NA		
	BV 3	Relay Assignment	0 = RH, 1 = Temperature, configures which sensor relay setpoint uses	INACTIVE (0) - BACnetBinaryPV	RH (0) or Temperature (1)	NA	{false, false, false, false} (0000)	NORMAL (0) or FAULT (1) if no relay	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	FALSE (0)	NA		
Binary Input	BI 1	Relay Status	0 = Normal, 1 = Alarm	INACTIVE (0) - BACnetBinaryPV	Normal (0) or Alarm (1)	NA	{false, false, false, false} (0000)	NORMAL (0) or FAULT (1) if no relay	NO_FAULT_DETECTED (0) or NO_SENSOR (1)	FALSE (0)	NA		

The BACnet Device object

Property	Default Value	Property Data Type	Access	Notes
Object Identifier	381001	BACnetObjectIdentifier(numeric)	Read / Write	Initial default number is 381001, where 381 is the vendor ID and 001 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	HN-001	CharacterString (32)	Read / Write	Initial string is "HN-001" where 001 is the default network address. Can be written with a new string of maximum length of 32 characters and the value is saved. The "001" 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.
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	HN	CharacterString	Read	
Firmware Revision	1	CharacterString	Read	
Application Software Version	V1.0	CharacterString	Read	
Location	150 English Drive, Moncton, NB	CharacterString (32)	Read / Write	
Description	RH Sensor	CharacterString (32)	Read / Write	
Protocol Version	1	Unsigned	Read	
Protocol Revision	14	Unsigned	Read	
Protocol Services Supported	See Notes	BACnetServicesSupported	Read	readProperty, readPropertyMultiple, writeProperty, deviceCommunicationControl, who-Has, who-is, subscribeCOV, subscribeCOVProperty, Binary bit string = {00000100 00001011 01000000 00000000 01100010 0}
Protocol Object Types Supported	See Notes	BACnetObjectTypesSupported	Read	Analog_Input, Analog_Value, Binary_Value, Binary_Input, Device Binary bit string = {10110100 10000000 00000000 00000000 00000000 00000000}
Object List	See Notes	BACnetArray	Read	{(Device, Instance 1), (AI1..AI2), (AV1..AV5), (BV1..BV3), (BI1)}
Maximum APDU Length Accepted	50, B'0000'	Unsigned	Read	
Segmentation Supported	NO SEGMENTATION (3)	BACnetSegmentation	Read	
APDU Timeout	6,000	Unsigned	Read / Write	Value is 6,000. Can be modified from 1 to 10,000.
Number of APDU Retries	3	Unsigned	Read / Write	Value is 3. Can be modified from 1 to 10.
Max Master	127	Unsigned	Read / Write	Value is 127. Can be modified from 1 to 127.
Max Info Frames	1	Unsigned	Read	
Device Address Binding	Empty	BACnetAddressBinding	Read	
Database Revision	0	Unsigned	Read	Value is 0 to 255.
Property List		BACnetArray	Read	

BACnet Protocol Implementation Conformance Statement (PICS)

Date	16-Sep-20
Vendor Name	Greystone Energy Systems
Product Name	Humidity Sensor
Product Model Number	HN
Application Software Revision	1.0
Firmware Revision	1.0
BACnet Protocol Revision	14

Product Description The Greystone Relative Humidity Sensor is a sensor with native BACnet MS/TP protocol for network communication. It measures RH levels and reports values back to a building automation system (BAS).

BACnet Standardized Device Profile (Annex L)	BACnet Application Specific Controller (B-ASC)
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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
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Segmentation Capability	Not Supported
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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, COV_Increment	Units
Analog Value	No	No	Description	Present_Value
Binary Value	No	No	Description	Present_Value
Binary Input	No	No	Description, Reliability	

Data Link Layer Options	MS/TP master (Clause 9), Baud rates : 9600, 19200, 38400, 57600, 76800, 115200
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Device Address Binding	Not supported
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Networking Options	None
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Character Set Supported	ISO 10646 (UTF-8)
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