



neptronic®

High Pressure Atomiser

SKH Series

BACnet User Guide





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Introduction

The SKH High Pressure Atomiser Humidifier BACnet® Communication Module User Guide provides information about using the humidifier with BACnet communications feature. The BACnet communication protocol for building automation and control networks enables communication between client devices within a network. The humidifier provides a BACnet network interface between BACnet client devices and Neptronic Humidifier series devices. It uses the BACnet Master Slave/Token Passing (MS/TP) protocol at the BACnet MAC layer.

Pre-requisites

The BACnet communication user guide assumes that you are familiar with the concepts of BACnet and its terminology.

Advantages of BACnet

BACnet enabled humidifiers have the following advantages:

- *Quick Message Transmission.* The humidifier uses a synchronous implementation for BACnet messages making it quick and efficient. Each BACnet confirmed service request is answered as quickly as possible without using the **Reply Postponed** frame. The MS/TP implementation is performed within **Tusage_delay** of 15 minutes to ensure a **Tusage_timeout** value within 20 minutes.
- *MS/TP Support.* The humidifier supports a Full Master Node state machine for MS/TP. Max_Master and the instances are configured to the device object through **BACnet WriteProperty** service. The MAC address is set via the DIP switches. Programming mode determines the MS/TP baud rate setting of 9600, 19200, 38400, and 76800. In the configuration mode, the device is configured through the device's keypad. For more information about the WriteProperty, refer to [Table 3 - Object Types Supported](#).
- *BIBB Support.* The humidifier functions the same way as the B-ASC type profile server and supports the specific BIBB as per their relevant definitions.
 - DS-RP-B
 - DS-RPM-B
 - DS-WP-B
 - DS-WPM-B
 - DM-DCC-B
 - DM-DDB-B
 - DM-DOB-B
 - DM-RD-B
 - DM-TS-B
 - DM-UTC-B
 - DS-COV-B
 - DS-COVP-B
 - SCHED-WS-I-B
- *Object Support.* The humidifier supports a fixed list of BACnet visible values, which appear as Present_Values of various BACnet standard object types in addition to a device object. For more information, refer to [Table 3 - Object Types Supported](#).
- *Alarms.* The humidifier supports indication of various alarm conditions through value changes in properties of several objects. However, it does not generate BACnet event notifications.



BACnet Properties Configuration

To establish communication on the network, and guarantee a unique ID of devices in a BACnet system, the following properties may have to be configured.

Table 1 - BACnet Properties Configuration

Property	Default Value	Configuration
MAC Address	000	Set to a value between 000 and 127 via DIP switches. Can also be set to a value between 000 and 254 via menu. The values from 128-254 represent MS/TP non-token passing slave devices.
Device Instance	Auto	<ul style="list-style-type: none"> The humidifier automatically configures its device instance to 153,000 + MAC address. The value can be set manually via the menu. The value can be set manually through the WriteProperty service to Device Object.Object_Identifier. The device's Object_Identifier is a combination of the Device Object_Type (8) and the Device_Instance (0-4194302), therefore its decimal or hexadecimal representation tends to be incomprehensible. For example, the Device_Instance=1000 has an equivalent Object_Identifier of 0x020003E8 hexadecimal or 33555432 decimal.
Baud Rate	0 = Auto	<ul style="list-style-type: none"> The humidifier configures its baud rate automatically by detecting the network upon connection. The value can be set manually from the available values of Auto, 9600, 19200, 38400, 76800.
Max_Master	127	<ul style="list-style-type: none"> Configure Max_Master value to increase network efficiency when there are less than 127 devices on the network. The Max_Master value can be changed through the TRL to configure WriteProperty service to the Device Object.Max_Master. <p>For more information, refer to the MAC Address and Max_Master section.</p>
Device Object.Object_Name	Name of the device	<ul style="list-style-type: none"> Configure the name of the device through WriteProperty service to the Device Object.Object_Name. For example, SKH.



Configuration Options

The following options enable you to configure and run the BACnet features of the humidifiers quickly.

Quick Setup

Configure the humidifier's baud rate and device instance without programming.

1. Connect the humidifier to the network and power it up.
2. The humidifier automatically configures the baud rate and device instance.
3. Repeat the steps for each humidifier.

Manual Setup

1. To use a **Device_Instance** other than 153,000, and/or if your site has more than one humidifier network, go to the menu.
2. Disconnect the power to the humidifier, connect the humidifier to the network, and connect the power again.
3. Configure the **Max_Master** value through **WriteProperty** service to the **Device Object.Max_Master** to increase network efficiency or if there are less than 127 devices on the network.

MAC Address and Max_Master

The MAC address must be unique on the entire MS/TP network. However, having a unique MAC address and a high baud rate does not guarantee efficient operation of the humidifier and other MS/TP units on the MS/TP network. Some MAC address and Max_Master combinations are more efficient than others. BACnet requires token-passing units to occasionally "poll" for other masters based on the MAC address and Max_Master.

A poor combination of MAC addresses and Max_Master can lead to a slower network due to lost time polling for masters that are not present. Unless there are 126 other units on the MS/TP network, the default Max_Master value of 127 is not the most efficient choice for the humidifier. The Max_Master default value of 127 was selected to ensure that any master, specifically a BACnet client can be found when the humidifier is initially started.

Examples of Mac Address and Max_Master Configurations

The following are some of the examples to indicate the optimum combination of Mac address and Max_Master configurations to ensure a quick and efficient output.

Example 1

- MAC=0. Max_Master=127
- MAC=1, Max_Master=127

This configuration is slow and inefficient because every time either unit is required to find another master unit, it has to poll 126 units until it finds the right one to pass the token.

Example 2

- MAC=0. Max_Master=5
- MAC=1 to MAC=4 are not used
- MAC=5, Max_Master=5

This configuration is better than Example 1 but it is still slower. The Max_Master is set to the most efficient value but the gap between the two MAC addresses is high. Therefore, each unit must poll four units until it finds the right one to pass the token.

Example 3

- MAC=0. Max_Master=1
- MAC=2, Max_Master=2

This is an incorrect configuration. The MAC=0 will never find MAC=2 because it will never poll for the master MAC address=2.



Example 4

- MAC=0. Max_Master=3
- MAC=1, Max_Master=3
- MAC=2, Max_Master=3
- MAC=3, Max_Master=3

This is an efficient configuration as the units are numbered consecutively and the MAX_Master is set to the most efficient value. As a general guideline, the most efficient setup for an MS/TP network is one in which the units are consecutively numbered starting at MAC address 0 and having Max_Master=the maximum MAC address in the system. If consecutive numbering is not possible, then the next most efficient setup is one in which all units have Max_Master=the maximum MAC address in the system.

Network Reset

Reset the humidifier via BACnet using the **Reinitialize Device** service. The Reinitialize Device service can be accessed using the following password: **nep**.

The Reinitialize Device service has two types of reset:

- *Warm Reset.* The Warm Reset restarts the humidifier with actual configuration.
- *Cold Reset.* The Cold Reset restarts the humidifier with **Factory configuration**.



Warning: The Cold Reset erases the actual configuration when setting the MSTP address. Therefore, exercise caution while performing a Cold Reset.



Device Object Properties

The following table lists all the BACnet properties supported for the device object. The W indicates that the property is writable using the BACnet **WriteProperty** service.

Table 2 - Device Object Properties

Property	Value	Writable
Object_Identifier	<ul style="list-style-type: none"> Programmable where the instance part of the Object_Identifier is in the range of 0-4194302 The device instance must be unique system-wide The default value for the device instance=153000 (Vendor_Identifier*1000) 	W
Object_Name	SKH	W
Description	Programmable up to 32 characters (default: SKH).	W
Object_Type	Device	
System_Status	Operational	
Vendor_Identifier	Always 153	
Vendor_Name	Always Neptronic	
Model_Name	Example, SKH	Read Only
Firmware_Revision	currently,	Read Only
Application_Software_Version	currently, 1.07	Read Only
Protocol_Version	Always 1	Read Only
Protocol_Revision	14	Read Only
DataBase_Revision	2	Read Only
Max_APDU_Length_Accepted	Always 480	Read Only
Segmentation_Supported	(3) = No Segmentation	Read Only
APDU_Timeout	6000	W
Number_of_APDU_Retries	Always 3	Read Only
Local_Time	00:00:00	W
Local_Date	01-Jan-2015 (Thu)	W
Uts_Offset	-3:00	W
Daylight_Savings_Status	False	W
Backup_Failure_Timeout	300	W
Configuration_Files	File-1	
Last_Restore_Time	2015-01-01 (Thu), 00:01:50:00	
Backup_And_Restore_State	IDLE	
Backup_Preparation_Time	0	
Restore_Completion_Time	0	
Restore_Preparation_Time	0	
Protocol_Services_Supported	<ul style="list-style-type: none"> 07470BC83AE200 confirmedCOVNotification subscribeCOV atomicReadFile atomicWriteFile readProperty readPropertyMultiple WriteProperty writePropertyMultiple deviceCommunicationControl reinitializeDevice i-Am i-Have unconfirmedCOVNotification unconfirmedPrivateTransfer timeSynchronization who-Has who-Is subscribeCOVProperty 	
Protocol_Object_Types_Supported	<ul style="list-style-type: none"> analog-input analog-output analog-value binary-input binary-output binary-value device file program schedule multi-state-value 	
Object_List	196	Read Only
Device_Address_Binding	Always empty	
Max_Master	Programmable in the range of 0-127 (default: 127)	W
Max_Info_Frames	Always 1	



Property	Value	Writable
Proprietary property #1000	<ul style="list-style-type: none"> Represents the MS/TP MAC address in the range of 0 to 254 (default: 0) Writable if all MAC address DIP switches are OFF Values 128 to 254 represent MS/TP non-token passing slave devices 	W
Proprietary property #1001	<ul style="list-style-type: none"> Programmable (default: Auto) Represents the MS/TP Baud rate (unsigned type) Values are 0 (auto), 9600, 19200, 38400, 76800 Reading this property always returns the actual Baud rate 	W
Proprietary property #1002	<ul style="list-style-type: none"> Programmable (default: 15 minutes) Represents the period of time that an object in/out of service will automatically return to normal. Range = 0-120 minutes (unsigned type) Writing 0 means no automatic return to normal 	W

Object Types Supported

The following table lists all the BACnet properties supported for each object type. Most of the properties are locked. The exception is **Present_Value**, which represents the dynamic operating values of the device, and the **Status_Flag**, **Event_State**, and **Reliability** properties, which reflect the availability of the **Present_Value**. Unless otherwise specified, properties are not changeable.

Table 3 - Object Types Supported

Object Type	Enabled	Optional Properties Supported	Writable Properties	Notes
Analog Input	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Reliability Description Min_Present_Value Max_Present_Value Resolution COV-Increment 	<ul style="list-style-type: none"> Out_of_Service COV-Increment 	<ul style="list-style-type: none"> If "Out of Service" is true, Present_Value and Status_Flag become writable properties. Out_of_Service property is writable for objects to which Present_Value is not writable. Refer to Out of Service Property section on page 7 for more information. Object will automatically return to Normal after a programmable period of time. Refer to Proprietary property #1002 of Device Object in Table 2 - Device Object Properties.
Analog Value	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Reliability Description COV-Increment Priority_Array Relinquish_Default 	<ul style="list-style-type: none"> Present_Value Out_of_Service COV-Increment 	<ul style="list-style-type: none"> Present_Value property is writable for every AV object except AV.20, AV.23, AV.40, AV.45, AV.55 Out_of_Service property is writable for objects indicated in Table 6 - Object Table Information: Analog Value (AV) on page 9. Refer to Out of Service Property section on page 7 for more information. Object will automatically return to Normal after a programmable period of time. Refer to Proprietary property #1002 of Device Object in Table 2 - Device Object Properties. Some objects are commandable. In such case, the priority-array and relinquish-default properties are available. Writable properties are different for some objects. Refer to the respective Object Table information to know the writable property for each AV object.
Analog Output	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Description Reliability Min-Pres-Value Max-Pres-Value Resolution COV-Increment 	<ul style="list-style-type: none"> Present_Value COV-Increment 	<ul style="list-style-type: none"> Present_Value property is writable as per Analog Output (AO) table on page 8.
Binary Input	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Reliability Active_Text Inactive_Text Description 	Out_of_Service	<ul style="list-style-type: none"> If "Out of Service" is true, Present_Value and Status_Flag become writable properties. Out_of_Service property is writable for objects to which Present_Value is not writable. Refer to Out of Service Property section on page 7 for more information. Object will automatically return to Normal after a programmable period of time. Refer to Proprietary property #1002 of Device Object in Table 2 - Device Object Properties.
Binary Value	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Reliability Active_Text Inactive_Text Description Priority_Array Relinquish_Default 	Present_Value	<ul style="list-style-type: none"> Present_Value property is writable for every Binary Value object. Writable properties are different for some objects. Refer to the respective Object Table information to know the writable property for each BV object. Out_of_Service property is writable for every Binary



Object Type	Enabled	Optional Properties Supported	Writable Properties	Notes
				<ul style="list-style-type: none"> Value object. Some objects are commandable. In such case, the priority-array and relinquish-default properties are available. Object automatically returns to Normal after a programmable time. Refer to Proprietary property #1002 of Device Object in Table 2 - Device Object Properties.
Binary Output	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> description reliability inactive-text active-text 	Present_Value	<ul style="list-style-type: none"> Present_Value property is writable.
Device	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Max_Master Max_Info_Frame Description active-cov-subscriptions #1000 (MSTP addr) #1001 (Baud rate) #1002 (Time out) Local_Time Local_Date Uts_Offset Daylight_Savings_Status Apdu_Timeout Backup_Failure_Timeout 	<ul style="list-style-type: none"> Object_Identifier Object_Name Max_Master Description Local_Time Local_Date Uts_Offset Daylight_Savings_Status Apdu_Timeout Backup_Failure_Timeout #1000 #1001 #1002 Configuration_Files Last_Restore_Time Backup_And_Restore_State Backup_Preparation_Time Restore_Completion_time Restore_Preparation_Time 	<ul style="list-style-type: none"> Refer to Table 2 - Device Object Properties on page 5.
Multi-State Value	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Description Reliability States_Text 	Present_Value	<ul style="list-style-type: none"> Present_Value property is writable for every Multi State Value object except MSV.12, MSV.13, MSV.15 Writable properties are different for some objects. Refer to the respective Object Table information to know the writable property for each MSV object. Out_of_Service property is not writable for MSV.

Out of Service Property

Neptronic humidifiers offer the use of the Out of Service writable property. When the value of this property is set to True, it disconnects the object from the physical input, enabling you to input other values. This is useful for special applications or while troubleshooting. For example, you can ignore the temperature read from a sensor and input the desired temperature value in order to perform specific tests.

For security reasons, a timeout will set the Out of Service property back to False after 15 minutes. This value can be modified to between 0 and 120 minutes (For more information, see proprietary property #1002 in [Table 2 - Device Object Properties](#)).

Object Table Information

The SKH series uses the following BACnet object tables, categorized on the basis of their ID. The type is the BACnet Object type, the instance is the BACnet Object. Together, the type and instance form the **BACnet Object_Identifier** for an object according to the following C-language algorithm:

- object_identifier=(unsigned long)((unsigned long)type<<22)+instance

Analog Input (AI)

Table 4 - Object Table Information: Analog Input (AI)

ID	Name	Description	W?	Notes
Integrator				
AI.1	SKHBoardTemp	PC board temperature reading .	Out Of Service	
Advanced				
AI.1000	SKHBoardSensorInput	Sensor input value of SKH board.	Out Of Service	
AI.1001	ProcessorTemp	Temperature measured by the processor.	Out Of Service	

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ID	Name	Description	W?	Notes
Integrator				
AI.3	RoomRHSetpoint or RoomTempSetpoint	Room humidity setpoint or temperature setpoint.	Out Of Service	0.0 to 100.0%RH or
AI.4	RoomRH	Relative humidity reading of the room.	Out Of Service	0.0 to 100.0%RH
AI.5	RoomTemp	Temperature reading of the room.	Out Of Service	
AI.6	DuctRH	Relative humidity reading of the room.	Out Of Service	0.0 to 100.0%RH
AI.7	TrlhRH	Relative humidity measured on the TRL.	Out Of Service	0.0 to 100.0%RH,
AI.8	TrlhTemp	Temperature reading measured on the TRL.	Out Of Service	
AI.9	BoardTemp	Temperature reading measured on the PC board.		
AI.200	DI4_TpmDuty		Out Of Service	
Advanced				
AI.1000	AI3	Analog input 3 signal.	Out Of Service	0 to 10
AI.1001	AI4	Analog input 4 signal.	Out Of Service	
AI.1002	AI5	Analog input 5 signal.	Out Of Service	
AI.1003	AI6	Analog input 6 signal.	Out Of Service	

ID	Name	Description	W?	Notes
AI.1004	BoardSensorInput			
AI.1005	ProcessorTemp			

Analog Output (AO)

Table 5 - Object Table Information: Analog Output (AO)

ID	Name	Description	W?	Notes
AO.1	FeedbackVoltage	Output feedback voltage configuration display.	Present Value	
SKH EZC				
AO.1	FeedbackVoltage	Output feedback voltage configuration display.	Present Value	

Analog Value (AV)

Table 6 - Object Table Information: Analog Value (AV)

ID	Name	Description	W?	Notes
Integrator				
AV.1	SystemPumpDemand	Pump demand of the system.		
AV.2	SystemZoneDemand	Zone demand of the system.		
AV.3	SimulationDuration	Duration of Simulation mode.	Present Value	5 to 60 minutes, Resolution 5 minutes
AV.4	SimulationZoneSelection	Selection of Simulation mode for zone.	Present Value	1 to 32
AV.5	SimulationZoneDemand	Selection of Simulation mode demand for a zone.	Present Value	0 to 100%, Resolution 0%
AV.6	SimulationPumpSelection	Selection of pump for Simulation mode.	Present Value	1 to 4
AV.7	SimulationPumpDemand	Selection of pump demand for Simulation mode.	Present Value	0 to 100%, Resolution 0%
AV.8	SimulationDowncounter	Simulation mode downcounter.	Out Of Service	
AV.9	SystemPumpCapacity	Pump capacity of the system.		
AV.10	SystemNumOfPumps	Number of pumps for the system.		
AV.11	SystemZoneCapacity	Zone capacity of the system.		
AV.12	SystemNumOfZones	Number of zones for the system.		
Integrator - Configuration				
AV.100	Cfg_SystemInactivityDelay	Inactivity delay of the system.	Present Value	4 to 72 hours, Resolution 4 hours
AV.101	Cfg_SystemInactivityDrainTime	Inactivity drain time of the system.	Present Value	1 to 255 minutes, Resolution 1 minute

ID	Name	Description	W?	Notes
AV.200	Pump1Demand	Demand value of pump 1.		
AV.201	Pump2Demand	Demand value of pump 2.		
AV.202	Pump3Demand	Demand value of pump 3.		
AV.203	Pump4Demand	Demand value of pump 4.		
AV.204	Pump1Feedback	Feedback value of pump 1.		
AV.205	Pump2Feedback	Feedback value of pump 2.		
AV.206	Pump3Feedback	Feedback value of pump 3.		
AV.207	Pump4Feedback	Feedback value of pump 4.		
AV.208	Pump1InletTemp	Inlet temperature of pump 1.		
AV.209	Pump2InletTemp	Inlet temperature of pump 2.		
AV.210	Pump3InletTemp	Inlet temperature of pump 3.		
AV.211	Pump4InletTemp	Inlet temperature of pump 4.		
AV.212	Pump1InletPressure	Inlet pressure of pump 1.		
AV.213	Pump2InletPressure	Inlet pressure of pump 2.		
AV.214	Pump3InletPressure	Inlet pressure of pump 3.		
AV.215	Pump4InletPressure	Inlet pressure of pump 4.		
AV.216	Pump1OutputPressure	Output pressure of pump 1.		
AV.217	Pump2OutputPressure	Output pressure of pump 2.		
AV.218	Pump3OutputPressure	Output pressure of pump 3.		
AV.219	Pump4OutputPressure	Output pressure of pump 4.		
AV.220	Pump1DutyTime	Duty time of pump 1.		
AV.221	Pump2DutyTime	Duty time of pump 2.		
AV.222	Pump3DutyTime	Duty time of pump 3.		
AV.223	Pump4DutyTime	Duty time of pump 4.		
AV.224	Pump1WeightedDutyTime	Weighted duty time of pump 1.		
AV.225	Pump2WeightedDutyTime	Weighted duty time of pump 2.		
AV.226	Pump3WeightedDutyTime	Weighted duty time of pump 3.		
AV.227	Pump4WeightedDutyTime	Weighted duty time of pump 4.		
Advanced - Configuration				
AV.300	Cfg_Pump1InactivityDelay	Inactivity delay of pump 1.	Present Value	

ID	Name	Description	W?	Notes
AV.301	Cfg_Pump2InactivityDelay	Inactivity delay of pump 2.	Present Value	
AV.302	Cfg_Pump3InactivityDelay	Inactivity delay of pump 3.	Present Value	
AV.303	Cfg_Pump4InactivityDelay	Inactivity delay of pump 4.	Present Value	
AV.304	Cfg_Pump1InactivityDrainTime	Inactivity drain time of pump 1.	Present Value	1 to 255 minutes, Resolution 1 minute
AV.305	Cfg_Pump2InactivityDrainTime	Inactivity drain time of pump 2.	Present Value	1 to 255 minutes, Resolution 1 minute
AV.306	Cfg_Pump3InactivityDrainTime	Inactivity drain time of pump 3.	Present Value	1 to 255 minutes, Resolution 1 minute
AV.307	Cfg_Pump4InactivityDrainTime	Inactivity drain time of pump 4.	Present Value	1 to 255 minutes, Resolution 1 minute
AV.1001	Cfg_Pump1ControlProportionalBand	Control proportional band of pump 1.	Present Value	
AV.1002	Cfg_Pump2ControlProportionalBand	Control proportional band of pump 2.	Present Value	
AV.1003	Cfg_Pump3ControlProportionalBand	Control proportional band of pump 3.	Present Value	
AV.1004	Cfg_Pump4ControlProportionalBand	Control proportional band of pump 4.	Present Value	
AV.1005	Cfg_Pump1AutoControlPBandMin	Auto control proportional band minimum value of pump 1.	Present Value	
AV.1006	Cfg_Pump2AutoControlPBandMin	Auto control proportional band minimum value of pump 2.	Present Value	
AV.1007	Cfg_Pump3AutoControlPBandMin	Auto control proportional band minimum value of pump 3.	Present Value	
AV.1008	Cfg_Pump4AutoControlPBandMin	Auto control proportional band minimum value of pump 4.	Present Value	
AV.1009	Cfg_Pump1AutoControlPBandMax	Auto control proportional band maximum value of pump 1.	Present Value	
AV.1010	Cfg_Pump2AutoControlPBandMax	Auto control proportional band maximum value of pump 2.	Present Value	
AV.1011	Cfg_Pump3AutoControlPBandMax	Auto control proportional band maximum value of pump 3.	Present Value	
AV.1012	Cfg_Pump4AutoControlPBandMax	Auto control proportional band maximum value of pump 4.	Present Value	
AV.1013	Cfg_Pump1AutoControlTimeMin	Auto control time minimum value of pump 1.	Present Value	
AV.1014	Cfg_Pump2AutoControlTimeMin	Auto control time minimum value of pump 2.	Present Value	
AV.1015	Cfg_Pump3AutoControlTimeMin	Auto control time minimum value of pump 3.	Present Value	
AV.1016	Cfg_Pump4AutoControlTimeMin	Auto control time minimum value of pump 4.	Present Value	
AV.1017	Cfg_Pump1AutoControlTimeMax	Auto control time maximum value of pump 1.	Present Value	
AV.1018	Cfg_Pump2AutoControlTimeMax	Auto control time maximum value of pump 2.	Present Value	
AV.1019	Cfg_Pump3AutoControlTimeMax	Auto control time maximum value of pump 3.	Present Value	
AV.1020	Cfg_Pump4AutoControlTimeMax	Auto control time maximum value of pump 4.	Present Value	
AV.1021	Cfg_Pump1IntegralTime	Integral time value of pump 1.	Present Value	0 to 600 seconds, 60 seconds
AV.1022	Cfg_Pump2IntegralTime	Integral time value of pump 2.	Present Value	0 to 600 seconds, 60 seconds
AV.1023	Cfg_Pump3IntegralTime	Integral time value of pump 3.	Present Value	0 to 600 seconds, 60 seconds

ID	Name	Description	W?	Notes
AV.1024	Cfg_Pump4IntegralTime	Integral time value of pump 4.	Present Value	0 to 600 seconds, 60 seconds
AV.1025	Cfg_Pump1DerivativeTime	Derivative time value of pump 1.	Present Value	0.0 to 60.0 seconds, 0.0 seconds
AV.1026	Cfg_Pump2DerivativeTime	Derivative time value of pump 2.	Present Value	0.0 to 60.0 seconds, 0.0 seconds
AV.1027	Cfg_Pump3DerivativeTime	Derivative time value of pump 3.	Present Value	0.0 to 60.0 seconds, 0.0 seconds
AV.1028	Cfg_Pump4DerivativeTime	Derivative time value of pump 4.	Present Value	0.0 to 60.0 seconds, 0.0 seconds
AV.1029	Cfg_PumpInletTempOffset	Inlet temperature offset value of pump 1.	Present Value	
AV.1030	Cfg_PumpInletTempOffset	Inlet temperature offset value of pump 2.	Present Value	
AV.1031	Cfg_PumpInletTempOffset	Inlet temperature offset value of pump 3.	Present Value	
AV.1032	Cfg_PumpInletTempOffset	Inlet temperature offset value of pump 4.	Present Value	
AV.1033	Cfg_PumpInletPressureOffset	Inlet pressure offset value of pump 1.	Present Value	
AV.1034	Cfg_PumpInletPressureOffset	Inlet pressure offset value of pump 2.	Present Value	
AV.1035	Cfg_PumpInletPressureOffset	Inlet pressure offset value of pump 3.	Present Value	
AV.1036	Cfg_PumpInletPressureOffset	Inlet pressure offset value of pump 4.	Present Value	
AV.1037	Cfg_Pump1OutputPressureOffset	Output pressure offset value of pump 1.	Present Value	-500 to 500kPa, Resolution 0.0 kPa
AV.1038	Cfg_Pump2OutputPressureOffset	Output pressure offset value of pump 2.	Present Value	-500 to 500kPa, Resolution 0.0 kPa
AV.1039	Cfg_Pump3OutputPressureOffset	Output pressure offset value of pump 3.	Present Value	-500 to 500kPa, Resolution 0.0 kPa
AV.1040	Cfg_Pump4OutputPressureOffset	Output pressure offset value of pump 4.	Present Value	-500 to 500kPa, Resolution 0.0 kPa

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ID	Name	Description	W?	Notes
Integrator				
AV.1	ZoneDemand	Zone demand value.	Present Value	
AV.2	SimulatedDemand	Simulated demand value.	Present Value	0 to 100%, Resolution 0%
AV.3	ZoneOutput	Output of zone.	Out Of Service	
AV.4	ZoneOutputLimit	Maximum output limit of the zone.	Present Value	
AV.5	UnoccupiedRHSetpoint	Relative humidity setpoint during unoccupied state.	Present Value	
AV.6	UnoccupiedTempSetpoint	Temperature setpoint during unoccupied state.	Present Value	
AV.7	VacantRHSetpoint	Relative humidity setpoint during vacancy state.	Present Value	
AV.8	VacantTempSetpoint	Temperature setpoint during vacancy state.	Present Value	
AV.9	InternalRHSetpoint	Internal relative humidity setpoint.	Present Value	

ID	Name	Description	W?	Notes
AV.10	InternalTempSetpoint	Internal temperature setpoint.	Present Value	
AV.11	NetworkRHSetpoint	Network relative humidity setpoint.	Present Value	
AV.12	NetworkTempSetpoint	Network temperature setpoint.	Present Value	
AV.13	NetworkRH	Network relative humidity.	Present Value	
AV.14	NetworkTemp	Network temperature.	Present Value	
AV.15	NetworkDowncounter	Network downcounter.	Out Of Service	
Integrator - Configuration				
AV.100	Cfg_InactivityDelay	System inactivity delay.	Present Value	4 to 72 hours, Resolution 4 hours
AV.101	Cfg_InactivityDrainTime	Inactivity delay of drain.	Present Value	1 to 255 minutes, Resolution 1 minute
AV.102	Cfg_NetworkTimeout	Network timeout.	Present Value	
AV.103	Cfg_FanOnDelay	Delay in seconds before the fan is turned on.	Present Value	1 to 255 seconds, Resolution 1 second
AV.104	Cfg_FanOffDelay	Delay in seconds before the fan is turned off.	Present Value	1 to 255 seconds, Resolution 1 second
AV.200	Stage1Runtime	Runtime of stage 1.	Present Value	
AV.201	Stage2Runtime	Runtime of stage 2.		
AV.202	Stage3Runtime	Runtime of stage 3.		
AV.203	Stage4Runtime	Runtime of stage 4.		
AV.204	Stage1TPMOutput	TPM output of stage 1.	Present Value	
Advanced - Configuration				
AV.300	Cfg_DuctRHSetpoint	Relative humidity setpoint value of the duct.	Present Value	
AV.301	Cfg_DuctRHCutout	Relative humidity cutout value of the duct.	Present Value	
AV.302	Cfg_DuctRHPropBand	Relative humidity proportional band value of the duct.	Present Value	
AV.303	Cfg_DuctRHIntegralTime	Relative humidity integral time of the duct.	Present Value	
AV.304	Cfg_DuctRHDerivativeTime	Relative humidity derivative time of the duct.	Present Value	
AV.305	Cfg_RHProportionalBand	Relative humidity proportional band.	Present Value	
AV.306	Cfg_TempProportionalBand	Temperature proportional band.	Present Value	
AV.307	Cfg_IntegralTime	Integral time.	Present Value	0 to 600 seconds, Resolution 60 seconds.
AV.308	Cfg_DifferentialTime	Differential time.	Present Value	
AV.309	Cfg_TrlhRHSetpointMin	Minimum relative humidity setpoint measured by the TRL.	Present Value	
AV.310	Cfg_TrlhRHSetpointMax	Maximum relative humidity setpoint measured by the TRL.	Present Value	
AV.311	Cfg_TrlhTempSetpointMin	Minimum temperature setpoint measured by the TRL.	Present Value	

ID	Name	Description	W?	Notes
AV.312	Cfg_TrhTempSetpointMax	Maximum temperature setpoint measured by the TRL.	Present Value	
AV.313	Cfg_RoomRHSetpointMin	Minimum relative humidity setpoint of the room.	Present Value	
AV.314	Cfg_RoomRHSetpointMax	Maximum relative humidity setpoint of the room.	Present Value	
AV.315	Cfg_RoomTempSetpointMin	Minimum temperature setpoint of the room.	Present Value	
AV.316	Cfg_RoomTempSetpointMax	Maximum temperature setpoint of the room.	Present Value	
AV.317	Cfg_RoomRHMin	Minimum relative humidity of the room.	Present Value	
AV.318	Cfg_RoomRHMax	Maximum relative humidity of the room.	Present Value	
AV.319	Cfg_RoomTempMin	Minimum temperature of the room.	Present Value	
AV.320	Cfg_RoomTempMax	Maximum temperature of the room.	Present Value	
AV.321	Cfg_StageOnDelay	Delay before each stage is on.	Present Value	
AV.323	Cfg_TPMStagePeriod	TPM stage period.	Present Value	
AV.324	Cfg_RoomRHSetpointOffset	Relative humidity setpoint offset value of the room.	Present Value	
AV.325	Cfg_RoomTempSetpointOffset	Temperature setpoint offset value of the room.	Present Value	
AV.326	Cfg_RoomRHOffset	Relative humidity offset value of the room.	Present Value	
AV.327	Cfg_RoomTempOffset	Temperature offset value of the room.	Present Value	
AV.328	Cfg_DuctRHOffset	Relative humidity offset value of the room.	Present Value	
AV.329	Cfg_BoardTempOffset	Temperature offset value of the board.	Present Value	
AV.330	Cfg_TrhRoomRHOffset	Relative humidity offset value of the room measured by the TRL.	Present Value	
AV.331	Cfg_TRLRoomTempOffset	Temperature offset value of the room measured by the TRL.	Present Value	
AV.1000	StateDowncounter	Downcounter value of each state.	Out Of Service	
AV.1001	FanDowncounter	Downcounter value of fan.	Out Of Service	
AV.1002	StageDowncounter	Downcounter value of stage.	Out Of Service	
AV.1004	Inactivitycounter	System inactivity downcounter.	Out Of Service	
AV.1005	NetworkDowncounter	Downcounter value of network.	Out Of Service	
AV.1500	Cfg_AutoControlRHPbandMin	Minimum value of autocontrol relative humidity proportional band.	Present Value	
AV.1501	Cfg_AutoControlRHPbandMax	Maximum value of autocontrol relative humidity proportional band.	Present Value	
AV.1502	Cfg_AutoControlTempPbandMin	Minimum value of autocontrol temperature proportional band.	Present Value	
AV.1503	Cfg_AutoControlTempPbandMax	Maximum value of autocontrol temperature proportional band.	Present Value	
AV.1504	Cfg_AutoControlTimeMin	Minimum value of autocontrol time.	Present Value	
AV.1505	Cfg_AutoControlTimeMax	Maximum value of autocontrol time.	Present Value	

ID	Name	Description	W?	Notes
AV.1506	Cfg_AutoDuctRHPbandMin	Minimum relative humidity value of autoduct proportional band.	Present Value	
AV.1507	Cfg_AutoDuctRHPbandMax	Maximum relative humidity value of autoduct proportional band.	Present Value	
AV.1508	Cfg_AutoDuctItimeMin	Minimum autoduct time.	Present Value	
AV.1509	Cfg_AutoDuctItimeMax	Maximum autoduct time.	Present Value	
AV.1510	Cfg_OutputDeadband	Deadband output.	Present Value	
AV.1511	Cfg_OutputDeadbandHysteresis	Deadband output hysteresis value.	Present Value	
AV.1512	Cfg_NoTpmLowThreshold		Present Value	
AV.1513	Cfg_NoTpmHighThreshold		Present Value	

Binary Input (BI)

Table 7 - Object Table Information: Binary Input (BI) (SKH EZC)

ID	Name	Description	W?	Notes
BI.1	DI1_AirflowCutout	Air flow cutout state.	Out Of Service	
BI.2	DI2_DuctRHCutout		Out Of Service	
BI.3	DI3_InterlockCutout	Interlock cutout state.	Out Of Service	
BI.4	DI4_BinaryDemand		Out Of Service	

Binary Output (BO)

Table 8 - Object Table Information: Binary Output (BO)

ID	Name	Description	W?	Notes
BO.1	AlarmRelay	Closed when any alarm is on but AirFlowCutout and ServiceWarning.	Present Value	
BO.2	MaintenanceRelay	Closed when ServiceAlarm or ServiceWarning is on.	Present Value	
BO.3	Buzzer	ON when a key push event is acknowledged and KeyBeep is on or when AlarmRelay is closed and AlarmBeep is on.	Present Value	
SKH EZC				
BO.1	FanControl	Fan control status.	Present Value	

Binary Value (BV)

Table 9 - Object Table Information: Binary Value (BV)

ID	Name	Description	W?	Notes
Integrator				
BV.1	SystemMode	Status of the system mode.	Present Value	
BV.2	SimulationState	State of Simulation mode.		
BV.3	SimulationPumpOverride	Pump override status of Simulation mode.		
BV.4	SystemDrainPending	System drain pending status.		
BV.5	SystemDrain	System drain status.		
BV.6	SystemZoneDemand	Zone demand of the system.		
BV.7	WaterPressureState	State of water pressure.		
BV.8	UVLampChangeDue	Date on which UV lamp is due.		0 = True, 1 = False
Integrator - Alarms				
BV.50	AL_ServiceWarning	Upcoming cleaning for humidifier. Warning displays when cleaning is due in 100 hours or less. Humidifier works normally.		0 = OFF, 1 = ON
BV.51	AL_ServiceAlarm	Alarm when cleaning, UV lamp change or Silver Ion cartridge change is due.		0 = OFF, 1 = ON
BV.52	AL_Pump1GlobalAlarmMask	Global Alarm Mask for pump 1.		
BV.53	AL_Pump2GlobalAlarmMask	Global Alarm Mask for pump 2.		
BV.54	AL_Pump3GlobalAlarmMask	Global Alarm Mask for pump 3.		
BV.55	AL_Pump4GlobalAlarmMask	Global Alarm Mask for pump 4.		
BV.56	AL_GlobalPumpComTimeout	Global pump communication timeout.		
BV.57	AL_GlobalZoneComTimeout	Global zone communication timeout.		
BV.200	Pump1DrainValve	Drain valve status of pump 1.		
BV.201	Pump2DrainValve	Drain valve status of pump 2.		
BV.202	Pump3DrainValve	Drain valve status of pump 3.		
BV.203	Pump4DrainValve	Drain valve status of pump 4.		
BV.204	Pump1EnableVFD			
BV.205	Pump2EnableVFD			
BV.206	Pump3EnableVFD			

ID	Name	Description	W?	Notes
BV.207	Pump4EnableVFD			
BV.210	AL_Pump1InletTempSensorFailure	Inlet temperature sensor failure of pump 1.		
BV.211	AL_Pump2InletTempSensorFailure	Inlet temperature sensor failure of pump 2.		
BV.212	AL_Pump3InletTempSensorFailure	Inlet temperature sensor failure of pump 3.		
BV.213	AL_Pump4InletTempSensorFailure	Inlet temperature sensor failure of pump 4.		
BV.214	AL_Pump1InletPressureSensorFailure	Inlet pressure sensor failure of pump 1.		
BV.215	AL_Pump2InletPressureSensorFailure	Inlet pressure sensor failure of pump 2.		
BV.216	AL_Pump3InletPressureSensorFailure	Inlet pressure sensor failure of pump 3.		
BV.217	AL_Pump4InletPressureSensorFailure	Inlet pressure sensor failure of pump 4.		
BV.218	AL_Pump1OutputPressureSensorFailure	Output pressure sensor failure of pump 1.		
BV.219	AL_Pump2OutputPressureSensorFailure	Output pressure sensor failure of pump 2.		
BV.220	AL_Pump3OutputPressureSensorFailure	Output pressure sensor failure of pump 3.		
BV.221	AL_Pump4OutputPressureSensorFailure	Output pressure sensor failure of pump 4.		
BV.222	AL_Pump1VFDFailure			
BV.223	AL_Pump2VFDFailure			
BV.224	AL_Pump3VFDFailure			
BV.225	AL_Pump4VFDFailure			
BV.226	AL_Pump1InletTempTooHigh	Inlet water temperature of pump 1 is above the maximum temperature.		
BV.227	AL_Pump2InletTempTooHigh	Inlet water temperature of pump 2 is above the maximum temperature.		
BV.228	AL_Pump3InletTempTooHigh	Inlet water temperature of pump 3 is above the maximum temperature.		
BV.229	AL_Pump4InletTempTooHigh	Inlet water temperature of pump 4 is above the maximum temperature.		
BV.230	AL_Pump1InletTempTooLow	Inlet water temperature of pump 1 is below the minimum temperature.		
BV.231	AL_Pump2InletTempTooLow	Inlet water temperature of pump 2 is below the minimum temperature.		
BV.232	AL_Pump3InletTempTooLow	Inlet water temperature of pump 3 is below the minimum temperature.		
BV.233	AL_Pump4InletTempTooLow	Inlet water temperature of pump 4 is below the minimum temperature.		
BV.234	AL_Pump1InletPressureToLow	Inlet pressure of pump 1 is below the minimum pressure.		
BV.235	AL_Pump2InletPressureToLow	Inlet pressure of pump 2 is below the minimum pressure.		
BV.236	AL_Pump3InletPressureToLow	Inlet pressure of pump 3 is below the minimum pressure.		
BV.237	AL_Pump4InletPressureToLow	Inlet pressure of pump 4 is below the minimum pressure.		
BV.238	AL_Pump1InletPressureToHigh	Inlet pressure of pump 1 is above the maximum pressure.		
BV.239	AL_Pump2InletPressureToHigh	Inlet pressure of pump 2 is above the maximum pressure.		

ID	Name	Description	W?	Notes
BV.240	AL_Pump3InletPressureToHigh	Inlet pressure of pump 3 is above the maximum pressure.		
BV.241	AL_Pump4InletPressureToHigh	Inlet pressure of pump 4 is above the maximum pressure.		
BV.242	AL_Pump1OutputPressureTooLow	Output pressure of pump 1 is below the minimum pressure.		
BV.243	AL_Pump2OutputPressureTooLow	Output pressure of pump 2 is below the minimum pressure.		
BV.244	AL_Pump3OutputPressureTooLow	Output pressure of pump 3 is below the minimum pressure.		
BV.245	AL_Pump4OutputPressureTooLow	Output pressure of pump 4 is below the minimum pressure.		
BV.246	AL_Pump1OutputPressureTooHigh	Output pressure of pump 1 is above the maximum pressure.		
BV.247	AL_Pump2OutputPressureTooHigh	Output pressure of pump 2 is above the maximum pressure.		
BV.248	AL_Pump3OutputPressureTooHigh	Output pressure of pump 3 is above the maximum pressure.		
BV.249	AL_Pump4OutputPressureTooHigh	Output pressure of pump 4 is above the maximum pressure.		
BV.250	AL_Pump1TemperatureTooHigh	Temperature of pump 1 is above the maximum temperature.		
BV.251	AL_Pump2TemperatureTooHigh	Temperature of pump 2 is above the maximum temperature.		
BV.252	AL_Pump3TemperatureTooHigh	Temperature of pump 3 is above the maximum temperature.		
BV.253	AL_Pump4TemperatureTooHigh	Temperature of pump 4 is above the maximum temperature.		
BV.254	AL_Pump1ServiceAlarm	Service due alarm for pump 1.		
BV.255	AL_Pump2ServiceAlarm	Service due alarm for pump 2.		
BV.256	AL_Pump3ServiceAlarm	Service due alarm for pump 3.		
BV.257	AL_Pump4ServiceAlarm	Service due alarm for pump 4.		
BV.258	AL_Pump1PressurizingTimeout	Communication for pressurizing of pump 1 is too long.		
BV.259	AL_Pump2PressurizingTimeout	Communication for pressurizing of pump 2 is too long.		
BV.260	AL_Pump3PressurizingTimeout	Communication for pressurizing of pump 3 is too long.		
BV.261	AL_Pump4PressurizingTimeout	Communication for pressurizing of pump 4 is too long.		
BV.262	AL_Pump1CoolingTimeout	Communication for cooling of pump 1 is too long.		
BV.263	AL_Pump2CoolingTimeout	Communication for cooling of pump 2 is too long.		
BV.264	AL_Pump3CoolingTimeout	Communication for cooling of pump 3 is too long.		
BV.265	AL_Pump4CoolingTimeout	Communication for cooling of pump 4 is too long.		
BV.266	AL_Pump1InvalidConfig	Invalid configuration for pump 1.		
BV.267	AL_Pump2InvalidConfig	Invalid configuration for pump 2.		
BV.268	AL_Pump3InvalidConfig	Invalid configuration for pump 3.		
BV.269	AL_Pump4InvalidConfig	Invalid configuration for pump 4.		
BV.270	AL_Pump1ComTimeout	Communication delay is too long for pump 1.		

ID	Name	Description	W?	Notes
BV.271	AL_Pump2ComTimeout	Communication delay is too long for pump 2.		
BV.272	AL_Pump3ComTimeout	Communication delay is too long for pump 3.		
BV.273	AL_Pump4ComTimeout	Communication delay is too long for pump 4.		
BV.274	AL_Zone1ComTimeout	Communication delay is too long for zone 1.		
BV.275	AL_Zone2ComTimeout	Communication delay is too long for zone 2.		
BV.276	AL_Zone3ComTimeout	Communication delay is too long for zone 3.		
BV.277	AL_Zone4ComTimeout	Communication delay is too long for zone 4.		
BV.278	AL_Zone5ComTimeout	Communication delay is too long for zone 5.		
BV.279	AL_Zone6ComTimeout	Communication delay is too long for zone 6.		
BV.280	AL_Zone7ComTimeout	Communication delay is too long for zone 7.		
BV.281	AL_Zone8ComTimeout	Communication delay is too long for zone 8.		
BV.282	AL_Zone9ComTimeout	Communication delay is too long for zone 9.		
BV.283	AL_Zone10ComTimeout	Communication delay is too long for zone 10.		
BV.284	AL_Zone11ComTimeout	Communication delay is too long for zone 11.		
BV.285	AL_Zone12ComTimeout	Communication delay is too long for zone 12.		
BV.286	AL_Zone13ComTimeout	Communication delay is too long for zone 13.		
BV.287	AL_Zone14ComTimeout	Communication delay is too long for zone 14.		
BV.288	AL_Zone15ComTimeout	Communication delay is too long for zone 15.		
BV.289	AL_Zone16ComTimeout	Communication delay is too long for zone 16.		
BV.290	AL_Zone17ComTimeout	Communication delay is too long for zone 17.		
BV.291	AL_Zone18ComTimeout	Communication delay is too long for zone 18.		
BV.292	AL_Zone19ComTimeout	Communication delay is too long for zone 19.		
BV.293	AL_Zone20ComTimeout	Communication delay is too long for zone 20.		
BV.294	AL_Zone21ComTimeout	Communication delay is too long for zone 21.		
BV.295	AL_Zone22ComTimeout	Communication delay is too long for zone 22.		
BV.296	AL_Zone23ComTimeout	Communication delay is too long for zone 23.		
BV.297	AL_Zone24ComTimeout	Communication delay is too long for zone 24.		
BV.298	AL_Zone25ComTimeout	Communication delay is too long for zone 25.		
BV.299	AL_Zone26ComTimeout	Communication delay is too long for zone 26.		
BV.300	AL_Zone27ComTimeout	Communication delay is too long for zone 27.		
BV.301	AL_Zone28ComTimeout	Communication delay is too long for zone 28.		

ID	Name	Description	W?	Notes
BV.302	AL_Zone29ComTimeout	Communication delay is too long for zone 29.		
BV.303	AL_Zone30ComTimeout	Communication delay is too long for zone 30.		
BV.304	AL_Zone31ComTimeout	Communication delay is too long for zone 31.		
BV.305	AL_Zone32ComTimeout	Communication delay is too long for zone 32.		

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ID	Name	Description	W?	Notes
Integrator				
BV.1	SystemMode	Status of the system mode.		
BV.2	ZoneMode	Status of the zone mode.		
BV.3	WaterPressure	Status of water pressure.		
BV.4	LimitedByDuctRH			
BV.30	AL_GlobalAlarmMask	Global Alarm Mask alarm.		
BV.31	AL_DuctRHCutout	Relative humidity cutout value of the duct.		
BV.32	AL_AirflowCutout	Air flow sensor open alarm.		
BV.33	AL_InterlockCutout	Interlock and the cut-out circuitry open alarm.		
BV.34	AL_NoCoordinator	Communication lost between EZC and SKH Master PCB alarm.		
BV.35	AL_TrlhTimeout	Communication delay is too long between EZC and TRL alarm.		
BV.36	AL_NetworkTimeout	Communication delay is too long alarm.		
BV.37	AL_InvalidConfiguration	Communication configuration is incorrect alarm.		
Integrator - Configuration				
BV.100	Cfg_EnableFanControl		Present Value	
BV.101	Cfg_InhibitAirFlowCutout		Present Value	
BV.102	Cfg_NetworkControlOverride		Present Value	
BV.103	Cfg_NetworkTempUnits	Available temperature units.	Present Value	0 = Celsius 1 = Fahrenheit
BV.104	Cfg_NetworkMassFlowUnits	Available mass flow units.	Present Value	0 = kg/h 1 = lb/h
BV.105	Cfg_TRLHTempUnits	Available temperature units on the TRL.	Present Value	0 = Celsius 1 = Fahrenheit
BV.106	Cfg_TRLHSetpointLock		Present Value	
BV.107	Cfg_TRLHZoneModeLock		Present Value	
BV.108	Cfg_TRLHDisplayTime	Display time.	Present Value	
BV.109	Cfg_TRLHTimeFormat	Time format	Present Value	

ID	Name	Description	W?	Notes
BV.200	SimulationState	State of Simulation mode.		
BV.201	InletValve			
BV.202	DrainValve			
BV.203	Stage2Output	Output value of stage 2.		
BV.204	Stage3Output	Output value of stage 3.		
BV.205	Stage4Output	Output value of stage 4.		
BV.206	Stage1Inlet			
BV.207	Stage2Inlet			
BV.208	Stage3Inlet			
BV.209	Stage4Inlet			
BV.210	Stage1Drain			
BV.211	Stage2Drain			
BV.212	Stage3Drain			
BV.213	Stage4Drain			
Integrator - Alarms				
BV.230	AL_BoardSensorFailure	PCB temperature is above the maximum temperature alarm.		
BV.231	AL_RoomRHSensorFailure	Relative humidity sensor of room failure alarm.		
BV.232	AL_RoomTempSensorFailure	Temperature sensor of room failure alarm.		
BV.233	AL_DuctRHSensorFailure	Relative humidity sensor failure of duct alarm.		
BV.234	AL_TrIhRHSensorFailure	Relative humidity sensor failure of TRL alarm.		
BV.235	AL_TrIhTempSensorFailure	Temperature sensor failure of TRL alarm.		

Multi State Value (MSV)

Table 10 - Object Table Information: Multi State Value (MSV)

ID	Name	Description	W?	Notes
Integrator				
MSV.1	Pump1State	Status of pump 1.		
MSV.2	Pump2State	Status of pump 2.		
MSV.3	Pump3State	Status of pump 3.		
MSV.4	Pump4State	Status of pump 4.		
Integrator - Configuration				
MSV.100	Cfg_PressureUnits		Present Value	
MSV.101	Cfg_Language	System language.	Present Value	1 = English
MSV.102	Cfg_ObjectListMode		Present Value	

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ID	Name	Description	W?	Notes
Integrator				
MSV.1	ZoneState	Status of zone.		

ID	Name	Description	W?	Notes
MSV.2	Occupancy	Occupancy status.	Present Value Out Of Service	
Integrator - Configuration				
MSV.100	Cfg_ControlMode	Control mode.	Present Value	1 = Analog Input 1 2 = Analog Input 2 3 = Analog Input 3 4 = Internal Temperature 5 = Internal %RH 6 = Network
MSV.101	Cfg_ControlRHSource		Present Value	
MSV.102	Cfg_ControlTempSource		Present Value	
MSV.103	Cfg_ControlSetpointSource	Control setpoint source.	Present Value	1 = Internal 2 = Network 3 = Ext.AI1 4 = Ext.AI2 5 = Ext.AI3
MSV.104	Cfg_HighLimitSource	High limit source for analog input 1.	Present Value	1 = AI1 2 = AI2 3 = AI3 4 = Network 5 = None
MSV.105	Cfg_ObjectListMode		Present Value	
MSV.300	Cfg_AI3Signal	Analog input 3 signal.	Present Value	1 = 0-10Vdc 2 = 2-10Vdc
MSV.301	Cfg_AI4Signal	Analog input 4 signal.	Present Value	1 = 0-10Vdc 2 = 2-10Vdc

ID	Name	Description	W?	Notes
MSV.302	Cfg_AI5Signal	Analog input 5 signal.	Present Value	1 = 0-10Vdc 2 = 2-10Vdc
MSV.303	Cfg_AI6Signal	Analog input 6 signal.	Present Value	1 = 0-10Vdc 2 = 2-10Vdc
MSV.304	Cfg_FeedbackSignal	Feedback signal.	Present Value	1 = 0-10Vdc 2 = 2-10Vdc

Other

Table 11 - Object Table Information: Other

ID	Name	Description	W?	Notes
FIL.1	FirmwareUpdateFile	File object of the firmware upgrade.	File_Size Archive	Stream access method via atomicWriteFile and atomicReadFile.
FIL.2	BootloaderUpdateFile	File object of the bootloader firmware upgrade.	File_Size Archive	Stream access method via atomicWriteFile and atomicReadFile.
FIL.3	PumpFirmwareUpdateFile		File_Size Archive	
FIL.4	PumpBootloaderUpdateFile		File_Size Archive	
PGM.1	FirmwareUpdateTask		Program_Change	
SKH EZC				
FIL.1	FirmwareUpdateFile	File object of the firmware upgrade.	File_Size Archive	Stream access method via atomicWriteFile and atomicReadFile.
FIL.2	BootloaderUpdateFile	File object of the bootloader firmware upgrade.	File_Size Archive	Stream access method via atomicWriteFile and atomicReadFile.
PGM.1	FirmwareUpdateTask		Program_Change	
SCH.1	OccupancySchedule	Weekly occupancy schedule to specify which occupancy state is active during specific periods of day.	Out_Of_Service Weekly_Schedule Schedule_Default Priority_for_Writing Effective_Period	Result is written into OccupancyState's present value (MSV.2). See OccupancyState for the list of valid event values.



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