Register Type	Register Number	Register Address	Parameters	Description	Type	Units	Values
Holding Register	40001	0	Set Temperature Heating	Temperature setpoint hyperstat will heat to when operating mode = heating	uint16	2 x Fahrenheit	120-180 (60.0 - 90.0)
Holding Register	40002	1	Set Temperature Cooling	Temperature setpoint hyperstat will cool to when operating mode = cooling	uint16	2 x Fahrenheit	120-180 (60.0 - 90.0)
Holding Register	40003	2	Fan Speed	Configure the fan speed of hyperstat	uint8	NA	0 = OFF 1 = AUTO 2 = LOW 3 = MEDIUM 4 = HIGH
Holding Register	40004	3	Conditioning Mode	Configure the conditioning mode of the hyperstat	uint8	NA	0 = OFF 1 = AUTO 2 = HEATING 3 = COOLING
Holding Register	40005	4	Max Heating User Temp	Maximum heating set temperature user can set	uint16	degrees Fahrenheit	60-90
Holding Register	40006	5	Min Heating User Temp	Minimum heating set temperature the user can set	uint16	degrees Fahrenheit	60-90
Holding Register	40007	6	Max Cooling User Temp	Maximum cooling set temperature user can set	uint16	degrees Fahrenheit	60-90
Holding Register	40008	7	Min Cooling User Temp	Minimum cooling set temperature the user can set	uint16	degrees Fahrenheit	60-90
Holding Register	40009	8	Temperature Offset	Offset added to measurement room temperature	int16	1/10 degrees Fahrenheit	-100 - 100 (-10.0 - 10.0)

Holding Register	40010	9	Heating Deadband	Amount above set temperature at which heating is activated	uint16	1/10 degrees Fahrenheit	0-100 (0.0-10.0)
Holding Register	40011	10	Cooling Deadband	Amount below set temperature at which cooling is activated	uint16	1/10 degrees Fahrenheit	0-100 (0.0-10.0)
Holding Register	40012	11	Temperature Mode	Temperature mode defining how temperature setpoints and deadbands can be configured and how they will be applied	uint8	NA	0 = Single Setpoint 1 = Dual Setpoint Fixed Deadband 2 = Dual Setpoint Variable Deadband
Holding Register	40013	12	Humidity Min Setpoint	Threshold at which hyperstat will attempt to humidify if humidity level is less than	uint8	%	20-100
Holding Register	40014	13	Humidity Max Setpoint	Threshold at which hyperstat will attempt to dehumidify if humidity level is greater than	uint8	%	20-100
Holding Register	40015	14	CO2 Alert Threshold	Threshold of CO2 level at which an alert will be indicated	uint16	ppm	400-10000
Holding Register	40016	15	VOC Alert Threshold	Threshold of VOC level at which an alert will be indicated	uint16	ppb	0-10000
Holding Register	40017	16	PM2.5 Alert Threshold	Threshold of PM2.5 level at which an alert will be indicated	uint16	ug/m3	0-10000
Holding Register	40018	17	Profile	Profile in which Hyperstat shall run	uint8		0 = None 1 = Conventional Package Unit 2 = Heat Pump Unit 3 = 2 Pipe Fancoil Unit 4 = 4 Pipe Fancoil Unit 5 = VRV 6 = Sense
Holding Register	40019	18	Relay 1 Enable	Configure if relay 1 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40020	19	Relay 2 Enable	Configure if relay 2 is enabled/disabled	bool		0 = Disabled 1 = Enabled

Holding Register	40021	20	Relay 3 Enable	Configure if relay 3 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40022	21	Relay 4 Enable	Configure if relay 4 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40023	22	Relay 5 Enable	Configure if relay 5 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40024	23	Relay 6 Enable	Configure if relay 6 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40025	24	Relay 1 Mapping	Configure the mapping of relay 1 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier

Holding Register	40026	25	Relay 2 Mapping	Configure the mapping of relay 2 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier
Holding Register	40027	26	Relay 3 Mapping	Configure the mapping of relay 3 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier

Holding Register	40028	27	Relay 4 Mapping	Configure the mapping of relay 4 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier

Holding Register	40029	28	Relay 5 Mapping	Configure the mapping of relay 5 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier

Holding Register	40030	29	Relay 6 Mapping	Configure the mapping of relay 6 Note: This value is only used if the relay is enabled	uint8		0 = None 1 = Cooling Stage 1 2 = Cooling Stage 2 3 = Cooling Stage 3 4 = Heating Stage 1 5 = Heating Stage 2 6 = Heating Stage 3 7 = Fan Low Speed 8 = Fan Medium Speed 9 = Fan High Speed 10 = Fan Enable 11 = Occupied Enable 12 = Humidifier 13 = Dehumidifier
Holding Register	40031	30	Analog In 1 Enable	Configure if analog input 1 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40032	31	Analog In 1 Mapping	Configure the mapping of analog input 1 Note: This value is only used if the analog input is enabled	uint8		0 = Current 0-10 1 = Current 0-20 2 = Current 0-50 3 = Keycard 4 = Door Window
Holding Register	40033	32	Analog In 2 Enable	Configure if analog input 2 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40034	33	Analog In 2 Mapping	Configure the mapping of analog input 2 Note: This value is only used if the analog input is enabled	uint8		0 = Current 0-10 1 = Current 0-20 2 = Current 0-50 3 = Keycard 4 = Door Window
Holding Register	40035	34	Analog Out 1 Enable	Configure if analog output 1 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40036	35	Analog Out 1 Mapping	Configure the mapping of analog output 1 Note: This value is only used if the analog input is enabled	uint8		0 = Cooling 1 = Fan Speed 2 = Heating 3 = DCV Damper

Holding Register	40037	36	Analog Out 1 At Min Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at minimum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)
Holding Register	40038	37	Analog Out 1 At Max Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at maximum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)
Holding Register	40039	38	Analog Out 1 Pulse Enabled	Determines if PWM channel 1 shall be a pulsed or constant voltage	bool		0 = Constant Voltage 1 = Pulsed Voltage
Holding Register	40040	39	Analog Out 2 Enable	Configure if analog output 2 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40041	40	Analog Out 2 Mapping	Configure the mapping of analog output 2 Note: This value is only used if the analog input is enabled	uint8		0 = Cooling 1 = Fan Speed 2 = Heating 3 = DCV Damper
Holding Register	40042	41	Analog Out 2 At Min Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at minimum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)
Holding Register	40043	42	Analog Out 2 At Max Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at maximum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)
Holding Register	40044	43	Analog Out 2 Pulse Enabled	Determines if PWM channel 2 shall be a pulsed or constant voltage	bool		0 = Constant Voltage 1 = Pulsed Voltage
Holding Register	40045	44	Analog Out 3 Enable	Configure if analog output 3 is enabled/disabled	bool		0 = Disabled 1 = Enabled
Holding Register	40046	45	Analog Out 3 Mapping	Configure the mapping of analog output 3 Note: This value is only used if the analog input is enabled	uint8		0 = Cooling 1 = Fan Speed 2 = Heating 3 = DCV Damper
Holding Register	40047	46	Analog Out 3 At Min Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at minimum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)

Holding Register	40048	47	Analog Out 3 At Max Setting	Voltage at which the cooler/damper/fan mapped to the analog output is at maximum position	uint8	1/10 Volts	0 - 100 (0.0 - 10.0)
Holding Register	40049	48	Analog Out 3 Pulse Enabled	Determines if PWM channel 3 shall be a pulsed or constant voltage	bool		0 = Constant Voltage 1 = Pulsed Voltage
Holding Register	40050	49	TH1 Airflow Temperature Enable	Enable or disable thermistor input 1 which is used for measuring airflow	bool		0 = Disabled 1 = Enabled
Holding Register	40051	50	TH2 Enable	Enable or disable thermistor input 2 which is used for measuring airflow	bool		0 = Disabled 1 = Enabled
Holding Register	40052	51	Use TH1 As Room Temp Sensor	When enabled, Hyperstat will use the thermistor connected at TH1 input for determining room/zone temperature instead of the onboard temperature sensor	bool		0 = Disabled 1 = Enabled
Holding Register	40053	52	Zone CO2 Damper Opening Rate	TBD	uint8	%/100 ppm	0-100
Holding Register	40054	53	Zone CO2 Threshold	Determines the point where Hyperstat starts controlling dampers to maintain CO2 at target value	uint16	ppm	0-2000
Holding Register	40055	54	Zone CO2 Target	Target value of CO2	uint16	ppm	0-2000
Holding Register	40056	55	Proportional Constant	Tuner that produces an output action that is proportional to the deviation between the set point and the measured process value for a PI Loop	uint8	1/100	0-100
Holding Register	40057	56	Integral Constant	Condition with which the controller output is proportional to the amount of time the error is present	uint8	1/100	0-100

Holding Register	40058	57	Proportional Temperature Range	Defines the band of temperature, or range of temperature, over which the output of the controller is proportional. Example controlling the damper opertions	uint16	1/10 degrees Fahrenheit	0-100 (0.0-10.0)
Holding Register	40059	58	Integration Time	Defines the amount of time PI loop in the system integrates the error over a period until error value reaches to zero. It limits the speed of response and affects stability of the system	uint16	minutes	5-100
Holding Register	40060	59	Unoccupied Setback	Determines how many degrees from the desired temperature the zone will be allowed to drift during unoccupied	uint8	1/10 degrees Fahrenheit	10-200 (1.0-20.0)
Holding Register	40061	60	Relay Activation Hysteresis	Condition at which relay will turn off after being turned on to control based on load	uint8	%	1-50
Holding Register	40062	61	Analog Fan Speed Multiplier	Tuner that determines how fast a fan can move based on heating or cooling load	uint8	1/10	1-100 (0.1-10)
Holding Register	40063	62	Humidity Hysteresis	Tuner that determines a condition at which humidier / dehumidifier will turn off after being turned on to control inside	uint8	%	1-100
Holding Register	40064	63	Forced Occupied Time	During unoccupied time in case there is occupancy detected or user interacts with or edits user intent points then system enters in occupied mode for this tuner period only	uint8	minutes	0-255
Holding Register	40065	64	Auto Away Time	During Occupied period of the zone (Not during preconditioning period), If an Occupant is not detected for this tuner duration, the zone should enter 'Auto Away' mode if occupancy is enabled	uint8	minutes	0-255

Holding Register	40066	65	Auto Away Zone Setback Temp	Determines how many degrees from the desired temperature the zone will be allowed to drift during auto	uint8	1/10 Degrees Fahrenheit	10-200 (1.0 - 20.0)
Holding Register	40067	66	FCU Aux Heating 1 Activate	Represents the difference between the current temp and heating desired temp in which the FCU Aux Heating 1 will activate. For example, if any relay is enabled and associated with Aux Heating State 1, the relay will be activated when currentTemp < Heating Desired Temp - FCU Aux	uint8	1/10 Degrees Fahrenheit	10-100 (1.0 - 10.0)
Holding Register	40068	67	FCU Aux Heating 2 Activate	Represents the difference between the current temp and heating desired temp in which the FCU Aux Heating 2 will activate. For example, if any relay is enabled and associated with Aux Heating State 2, the relay will be activated when currentTemp < Heating Desired Temp - FCU Aux	uint8	1/10 Degrees Fahrenheit	10-100 (1.0 - 10.0)
Holding Register	40069	68	FCU Two Pipe Heating Threshold	For a 2 pipe FCU, this tuner determines if the central plant is providing hot water when compared to supply water temp sensor. If Th2 (Supply water sensor) is more than 2pipeFancoilHeatingThreshold (85) then the central plant is providing hot water	uint8	Degrees Fahrenheit	70-130

Holding Register	40070	69	FCU Two Pipe Cooling Threshold	For a 2 pipe FCU, this tuner determines if the central plant is providing cold water when compared to supply water temp sensor. If Th2 (supply water sensor) is less than 2pipeFancoilCoolingThreshold (65) then the central plant is providing cold water	uint8	Degrees Fahrenheit	35-70
Holding Register	40071	70	FCU Water Valve Sampling On Time	If FCU water temperature is greater than FCU Two Pipe Heating Threshold Amount or less than FCU Two Pipe Cooling Threshold, then if the water valve relay has not been enabled for the last FCU Water Valve Sampling Wait Time, this value represents the amount of time the water valve relay will be enabled	uint8	minutes	0-30
Holding Register	40072	71	FCU Water Valve Sampling Wait Time	If FCU water temperature is greater than FCU Two Pipe Heating Threshold Amount or less than FCU Two Pipe Cooling Threshold, then if the water valve relay has been enabled for the last FCU Water Valve Sampling On Time, this value represents the amount of time the water valve relay will be disabled	uint8	minutes	5-255

Holding Register	40073	72	FCU Water Valve Sampling During Loop Deadband On Time	If FCU water temperature is between FCU Two Pipe Heating Threshold and FCU Two Pipe Cooling Threshold, then if the water valve relay has not been enabled for the last FCU Water Valve Sampling During Loop Deadband Wait Time, this value represents the amount of time the water valve relay will be enabled	uint8	minutes	0-30
Holding Register	40074	73	FCU Water Valve Sampling During Loop Deadband Wait Time	If FCU water temperature is between FCU Two Pipe Heating Threshold and FCU Two Pipe Cooling Threshold, then if the water valve relay has been enabled for the last FCU Water Valve Sampling During Loop Deadband On Time, this value represents the amount of time the water valve relay will be disabled	uint8	minutes	5-255
Holding Register	40075	74	Enable Force Occupied	Configure if Force Occupied feature is enabled/disabled. If Force Occupied = Enable, the Hyperstat will enter occupied mode for duration defined by Forced Occupied Time when occupancy is detected or user interacts with Hyperstat.	bool		0 = Disabled 1 = Enabled

Holding Register	40076	75	Enable Auto Away	Configure if Auto Away feature is enabled/disabled. If Auto Away = enabled, the Hyperstat will apply the Auto Away Setback Temps when no motion has been detected for a duration greater than the	bool		0 = Disabled 1 = Enabled
Holding Register	40077	76	Unoccupied Mode	Indicates if occupied or unoccupied settings shall be followed	bool		0 = Occupied 1 = Unoccupied
Holding Register	40078	77	Show Centigrade	Determine if Hyperstat display shall use units of Celcius or Fahrenheit	bool		0 = Disabled 1 = Enabled
Holding Register	40079	78	Display CO2	Configures if CO2 sensor value is displayed on Hyperstat home screen	bool		0 = Disabled 1 = Enabled
Holding Register	40080	79	Display PM2.5	Configures if PM2.5 sensor value is displayed on Hyperstat home screen	bool		0 = Disabled 1 = Enabled
Holding Register	40081	80	Display VOC	Configures if VOC sensor value is displayed on Hyperstat home screen	bool		0 = Disabled 1 = Enabled
Holding Register	40082	81	Display Humidity	Configures if Humidity sensor value is displayed on Hyperstat home screen	bool		0 = Disabled 1 = Enabled
Holding Register	40083	82	System Time Days	Configures the system time of the Hyperstat in days	uint8		0 = Sunday 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday
Holding Register	40084	83	System Time Hours	Configures the system time of the Hyperstat in hours	uint8	hours	0-23
Holding Register	40085	84	System Time Minutes	Configures the system time of the Hyperstat in minutes	uint8	minutes	0-59

Holding Register	40086	85	DeviceReset	Used to perform a hard reset of the Hyperstat. Note: The Hyperstat will perform a hard reset when this value of "Reset" is written	bool		1 = Reset
Input Register	30001	0	Room Temperature	Temperature level sensor reading	uint16	1/10 degrees Fahrenheit	
Input Register	30002	1	Humidity	Humidity level sensor reading	uint16	1/10 %	
Input Register	30003	2	CO2	CO2 level sensor reading	uint16	ppm	
Input Register	30004	3	Occupancy	Occupancy Status	uint8		
Input Register	30005	4	Illuminance	Illuminance level sensor reading	uint16	Lux	
Input Register	30006	5	Ultraviolet Index	Ultraviolet Index sensor reading	uint16		
Input Register	30007	6	Sound	Sound level sensor reading	uint16	dB	
Input Register	30008	7	VOC	Volatile organic compound sensor reading	uint16	ppb	
Input Register	30009	8	PM2.5	PM2.5 level sensor reading	uint16	ug/m3	
Input Register	30010	9	PM10	PM10 level sensor reading	uint16	ug/m3	
Input Register	30011	10	Analog Input 1	Voltage level at analog input 1	uint16	1/10 volts	0-100 (0.0-10.0)
Input Register	30012	11	Analog Input 2	Voltage level at analog input 2	uint16	1/10 volts	0-100 (0.0-10.0)
Input Register	30013	12	Thermistor Input 1	Resistance level reading at thermistor input 1	uint16	1/10 kOhm	
Input Register	30014	13	Thermistor Input 2	Resistance level reading at thermistor input 2	uint16	1/10 kOhm	
Input Register	30015	14	Relay 1	Contains the current value of relay 1	bool		0 = Off 1 = On
Input Register	30016	15	Relay 2	Contains the current value of relay 2	bool		0 = Off 1 = On
Input Register	30017	16	Relay 3	Contains the current value of relay 3	bool		0 = Off 1 = On
Input Register	30018	17	Relay 4	Contains the current value of relay 4	bool		0 = Off 1 = On
Input Register	30019	18	Relay 5	Contains the current value of relay 5	bool		0 = Off 1 = On
Input Register	30020	19	Relay 6	Contains the current value of relay 6	bool		0 = Off 1 = On

Input Register	30021	20	Analog Out 1 Percent	PWM channel 1 output level	uint8	%	0-100
Input Register	30022	21	Analog Out 2 Percent	PWM channel 2 output level	uint8	%	0-100
Input Register	30023	22	Analog Out 3 Percent	PWM channel 3 output level	uint8	%	0-100
Input Register	30024	23	Threshold Alert	Bitmap representing each alert thresold (CO2, VOC, PM2.5)	uint16		Bit Index 0 = CO2 Bit Index 1 = VOC Bit Index 2 = PM2.5
Input Register	30025	24	Operating Mode	Contains the current operating mode of the hyperstat	uint8	NA	0 = OFF 1 = HEATING 2 = COOLING
Input Register	30026	25	Active Set Temperature Heating	Active heating temperature setpoint of the Hyperstat	uint16	2 x Fahrenheit	120-180 (60.0 - 90.0)
Input Register	30027	26	Active Set Temperature Cooling	Active ceating temperature setpoint of the Hyperstat	uint16	2 x Fahrenheit	120-180 (60.0 - 90.0)
Input Register	30028	27	Active Conditioning Mode	Active conditioning mode of the hyperstat	uint8	NA	0 = OFF 1 = AUTO 2 = HEATING 3 = COOLING
Input Register	30029	28	Active Fan Speed	Active fan speed of hyperstat	uint8	NA	0 = OFF 1 = AUTO 2 = LOW 3 = MEDIUM 4 = HIGH
Input Register	30030	29	Occupancy Manager State	Reflects the state of the occupancy manager	uint8	NA	0 = INITIALIZING 1 = OCCUPIED 2 = UNOCCUPIED 3 = AUTO AWAY 4 = FORCE OCCUPIED
Input Register	30031	30	FW Version Major	Major version number component of FW version string	uint8		0-255
Input Register	30032	31	FW Version Minor	Minor version number component of FW version string	uint8		0-255
Input Register	30033	32	Modbus Address	Address of modbus server	uint8		0-255

Input Register	30034	33	Baud Rate	Configured RS485 baud rate	uint8		0 = 9600 1 = 19200 2 = 38400 3 = 57600 4 = 115200
Input Register	30035	34	Parity	Configured RS485 parity bit	uint8		0 = None 1 = Odd 2 = Even 3 = Mark 4 = Space
Input Register	30036	35	Stop Bit	Configured RS485 stop bit	uint8		0 = 1 Stop Bit 1 = 1.5 Stop Bits 2 = 2 Stop Bits