Modbus Table register HomEvap products **26-sep-18**

The HomEvap is equiped with the option to be controlled via modbus / bacnet protocols. The connection is made using connector Tb1 on th e Main PCB. As shown in wiring diagram. It is an RS485 connection. underneath you will find the appropiate register number and default if present. There is a lot possible with the modbus or bacnet contr ol, we asume that you have your own humidity or temperature sensors and setpoints of humidity and temperature in your BMS/ DOmotica control system. The values always needed are listed below in *ITALIC, it concerns, start stop of unit from external source, reset of service timer and general alarms. actual duct humidity and temperature reading, setpoint of duct temperature and rh%..*

****Enable modbus : put dipswitch on main pcb DS2.8 (HEX value Modbus) to ON. Add per unit an unique address using 2.1 to 2.7. for each unit in a chain. exampl: 2 unit in one chain = ds2.1- on and ds2.8-on is first adress, second unit; ds2.1-off, ds2.2- on and ds2.8 on is second adress etc.**
Function : 03 Read Holding Register, 06 Write Single Register, 16 Write multiple registers
Error Code : 02 illegal data address, 03 illegal value, 06 Slave device busy
Default Add : 01 (dipswitch 0-255, modbus valid range 1-247)
Default Baud Rate : AutoBaud (9600, 19200, 38400, 57600)
Default Port Configuration : 8 bits data, no parity, 2 stop bits.
W? : Writable register? w: writable, cx: writable under specific conditions, blank: read only.
No Real number in modbus register, use factor to calculate real number. Register = Real number * Factor => Real number = Register / Factor. Factor could be 1, 10 or 100
Attention when writing a register that contain a bit string, if this one is writable (conditional or not) the write will be always accepted but bit that are reserved or not writable will be ignored and will keep their actual state.
Use READ-MODIFY-WRITE sequence.

Register		Name	W?	Description	Notes	net Object	efault valu		
DEC	HEX							min	max
0	0	Address	c1	Device neptronic ID and Modbus address of current device	MB=110; LB=1-247	---			
1	1	BaudRate	w	BaudRate of device/100	Type:Unsigned, Factor: 0.01, No unit, 9600, 19200, 38400, 57600 Writing 0 will enable Auto Baud, anything else will set a manual baudrate. Reading will always return the actual baudrate.	---			
2	2	Port Config	w	communication port configuration	0= No parity, 2 Stop bits 1= Even parity, 1 stop bit 2= Odd parity, 1 stop bit	---			
3	3	ProdName_87	w	Characters 8-7 of 8 name characters.	ASCII caracters : MB Name[7]; LB Name[6]	OBJECT_NAME			
4	4	ProdName_65	w	Characters 6-5 of 8 name characters.	ASCII caracters : MB Name[5]; LB Name[4]	OBJECT_NAME			
5	5	ProdName_43	w	Characters 4-3 of 8 name characters.	ASCII caracters : MB Name[3]; LB Name[2]	OBJECT_NAME			
6	6	ProdName_21	w	Characters 2-1 of 8 name characters.	ASCII caracters : MB Name[1]; LB Name[0]	OBJECT_NAME			
7	7	Product_Version		Firmware version	Actually 112	FIRMWARE_REVISION			
8	8	Param_Version		Parameters version		APPLICATION_SOFTWARE_VERSION			
9	9	System_status1		16 Flags of status	*see table below				
10	A	System_status2		16 Flags of status	*see table below				
11	B	System_status3		16 Flags of status	*see table below				
12	C	System_status4		16 Flags of status	*see table below				
13	D	LocalRoomHumidity		AI1 Room humidity SHC80 %RH	Type: Unsigned, Factor: 10, Unit: %RH, 0 to 100 %RH	AI.1			
14	E	LocalRoomTemperature		AI2 Room temperature SHC80 ºC	Type: Unsigned, Factor: 10, Unit: ºC, 0 to 100 ºC	AI.2			
15	*F*	*LocalDuctHumidity*		*AI3 Duct humidity SHC80 %RH*	*Type: Unsigned, Factor: 10, Unit: %RH, 0 to 100 %RH*	*AI.3*			
16	*10*	*LocalDuctTemperature*		*AI4 Duct temperature SHC80 ºC*	*Type: Unsigned, Factor: 10, Unit: ºC, 0 to 100 ºC*	*AI.4*			
17	11	T2_Temperature		AI5 T2 temperature RTD ºC	Type: Unsigned, Factor: 10, Unit: ºC, 0 to 50 ºC	AI.5			
18	12	T3_Temperature		AI6 T3 temperature RTD ºC	Type: Unsigned, Factor: 10, Unit: ºC, 0 to 50 ºC	AI.6			
19	13	AirFlowSwitchInput		BI1 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.1	0		
20	14	EnableUserInput		BI2 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.2	1		
21	15	EnableMainInput		BI3 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.3	1		
23	17	CoolInput		BI5 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.5	0		
24	18	FanInput		BI6 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.6	0		
25	19	RH_HeatInput		BI7 input status	Type: Unsigned, Factor: 1, Unit: No unit, 0: OPEN, 1:CLOSE	BI.7	0		

26	1A	FanOutput		Fan Output status	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AO.1			
27	1B	SSROutput		SSR Pulsing output status	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AO.2			
28	1C	TPM_Valve1		Valve 1 TPM output status	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AO.3			
29	1D	TPM_Valve2		Valve 2 TPM output status	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AO.4			
30	1E	Cfg_RoomTempSP_Min	w	Minimum room temperature setpoint	Type: Unsigned, Factor: 10, Unit: ºC, 7 to Cfg_RoomTempSP_Max (Reg#31)	AV.1	10	7	45
31	1F	Cfg_RoomTempSP_Max	w	Maximum room temperture setpoint	Type: Unsigned, Factor: 10, Unit: ºC, Cfg_RoomTempSP_Min (Reg#30) to 40ºC	AV.2	45	10	50
35	23	HeatingDemand		Heating PID	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AV.9		0	100
39	27	IndCoolDemand		Indirect cooling PID	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AV.14		0	100
43	2B	DirCoolDemand		Direct cooling PID	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AV.19		0	100
44	2C	RoomTempSetPoint	w	Room temperature setpoint	Type: Signed, Factor: 10, Unit: ºC, Cfg_RoomTempSP_Min (Reg#30) to Cfg_RoomTempSP_Max (Reg#31)	AV.20	19	1	45
45	*2D*	*DuctTempSetPoint*	*w*	*Duct temperature setpoint*	*Type: Signed, Factor: 10, Unit: ºC, 0 to 30 ºC*	*AV.21*	*18*	*1*	*50*
46	2E	Cfg_OEM_TempLow	w	Low temperature for OEM sequence	Type: Signed, Factor: 10, Unit: ºC, 0 to Cfg_OEM_TempMedium	AV.23	12	0	49
47	2F	Cfg_OEM_TempMedium	w	Medium temperature for OEM sequence	Type: Signed, Factor: 10, Unit: ºC, Cfg_OEM_TempLow to Cfg_OEM_TempHigh	AV.24	49	12	50
48	30	Cfg_OEM_TempHigh	w	High temperature for OEM sequence	Type: Signed, Factor: 10, Unit: ºC, Cfg_OEM_TempMedium to 50 ºC	AV.25	49	49	50
49	31	Cfg_RoomHumSP_Min	w	Minimum room humidity setpoint	Type: Unsigned, Factor: 10, Unit: %RH, 10%RH to Cfg_RoomHumSP_Max (Reg#47)	AV.30	25	5	85
50	32	Cfg_RoomHumSP_Max	w	Maximum room humidity setpoint	Type: Unsigned, Factor: 10, Unit: %RH, Cfg_RoomHumSP_Min (Reg#46) to 90%RH	AV.31	85	5	90
54	36	RoomHumidifSetPoint	w	Room humidity setpoint	Type: Unsigned, Factor: 10, Unit: %RH, Cfg_RoomHumSP_Min (Reg#46) to Cfg_RoomHumSP_Max (Reg#47)	AV.38	45,0	5,0	90,0
55	*37*	*DuctHumidifSetPoint*	*w*	*Duct humidity setpoint*	*Type: Unsigned, Factor: 10, Unit: %RH 5 to 90%RH*	*AV.39*	*78*	*0,0*	*90,0*
56	38	HumidifDemand		Humidity PID	Type: Unsigned, Factor: 10, Unit: %, 0 to 100%	AV.40	-	0,0	100,0
62	3E	Valve1CycleCount		Valve 1 cycle count	Type: Unsigned, Factor: 1, Unit: No unit, 0 to 4294967295	AV.53		0	65535
66	42	Valve2CycleCount		Valve 2 cycle count	Type: Unsigned, Factor: 1, Unit: No unit, 0 to 4294967295	AV.57		0	65535
67	*43*	*Cfg_ServiceInterval*	*w*	*Valve service cycle count maximum*	*Type: Unsigned, Factor: 1, Unit: No unit, 5000 to 30000*	*AV.58*	*15000*	*0*	*65535*
72	*48*	*AI_DuctRhLimit*	*w*	*Rh limit condition for no water alarm in direct cooling mode*	*Type: Unsigned, Factor: 10, Unit: %RH, 40%RH to 95 %RH*	*AV.89*	*85*	*30*	*95*
81	51	AI_RhThreshold	w	Rh Threshold for no water alarm	Type: Unsigned, Factor: 10, Unit: %RH, 20 to 70 %RH	AV.98	50,0	0,0	90,0
83	53	System command	w	16 flags of commands	*see table below				
84	54	System Option1		16 Flags of options	*see table below				
85	55	System Option2		16 Flags of options	*see table below				
86	56	System Option3		16 Flags of options	*see table below				
87	57	System Option4		16 Flags of options	*see table below				
88	*58*	*SystemMode*	*w*	*Control System mode*	*Type: Unsigned, Factor: 1, Unit: No unit, 1: Auto, 2: Hum, 3: Cool, 4: Off*	*MSV.5*			
111	6F	T2CoolingSetPoint	w	T2 Cooling setpoint	Type: Signed, Factor: 10, Unit: ºC, 5 to 30 ºC (available in version 1.12 and above)	AV.22	14	5	30
116	74	External Demand		external demand 0-10v., if ai7 input is active 1-3= 30%, 3-6 =60%. 6-10v=100%... Voor av9 and av40,av19.	Type: Unsigned Factor: 10 Unit: % Range: 0.0-100.0	AI.7			
117	75	Reserved				AI.8			

Register		Name	bit	Description	Notes	net Object
DEC	HEX					
9	9	**System_status1**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	Reserved	Reserved	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	

			b9	Reserved	Reserved	
			b10	System OFF	0: On, 1: OFF	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	NO T3 SENSOR	0: T3 sensor connected, 1: T3 sensor disconnected	
			b15	Duct Sensor status	0: Duct sensor connected, 1: Duct sensor disconnected	BV.28
Register						
DEC	HEX	**Name**	**bit**	**Description**	**Notes**	**net Object**
10	A	**System_status2**	b0	RH sensor Option	0: Duct Sensor, 1: Room Sensor	BV.1
			b1	Temperature sensor Option	0: Duct Sensor, 1: Room Sensor	BV.2
			b2	Heater Option	0: Disable, 1: Enable	BV.3
			b3	Fan Option	0: Disable, 1: Enable	BV.4
			b4	OEM Option	0: Disable, 1: Enable	BV.5
			b5	Input Option	0: Disable, 1: Enable	BV.6
			b6	NO T2 SENSOR	0: T2 Heater sensor connected, 1: T2 Heater sensor disconnected	
			b7	NO ROOM SENSOR	0: T8 Room sensor connected, 1: T8 Room sensor disconnected	
			b8	Enable User	0: Disable, 1: Enable	BV.20
			b9	Enable Main	0: Disable, 1: Enable	BV.21
			b10	Alarm Drain Blocked	0: Normal, 1: Alarm	BV.22
			b11	Alarm Airflow Switch	0: Normal, 1: Alarm	BV.23
			b12	Alarm No Airflow	0: Normal, 1: Alarm	BV.24
			b13	Alarm No Water	0: Normal, 1: Alarm	BV.25
			b14	Alarm Heater Default	0: Normal, 1: Alarm	BV.26
			b15	Service alarm	0: Normal, 1: Alarm	BV.27
Register						
DEC	HEX	**Name**	**bit**	**Description**	**Notes**	**net Object**
11	B	**System_status3**	b0	ss2_EXT_DEMAND	0: Disable, 1: Enable	BV.7
			b1	ss2_ROOM_SENSOR_DETECTED	0: Disable, 1: Enable	
			b2	ss2_DUCT_SENSOR_DETECTED	0: Disable, 1: Enable	
			b3	ss2_T2_SENSOR_DETECTED	0: Disable, 1: Enable	
			b4	Reserved	Reserved	
			b5	Wireless device communication error	0: Normal, 1: Alarm	BV.101
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	ss2_AL_NO_AIR	0: Normal, 1: Alarm	BV.32
			b11	ss2_AL_NOCOOL	0: Normal, 1: Alarm	BV.31
			b12	ss2_AL_OUTDEF	0: Normal, 1: Alarm	BV.33
			b13	ss2_AL_RETDEF	0: Normal, 1: Alarm	BV.34
			b14	ss2_AL_T2DEF	0: Normal, 1: Alarm	BV.35
			b15	ss2_AL_SUPPLYDEF	0: Normal, 1: Alarm	BV.28
Register						
DEC	HEX	**Name**	**bit**	**Description**	**Notes**	**net Object**
12	C	**System_status4**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	Reserved	Reserved	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	

	b14	Reserved	Reserved	
	b15	Reserved	Reserved	

Register DEC	Register HEX	Name	bit	Description	Notes	net Object
83	53	**System command**	b0	Reserved	Reserved	
			b1	Clear Service Alarm	0: No, 1: Yes	BV.29
			b2	Clear System Alarm	0: No, 1: Yes	BV.30
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	Reserved	Reserved	
			b15	Reserved	Reserved	

Register DEC	Register HEX	Name	bit	Description	Notes	net Object
84	54	**System Option1**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	Reserved	Reserved	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	Reserved	Reserved	
			b15	Reserved	Reserved	

Register DEC	Register HEX	Name	bit	Description	Notes	net Object
85	55	**System Option2**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	so_AUTOBAUD_MODE	0 : Disabled 1 : Enabled	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	Reserved	Reserved	
			b15	Reserved	Reserved	

Register	Name	bit	Description	Notes	net Object

Register DEC	Register HEX	Name	bit	Description	Notes	net Object
86	56	**System Option3**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	Reserved	Reserved	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	Reserved	Reserved	
			b15	Reserved	Reserved	
Register DEC	**Register** HEX	**Name**	**bit**	**Description**	**Notes**	**net Object**
87	57	**System Option4**	b0	Reserved	Reserved	
			b1	Reserved	Reserved	
			b2	Reserved	Reserved	
			b3	Reserved	Reserved	
			b4	Reserved	Reserved	
			b5	Reserved	Reserved	
			b6	Reserved	Reserved	
			b7	Reserved	Reserved	
			b8	Reserved	Reserved	
			b9	Reserved	Reserved	
			b10	Reserved	Reserved	
			b11	Reserved	Reserved	
			b12	Reserved	Reserved	
			b13	Reserved	Reserved	
			b14	Reserved	Reserved	
			b15	Reserved	Reserved	