

Pluggit Controller
Modbus Registers Table
(preliminary version)

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1. Revision history

Date	Author	Comment	Version	Status
20120912	ADE	Document created	1	Draft
20120913	ADE	Read/write column was added. Parameters were added.	2	Draft
20120914	ADE	Addresses were changed	3	Draft
20130827	SGO	Changed a RTDB parameters description according v. 1.168	4	Draft
20130912	SGO	Fixed a small mistakes	5	Draft
20130925	SGO	Added a description	6	Draft
20130925	EO	Unused addresses deleted	6a	Draft
20131021	EO	Heading changed	6b	Draft

2. References

- HCP4 MODBUS Protocol Specification; Project Olympic; v.1.7 2012-04-21

3. Abbreviations and terms

MAC	Medium Access Control
TCP	Transport Control Protocol
IP	Internet Protocol

4. Introduction

This document specifies the Modbus register model that is used in DAH UVC project.

5. Registers model

For MPCB control the Modbus protocol v 1.1 is used (TCP/IP over Ethernet). For communication with MPCB the system port **502** is used. MPCB can connect to 3 sockets the same time.



Warning: If socket is unused for 1 minute and more, the connect will be closed by MPCB.

MPSB supports a the following commands of Modbus protocol:

- Read holding registers (0x03);
- Write multiple Holding registers (0x10).

All parameters of RTDB have a 32-bits dimension: integer, unsigned integer, float. However the Modbus works with registers which have 16-bits dimension. Each parameter of RTDB is separated on two parts (Low and High) and Modbus model stores it like two registers (R0 and R1 according), which are located together in sequence. A register with Low part of parameters has less address.

For example:

prmT1 – temperature T1, float, modbus addr 40089.

	bytes	Byte3	Byte2	Byte1	Byte0
prmT1	Modbus	R1 (40090)		R0 (40089)	
	Value	14.30 °C			

For changing of the RTDB parameter it is necessary to send both parts of parameter in one packet.



Warning: if two parts of one parameter will be sent to MPCB over different packets then parameter will not be rewritten.

6.Date storing format

All date/time parameters contain value in Unix time (amount of seconds from 1.1.1970).

7.Parameters description

The Table Cells Color legend:

Read – Basic features register address

Read – Optional register address

Read – Seldom needed register address

Table 1: Parameter description

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description												
40003	prmSystemID	UINT	Read	4294967295	0	16793547	Packed System Information: - Installed components (16 bits) - future unit type (8 bits): always 0 - current unit type (8 bits)												
							<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">System ID</td> <td style="width: 20%; text-align: center;">40004</td> <td style="width: 20%; text-align: center;">40003</td> <td style="width: 40%;"></td> </tr> <tr> <td>Bytes order</td> <td style="text-align: center;">Byte 3</td> <td style="text-align: center;">Byte 2</td> <td style="text-align: center;">Byte 1 Byte 0</td> </tr> <tr> <td>Values</td> <td style="text-align: center;">Components</td> <td style="text-align: center;">0</td> <td style="text-align: center;">Unit type</td> </tr> </table>	System ID	40004	40003		Bytes order	Byte 3	Byte 2	Byte 1 Byte 0	Values	Components	0	Unit type
System ID	40004	40003																	
Bytes order	Byte 3	Byte 2	Byte 1 Byte 0																
Values	Components	0	Unit type																
							Installed components (binary fields): FP1 0x0001 Week 0x0002 Bypass 0x0004 LRSwitch 0x0008 Internal preheater 0x0010 Servo flow 0x0020 RH Sensor 0x0040 VOC sensor 0x0080 Ext Override 0x0100												

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
							HAC1 0x0200 HRC2 0x0400 PC Tool 0x0800 Apps 0x1000 ZeegBee 0x2000 DI1 Override 0x4000 DI2 Override 0x8000 Available Unit types: 1 System_AP190 2 System_AP310 3 System_AP460 4 System_DG160 5 System_DAH190 6 System_DAH310 7 System_DAH460 8 System_DAH160
40005	prmSystemSerialNumLow	UINT	Read	4294967295	0	0	System serial number [high:low]
40007	prmSystemSerialNumHigh	UINT	Read	4294967295	0	0	SN 40008 40007 40006 40005 Bytes order Byte 7 Byte 6 Byte 5 Byte 4 Byte 3 Byte 2 Byte 1 Byte 0
40009	prmSystemName1	UINT	Write	4294967295	0	0	System name in ASCII prmSystemName[1-8] – 32 symbols. If string has a length less than 32 symbols, then last symbol is 0.
40011	prmSystemName2	UINT	Write	4294967295	0	0	
40013	prmSystemName3	UINT	Write	4294967295	0	0	
40015	prmSystemName4	UINT	Write	4294967295	0	0	

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description													
40017	prmSystemName5	UINT	Write	4294967295	0	0	Symbols order Sym 1 Sym 0 Sym 3 Sym 2 ... Sym 29 Sym 28 Sym 31 Sym 30													
40019	prmSystemName6	UINT	Write	4294967295	0	0														
40021	prmSystemName7	UINT	Write	4294967295	0	0														
40023	prmSystemName8	UINT	Write	4294967295	0	0														
40025	prmFWVersion	UINT	Read	4294967295	0	0	<p>FW version: Major(8bits) and Minor(8bits). Byte3 and Byte 2 are 0. Byte 1 is Major part. Byte 0 is minor part. For example: v. 1.169 is stored like 0x000001A8</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">System serial number</td> <td style="text-align: center;">40026</td> <td style="text-align: center;">40025</td> </tr> <tr> <td style="text-align: center;">Bytes order</td> <td style="text-align: center;">Byte 3</td> <td style="text-align: center;">Byte 2</td> <td style="text-align: center;">Byte 1</td> <td style="text-align: center;">Byte 0</td> </tr> <tr> <td style="text-align: center;">Values</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">Major</td> <td style="text-align: center;">Minor</td> </tr> </table>	System serial number	40026	40025	Bytes order	Byte 3	Byte 2	Byte 1	Byte 0	Values	0	0	Major	Minor
System serial number	40026	40025																		
Bytes order	Byte 3	Byte 2	Byte 1	Byte 0																
Values	0	0	Major	Minor																
40077	prmHALPreheater	UINT	Read	1	0	0	Preheater power state (1 – On; 0 - Off)													
40109	prmDateTime	UINT	Read	4294967295	0	0	Current Date/time in Unix time (amount of seconds from 1.1.1970)													
40111	prmDateTimeSet	UINT	Write	4294967295	0	0	New date/time in Unix time													
40133	prmRamIdxT1	FLOAT	Read	327.67	-327.68	0	T1, °C													
40135	prmRamIdxT2	FLOAT	Read	327.67	-327.68	0	T2 °C													
40137	prmRamIdxT3	FLOAT	Read	327.67	-327.68	0	T3, °C													
40139	prmRamIdxT4	FLOAT	Read	327.67	-327.68	0	T4, °C													
40141	prmRamIdxT5	FLOAT	Read	327.67	-327.68	0	T5, °C													
40161	prmPreheaterDutyCycle	UINT	Read	100	0	0	Power of Preheater in %													
40169	prmRamIdxUnitMode	UINT	Write	65535	0	0	<p>Active Unit mode:</p> <ul style="list-style-type: none"> Installer 0x0001 Auto 0x0002 Manual 0x0004 Summer 0x0004 WeekProgram 0x0008 													

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
							Away 0x0010 Night 0x0020 Fireplace 0x0040 BypassMode 0x0080 HAC1Standby 0x0100 HAC1FireThermostat 0x0200 DefrostOff 0x0400 DisplaySummer 0x0800 ServoCalibr 0x0001 For changing it is necessary to write a new value.
40195	prmRamIdxFilterPeriod	UINT	Write	65535	0	0	Period of the Air Filter using, in months
40197	prmRamIdxRh3Corrected	UINT	Read	100	0	0	Value of RH sensor, % (output of the RH Driver)
40199	prmRamIdxBypassActualState	UINT	Read	255	0	0	Bypass state: Closed 0x0000 In process 0x0001 Closing 0x0020 Opening 0x0040 Opened 0x00FF
40301	prmRamIdxHac1ActiveComponent	UINT	Read	65535	0	0	List of the HAC1 active components (binary fields): CO2 Sensor 0x0001 Bypass 0x0002 PreHeater 0x0004 PreCooler 0x0008 AfterHeater 0x0010

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
							AfterCooler 0x0020 Hygrostat 0x0040
40325	prmRomIdxSpeedLevel	UINT	Write	4	0	0	Speed level of Fans in Manual mode; shows a current speed level [4-0]; used for changing of the fan speed level
40333	prmRomIdxNightModeStartHour	UINT	Write	255	0	23	Night mode start hour (0-23)
40335	prmRomIdxNightModeStartMin	UINT	Write	255	0	0	Night mode start minute (0-59)
40337	prmRomIdxNightModeEndHour	UINT	Write	255	0	7	Night mode end hour (0-23)
40339	prmRomIdxNightModeEndMin	UINT	Write	255	0	0	Night mode end minut (0-59)
40341	prmRomIdxRhSetPoint	UINT	Write	65	35	45	Setpoint of RH in %; Using in Demand mode
40345	prmRomIdxAfterHeaterT2SetPoint	INT	Write	35	0	18	Setpoint of the T2 (°C); If HAC1 AfterHeater is active (prmRamIdxHac1ActiveComponent(40301)) and T2 < T2Setpoint, then HAC1 AfterHeater should be turned on; If T2Setpoint is 0, then T2 is not checked
40347	prmRomIdxAfterHeaterT3SetPoint	INT	Write	30	0	0	Setpoint of the T3 (°C); If HAC1 AfterHeater is active (prmRamIdxHac1ActiveComponent(40301)) and T3 < T3Setpoint, then HAC1 AfterHeater should be turned on; If T3Setpoint is 0, then T3 is not checked
40349	prmRomIdxAfterHeaterT5SetPoint	INT	Write	30	0	0	Setpoint of the T5 (°C); If HAC1 AfterHeater is active (prmRamIdxHac1ActiveComponent(40301)) and T5 < T5Setpoint, then HAC1 AfterHeater should be turned on; If T5Setpoint is 0, then T5 is not checked
40403	prmHAC1_Components	UINT	Read	65535	0	0	List of the HAC1 enabled components (binary fields): CO2 Sensor 0x0100 Bypass 0x0200 PreHeater 0x0400 PreCooler 0x0800 AfterHeater 0x1000 AfterCooler 0x2000

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
							Hygrostat 0x4000
40431	prmVOC	UINT	Read	65535	0	0	VOC sensor value (read from VOC); ppm. If VOC is not installed, then 0.
40445	prmBypassTmin	FLOAT	Read	15,0	8,0	13,0	Minimum temperature of Bypass opening (°C), if T1 < Tmin then bypass should be closed
40447	prmBypassTmax	FLOAT	Read	30	0	0	Maximum temperature of Bypass opening (°C), if T1 > Tmax or Tmax is 0 then bypass should be closed
40467	prmNumOfWeekProgram	UINT	Write	10	0	0	Number of the Active Week Program (for Week Program mode)
40473	prmCurrentBLState	UINT	Read	4294967295	0	1	Current unit mode: 0 Standby 1 Manual 2 Demand 3 Week program 4 Servo-flow 5 Away 6 Summer 7 DI Override 8 Hygrostat override 9 Fireplace 10 Installer 11 Fail Safe 1 12 Fail Safe 2 13 Fail Off 14 Defrost Off 15 Defrost 16 Night

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
40515	prmSetAlarmNum	UINT	Write	15	0	0	Clear Alarm: 0 <i>None</i> 1 <i>Exhaust FAN Alarm</i> 2 <i>Supply FAN Alarm</i> 3 <i>Bypass Alarm</i> 4 <i>T1 Alarm</i> 5 <i>T2 Alarm</i> 6 <i>T3 Alarm</i> 7 <i>T4 Alarm</i> 8 <i>T5 Alarm</i> 9 <i>RH Alarm</i> 10 <i>Outdoor13 Alarm</i> 11 <i>Supply5 Alarm</i> 12 <i>Fire Alarm</i> 13 <i>Communication Alarm</i> 14 <i>FireTermostat Alarm</i> 15 <i>VOC Alarm</i> Reset to 0 by MPCB after checking.
40517	prmLastActiveAlarm	UINT	Read	4294967295	0	0	Active Alarm: 0 <i>None</i> 1 <i>Exhaust FAN Alarm</i> 2 <i>Supply FAN Alarm</i> 3 <i>Bypass Alarm</i> 4 <i>T1 Alarm</i> 5 <i>T2 Alarm</i> 6 <i>T3 Alarm</i>

Register address	Specific Parameter Name	Type	R/W	Max	Min	Def	Description
							7 <i>T4 Alarm</i> 8 <i>T5 Alarm</i> 9 <i>RH Alarm</i> 10 <i>Outdoor13 Alarm</i> 11 <i>Supply5 Alarm</i> 12 <i>Fire Alarm</i> 13 <i>Communication Alarm</i> 14 <i>FireTermostat Alarm</i> 15 <i>VOC Alarm</i> If system has a few Alarms, the parameter contains a Alarm with higher code
40555	prmFilterRemainingTime	UINT	Read	4294967295	0	180	Remaining time of the Filter Lifetime (Days)
40559	prmFilterReset	UINT	Write	1	0	0	Reset a using time of the Filter (prmRamIdxFilterTime(40167)) to 0 (1). Reset to 0 by MPCB.
40561	prmNightModeEnable	UINT	Write	1	0	0	Enable of the Night Mode (1 – enabled, 0 - disabled)
40563	prmPPM1Unit	UINT	Write	65535	0	600	Low Treshold of VOC (ppm), if VOC is less than parameter, then Fan speed should be set to 49% of the Reference Fan Speed, used for Demand Mode.
40565	prmPPM2Unit	UINT	Write	65535	0	900	Middle Treshold of VOC (ppm), if VOC is more than parameter, then Fan speed should be set to 100% of the Reference Fan Speed, used for Demand Mode.
40567	prmPPM3Unit	UINT	Write	65535	0	1200	High Treshold of VOC (ppm), if VOC is more than parameter, then Fan speed should be set to 130% of the Reference Fan Speed, used for Demand Mode.
40569	prmPPM1External	UINT	Write	65535	0	600	Low Treshold of CO2 (ppm), if CO2 is less than parameter, then Fan speed should be set to 49% of the Reference Fan Speed, used for Demand Mode.
40571	prmPPM2External	UINT	Write	65535	0	1300	Middle Treshold of CO2 (ppm), if CO2 is more than parameter, then Fan speed should be set to 100% of the Reference Fan Speed, used for Demand Mode.
40573	prmPPM3External	UINT	Write	65535	0	1800	High Treshold of CO2 (ppm), if CO2 is more than parameter, then Fan speed should be set to 130% of the Reference Fan Speed, used for Demand Mode.
40575	prmHACCO2Val	UINT	Read	65535	0	0	HAC1 CO2 Level (ppm)
40625	prmWorkTime	UINT	Read	4294967295	0	0	Work time of system, in hour

