

# **Moduł komunikacji Modbus HRQ-Modbus**

USER'S MANUAL

# **Modbus communication module HRQ-Modbus**



### 1. Wprowadzenie

Ten dokument zawiera protokół komunikacyjny Modbus, który jest wykorzystywany w przypadku wszystkich urządzeń serii HRU-PremAIR, HRU-MinistAIR, HRU-SlimAIR, HRU-FlatAIR.

### 2. Właściwości

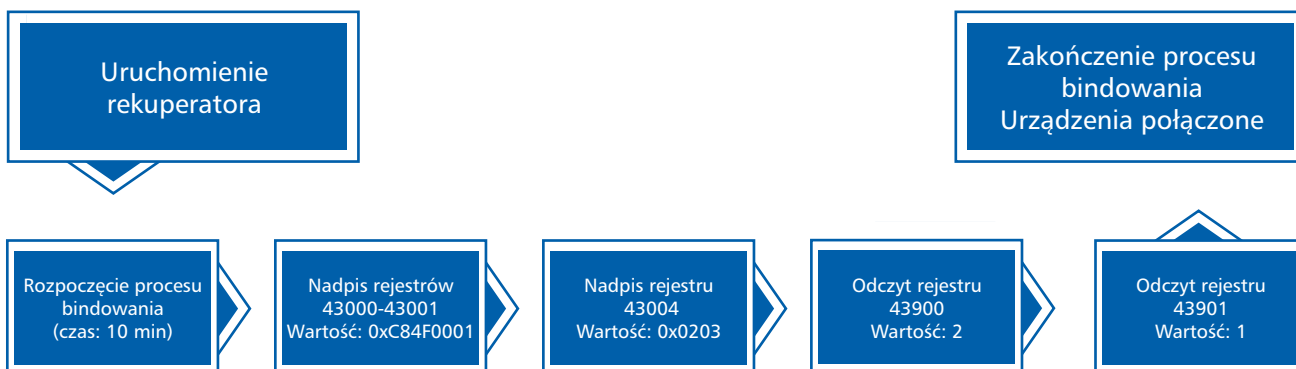
Układ sterujący wykorzystuje protokół Modbus RTU z użyciem standardu transmisji danych RS485. Moduł komunikacyjny pracuje jako urządzenie podporządkowane (Slave), a informacje mogą być pobierane z modułu głównego (Master).

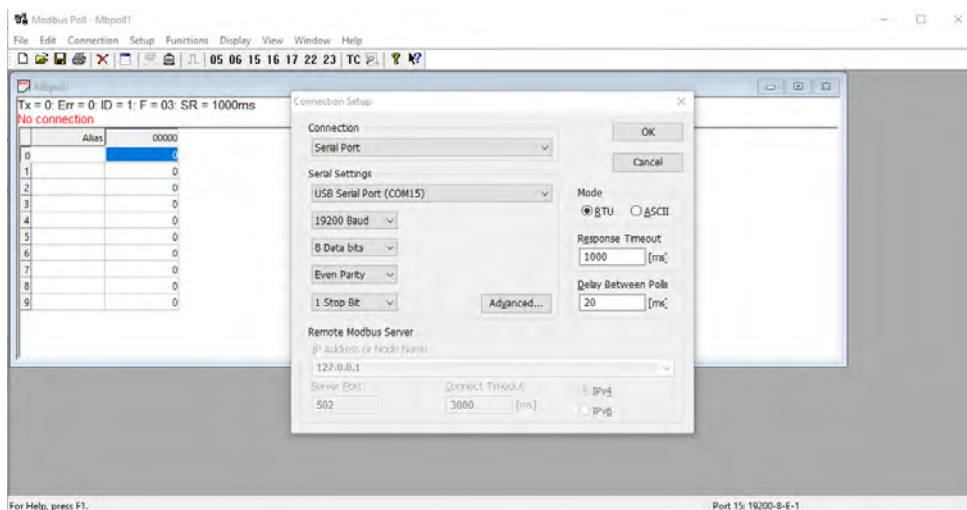
Informacje dotyczące połączenia centrali są podane poniżej:

Typ połączenia:	Modbus RTU Slave
Standardowy adres:	2
Adres do parowania:	207
Szybkość transmisji:	19200
Linia przesyłowa:	EVEN
Bitów danych:	8
Bit stopu:	1

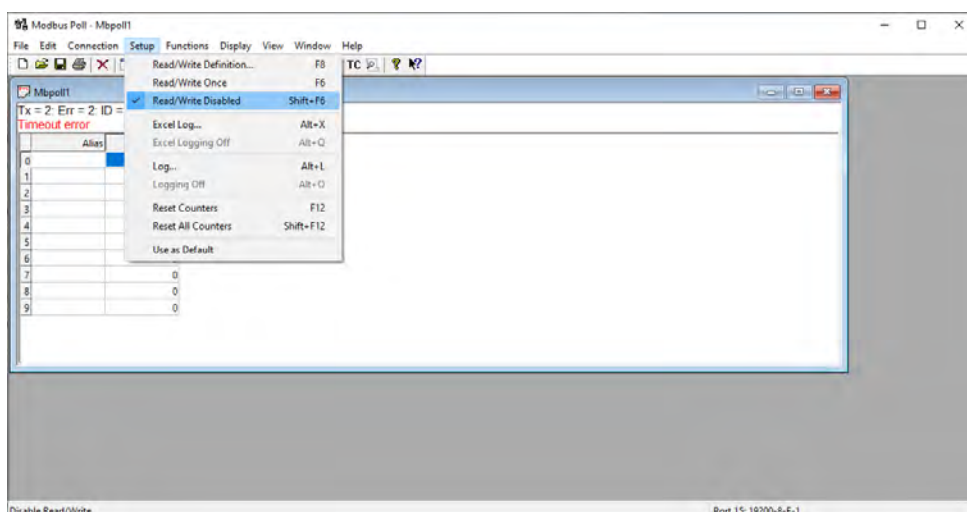
### 3. Opis parowania

Wszystkie zmiany oraz odczyty rejestrów wykonujemy przy wykorzystaniu adresu 207. Aby sparować moduł komunikacyjny BRDG-02R13 należy wprowadzić rekuperator w tryb bindowania. Aby tego dokonać należy wyłączyć zasilanie rekuperatora, i ponownie włączyć. Przez 10 minut będzie się znajdował w trybie bindowania. W tym czasie należy wykonać następujące kroki:

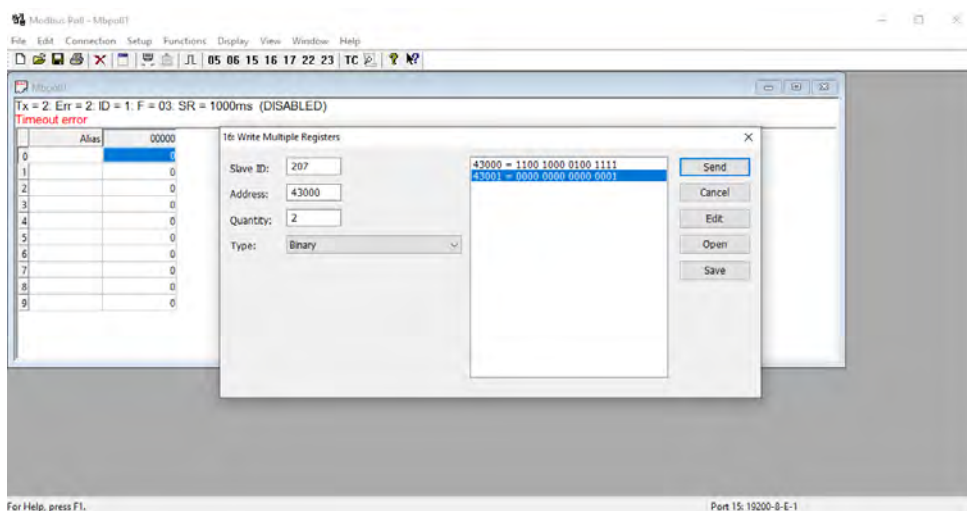




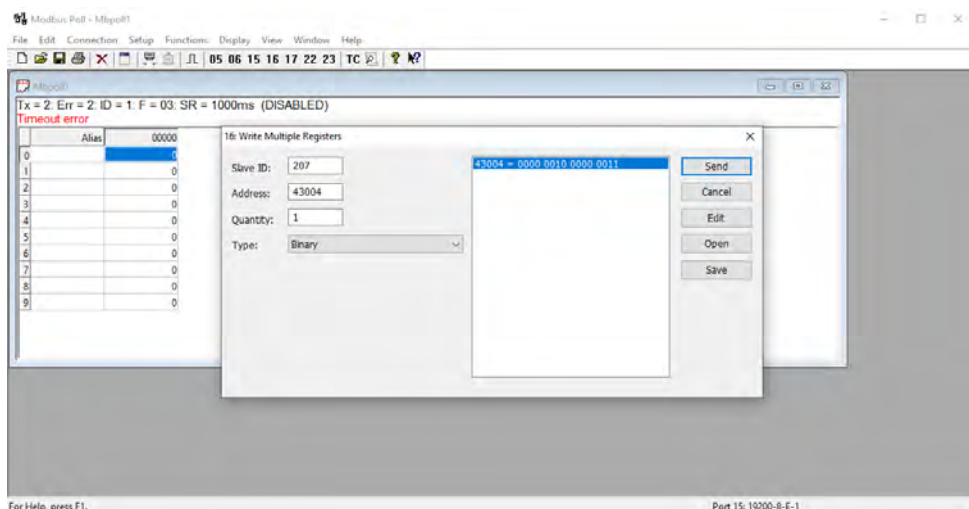
Zdjęcie 1. Podłączenie rekuperatora



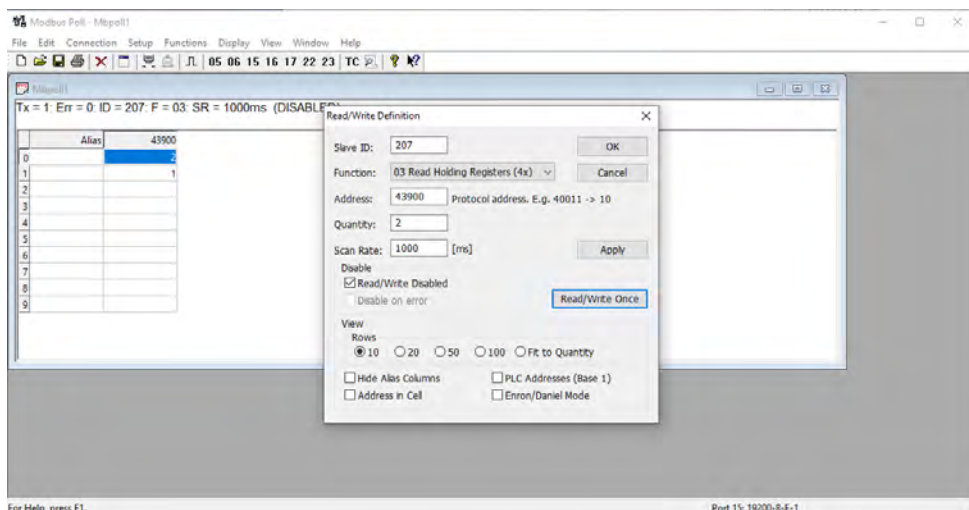
Zdjęcie 2. Wyłączenie rejestru pdczytywania



Zdjęcie 3. Wpisanie wartości 0xC84F0001 do rejestru 43000 oraz 43001



Zdjęcie 4. Wpisanie wartości 0x0203 do rejestru 43004



Zdjęcie 5. Odczyt rejestru

Dla podanych rejestrów wartości powinny wynosić:

- 43900 - 2
- 43901 - 1

**Ważne!**

Po prawidłowo wykonanym pierwszym parowaniu, należy wyłączyć zasilanie rekuperatora, uruchomić go ponownie i poczekać na odczyt danych. Wraz z uruchomieniem się wentylatorów dane powinny zostać odczytane.

Przy każdym kolejnym resecie rekuperatora dane będą odczytywane automatycznie.

**HRQ-MODBUS****3.1. Parowanie z obcymi urządzeniami sterującymi**

W przypadku konieczności dostosowania połączenia bramki (Slave) do modułu głównego (Master) istnieją odpowiednie ustawienia do zmiany. Opcje te dostępne są pod adresem do parowania.

Dostępne do zmiany opcje:

<i>Adres parowania (42001)</i>	
<b>Wartość</b>	<b>Transmisja</b>
100-207 (domyślne 207)	RS485
1	Inne

<i>Prędkość transmisji (42000)</i>	
<b>Wartość</b>	<b>Szybkość transmisji</b>
0	300
1	600
2	1200
3	2400
4	4800
5	9600
6	19200 (domyślne)
7	38400
8	57600
9	115200

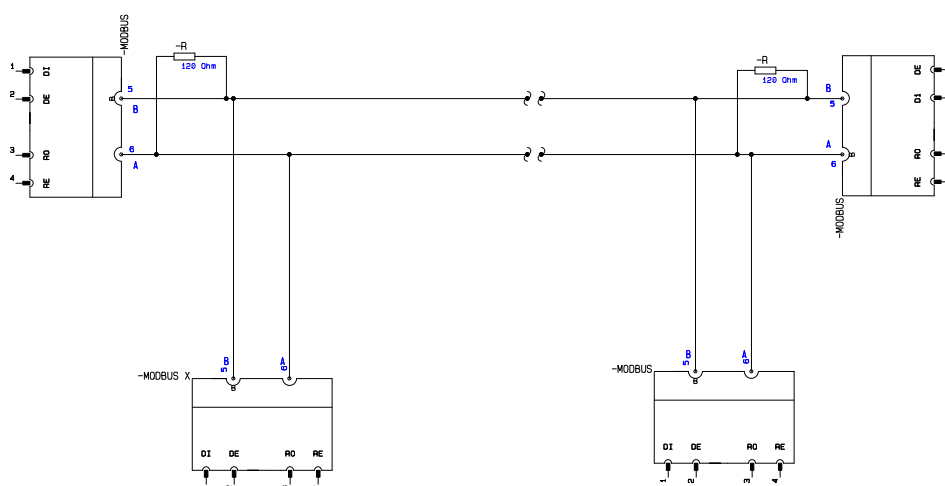
<i>Bit parowania (41998)</i>	
<b>Wartość</b>	<b>Linia przesyłowa</b>
0	None
1	Odd
2	Even (domyślne)

<i>Bit stopu (41999)</i>	
<b>Wartość</b>	<b>Bity stopu</b>
0	1 (domyślne)
1	2

#### 4. Połączenie fizyczne

Poniżej pokazana jest sieć komunikacyjna. Płyta sterująca może być podłączona do RS485, do którego podłączone jest więcej niż jedno urządzenie. Konflikty adresów na tej linii powinny być eliminowane i powinny być dokonywane konieczne ustawienia oprogramowania w celu zapewnienia komunikacji danych.

Jeżeli linia jest zbyt długa, lub jeżeli występuje jakikolwiek problem komunikacyjny, na początku i na końcu linii należy zamontować rezystor 120Ω w sposób pokazany na schemacie.



Zdjęcie 6. Schemat montażu rezystorów

#### 5. Funkcja Modbus

Pakiet komunikacyjny jest taki sam dla każdej funkcji. Najpierw, w pakiecie przesyłana jest informacja dotycząca adresu właściwego modułu. Po dodaniu typu informacji, przesyłany jest kod CRC, który jest kodem uszkodzenia oceniającym dokładność pakietu.

Płyta sterująca obsługuje dwie ze standardowych funkcji Modbus. Tymi kodami są odczyt rejestru 03 oraz zapis rejestru 16.

<i>Transfer danych urządzenia głównego</i>	
Informacja adres	Kod funkcji
0x02	0x03
<i>Odpowiedź tablicy płyty sterującej</i>	
Informacja adresu	Kod funkcji
0x02	0x03

Tabela 1. Przykład pakietu transferu danych funkcji 03

<i>Transfer danych urządzenia głównego</i>	
Informacja adres	Kod funkcji
0x02	0x16

<i>Odpowiedź tablicy płyty sterującej</i>	
Informacja adresu	Kod funkcji
0x02	0x03

Tabela 2. Przykład pakietu transferu danych funkcji 16

## 6. Lista rejestrów Modbus

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
40002	R-	<b>Product Type + Sub ID + Manufacturer ID</b>	-	UINT32	Yes
40003		0001C84Fh			
40005	R-	<b>OEM number</b> 6Ah	-	UINT8	Yes
40011- 40020	R-	<b>String to identify the product</b> VMD-02RPS54	-	STRING	Yes
40101	R-	RF Communication status 0 = No Error 1 = Error ( no communication for at least 30 minutes)	- -	UINT16 UINT16	Yes Yes
40102	R-	<b>Battery Status</b> FFFFh (no battery)			
40103	R-	<b>Fault status</b> 0 = Fan ok 1 = Fan failure	-	UINT16	Yes
41000	R-	Actual Ventilation speed 0 = OFF 1 = Speed 1, low 2 = Speed 2, medium 3 = Speed 3, high 11 = Speed 1 temporary override, timer 12 = Speed 2 temporary override, timer 13 = Speed 3 temporary override, timer 22 = Absolute minimum speed, away 23 = Absolute maximum speed, boost 24 = Auto mode		UINT8	Yes
41001	R-	<b>Actual Exhaust Fan speed</b> 0 = Off <b>200 = Highest speed</b> FFh = Not available	%	UINT8	Yes

**HRQ-MODBUS**

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
41002	R-	<b>Actual Inlet Fan speed</b> 0 = Off 200 = Highest speed FFh = Not available	%	UINT8	Yes
41003	R-	<b>Error Code</b> 0 No fault <b>1 Nonspecific fault</b> 2 Emergency stop <b>3 Fan 1 supply error</b> 4 X22 sensor error 5 X23 sensor error 6 X21 sensor error 7 X20 sensor error 8 Fan 2 error 254 Binding mode active 255 Device identification active <i>Note: Not implemented in VMD yet</i>	-	UINT8	Yes
41004	R-	<b>Remaining Time Temporary override</b> Note: this value is only valid when the actual Ventilation speed equals 11, 12, or 13	Min	UINT16	Yes
41005- 41006	R- R-	<b>Indoor Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41007- 41008	R- R-	<b>Outdoor Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41009- 41010	R- R-	<b>Exhaust Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41011- 41012	R- R-	<b>Supply Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41013	R-	<b>Preheater</b> 0% = Preheater off 100% = Pre heater maximum	%	UINT8	Yes
41014	R-	<b>Filter Dirty</b> 0 = Filter OK 1 = Filter dirty	-	UINT8	Yes
41015	R-	<b>Defrost</b> 0 = Defrost inactive 1 = Defrost active	-	UINT8	Yes
41016	R-	<b>Bypass position</b> 0% = closed 100% = Open <i>Note: Values above 120% indicates an error</i>			



**HRQ-MODBUS**

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
41500	RW	<b>Requested system ventilation speed</b> 0 = OFF 1 = Absolute minimum speed, away 2 = Speed 1, low 3 = Speed 2, nominal 4 = Speed 3, high 5 = Auto mode 7 = Absolute maximum speed, boost <i>Note: the value returned by reading is the BRDG internal value and not the value from the fan.</i>	-	UINT8	Yes
41501	-W	<b>Override Time speed 1</b> When this value is written the fan automatically switches over to Speed 1 Temporary override mode. <i>Note: maximum allowed amount of hours is 18</i>	%	UINT8	Yes
41502	-W	<b>Override Time speed 2</b> When this value is written the fan automatically switches over to Speed 2 Temporary override mode. <i>Note: maximum allowed amount of hours is 18</i>	Min	UINT16	No
41503	-W	<b>Override Time speed 3</b> When this value is written the fan automatically switches over to Speed 3 Temporary override mode <i>Note: maximum allowed amount of hours is 18</i>	Min	UINT16	No
42000	-W	<b>Reset Air Filter Timer</b> Value 0 resets filter timer	-	UINT8	No
42001	R-	<b>Indoor Humidity</b> EFh = not available F0h = shorted sensor F1h = open sensor F2h = not available error F3h = out of range high F4h = out of range low F5h = not reliable F6h-FEh = reserved error FFh = non-specified error	%	UINT8	No
42002	RW	<b>Standby speed supply</b> Min : 0 % Max : 40 % Note: Setting Tag 61	%	UINT8	Yes
42003	RW	<b>Low speed supply</b> Min : 0 % Max : 80 % Note: Setting Tag 63	%	UINT8	Yes
42004	RW	<b>Low speed exhaust</b> Min : 0 % Max : 80 % Note: Setting Tag 64	%	UINT8	Yes
42005	RW	<b>Medium speed supply</b> Min : 0 % Max : 100 % Note: Setting Tag 65	%	UINT8	Yes

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Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
42006	RW	<b>Medium speed exhaust</b> Min : 10 % Max : 100 % Note: Setting Tag 66	%	UINT8	Yes
42007	RW	<b>High speed supply</b> Min : 0 % Max : 100 % Note: Setting Tag 67	%	UINT8	Yes
42008	RW	<b>High speed exhaust</b> Min : 10% Max : 100 % Note: Setting Tag 68	%	UINT8	Yes
42009 42010	RW	<b>Frost protection pre-heater setpoint</b> Min : -20 °C Max : 50 °C Note: Setting Tag 39	°C	FLOAT	Yes
42011 42012	RW	<b>Room temperature heating setpoint</b> Min : 0 °C Max : 30 °C Note: Setting Tag 117	°C	FLOAT	Yes
42013 42014	RW	<b>Room temperature heating setpoint</b> Min : 0 °C Max : 30 °C Note: Setting Tag 117	°C	FLOAT	Yes
42015 42016	RW	<b>Room temperature cooling offset</b> Min : 1 K Max : 10 K Note: Setting Tag 132	K	FLOAT	Yes
42017	RW	<b>Post heater/cooler Supply heating setpoint only VMD-02RPS66 and VMD-02RPS78</b> Min : -20 °C Max : 50 °C Note: Setting Tag 171	°C	SINT8	Yes
42018	RW	<b>Post heater/cooler Supply cooling offset only VMD-02RPS66 and VMD-02RPS78</b> Min : 0 K Max: 10 K Note: Setting Tag 174	K	UINT8	Yes
42019	RW	<b>Maximum Constant Pressure only VMD-02RPS66 and VMD-02RPS78</b> Min : 0 Pa Max : 500 Pa Note: Setting tag 218	Pa	UINT16	Yes
42020	RW	<b>Fireplace Demand Duration</b> Min: 0 Sec Max: 60000 Sec Note: Setting tag 238	Sec	UINT16	Yes

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RF Node Registers (Time schedule) only VMD-02RPS66 and VMD-02RPS78

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
49000	RW*	<b>Operation</b> 0 = Read a time schedule switch point 1 = Change a time schedule switch point	-	UINT8	
49001	R-	<b>Time schedule Operation Status</b> Current status of the time schedule action 0 = No action has been performed yet 1 = Configuration of time schedule is modified (A write on register "Operation (49000)" is needed to update the target) 2 = Configuring the time schedule on the target is ongoing 3 = Configuring the time schedule on the target is finished <i>Note: (check register 49002 to see if the change in the time schedule was accepted by the product)</i> 4 = RF communication problem	-	UINT8	
49002	R-	<b>Status</b> 0 = Okay 1 = Not okay This indicates that product accept the new command. <i>Note: In case of a read not okay could indicate you read beyond the actual used number of switch points.</i>	-	UINT8	
49010	R-	<b>Number Of Switch Points</b>	-	UINT16	
49011	RW	<b>Index Switch Point</b>	-	UINT16	
49012	RW	<b>Day Of Week</b> 0 = Monday 1 = Tuesday 2 = Wednesday 3 = Thursday 4 = Friday 5 = Saturday 6 = Sunday 9Fh = Monday, Tuesday, Wednesday, Thursday, Friday E0h = Saturday, Sunday FFh = All days	-	UINT8	
49013	RW	<b>Hour</b>	h	UINT8	
49014	RW	<b>Minutes</b>	min	UINT8	
49015	RW	<b>Switch Point Control Mode</b> 1 = Off 2 = Auto 3 = Holiday, low, middle, high, boost	-	UINT8	
49016	RW	<b>Switch Point Auto RH</b> 0 = RH control enabled 1 = No RH control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49017	RW	<b>Switch Point Auto CO<sub>2</sub></b> 0 = CO2 control enabled 1 = No CO2 control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49018	RW	<b>Switch Point Auto VOC</b> 0 = VOC control enabled 1 = No VOC control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49019	RW	<b>Switch Point Auto Temperature</b> 0 = Temperature control enabled 1 = No temperature control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	

**HRQ-MODBUS**

RF Node Registers (Time schedule) only VMD-02RPS66 and VMD-02RPS78					
Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
49020	RW	<b>Switch Point Continuous</b> 221 = Holiday 227 = Boost 228 = Low 229 = Middle 230 = High <i>Note: (this register is only considered when register 49015 is set to "Holiday, low, middle, high, boost")</i>	-	UINT8	
49050	R-	<b>Time schedule active</b> 0 – Time schedule is not active 1 – Time schedule is active 2 – Time schedule is active, but is changing the time schedule <i>Note: A read on this register starts a RF query to the device. Read again to read the last received value.</i>	-	UINT8	Yes
49051	R-	<b>Time schedule available</b> 0 – Time schedule not available 1 – Time schedule is available <i>Note: A read on this register starts a RF query to the device. Read again to read the last received value.</i>	-	UINT8	Yes
49052	R-	<b>UI schedule type</b> 1 = 24h (Every day the same) 2 = 5-2 (Mo-Fr, Sa-Su) 3 = 7 day	-	UINT8	Yes
49053	R-	<b>Switch Points Per Day</b> 0 = No Fixed number of switched points per day 1 until 15	-	UINT8	Yes
49054	R-	<b>Available UI schedule type</b> bit 1: 24h (Every day the same) bit 2: 5-2 (Mo-Fr, Sa-Su) bit 3: 7 day	-	UINT8	Yes
49055	R-	<b>Max Switch Points Per Day</b> A number between 1 - 15	-	UINT8	Yes
49056	R-	<b>UI</b> 0 = not available to display 1 = Time schedule read only 2 = Time schedule read and write possible	-	UINT8	Yes
49055	R-	<b>Max Switch Points Per Day</b> A number between 1 - 15	-	UINT8	Yes
49056	R-	<b>UI</b> 0 = not available to display 1 = Time schedule read only 2 = Time schedule read and write possible	-	UINT8	Yes
49057	R-	<b>Max Number Of Switch Points</b> Total available switch points	-	UINT8	Yes
49060	RW*	<b>Activate time schedule</b> Write this register to (re-)activate or deactivate the time schedule 0 = Deactivates the time schedule 1 = Activate the time schedule (this also ends temporary override) 2 = Set time schedule in edit mode	-	UINT8	Yes
49061	RW*	<b>UI schedule type</b> 1 = 24h (Every day the same) 2 = 5-2 (Mo-Fr, Sa-Su) 3 = 7 day	-	UINT8	
49062	RW*	<b>Switch Points Per Day</b> Value between 1 (default) till 6	-	UINT8	

\*) Reading these registers return the last written value

# HRQ-MODBUS

## 1. Introduction

This document contains the Modbus communication protocol which is used for all HRU-PremAIR, MinistAIR, SlimAIR and FlatAIR series devices.

## 2. Properties

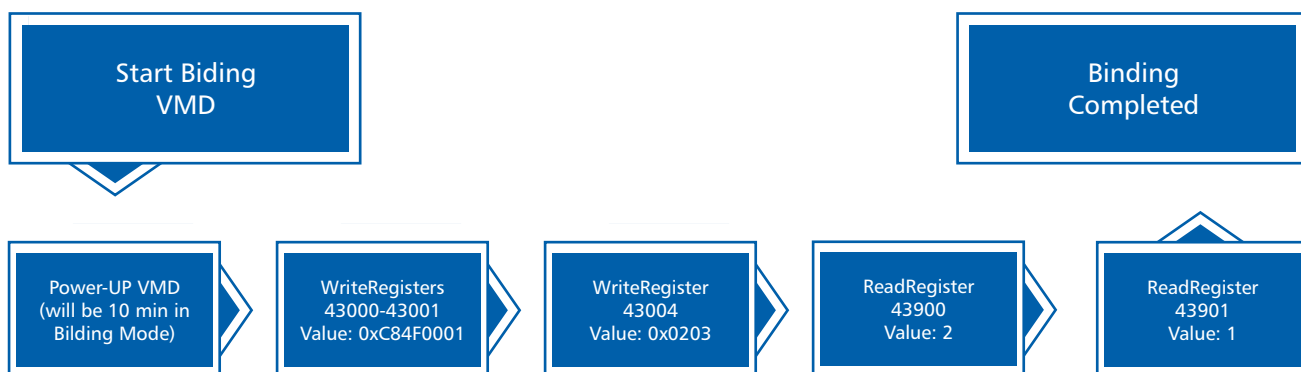
The control system uses the RTU Modbus protocol using the RS485 data transmission standard. The communication module operates as a slave, and information can be collected from the main module (master).

Information concerning the control panel connection is given below:

Connection type:	Modbus RTU Slave
Standard address:	2
Address for pairing:	207
Transfer rate:	19200
Transfer line:	EVEN
Data bits:	8
Stop bit:	1

## 3. Pairing description

All register changes and readouts are made using address 207. In order to pair the BRDG-02R13 communication module, the recuperator should be switched to the binding mode. To do that, the recuperator should be powered off and on again, and it will be in the binding mode for 10 minutes. The following steps should be taken during that period:



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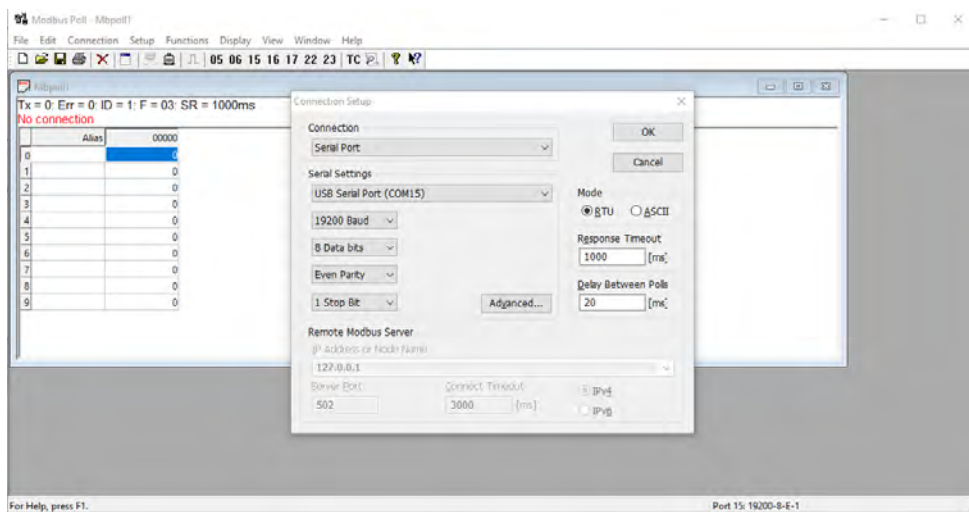


Photo 1. Connection with the unit

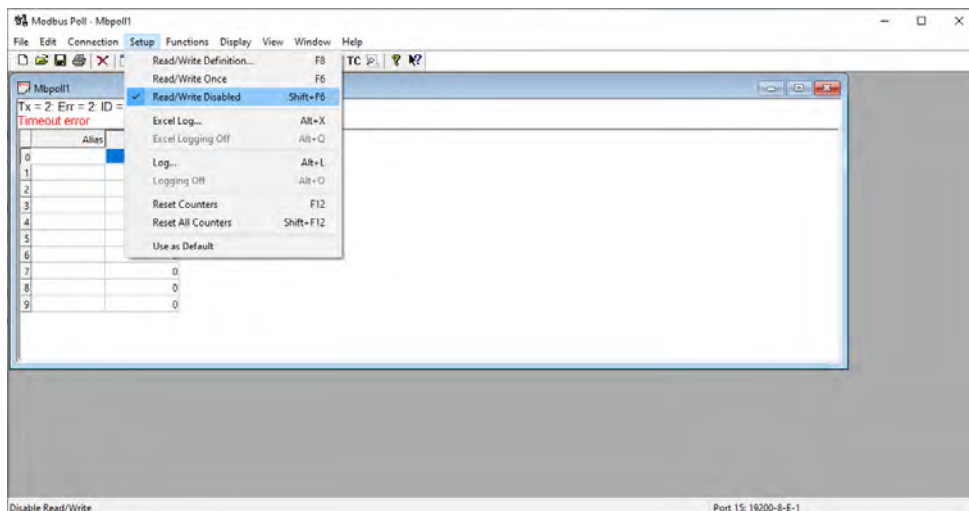


Photo 2. Disabling the read-out register

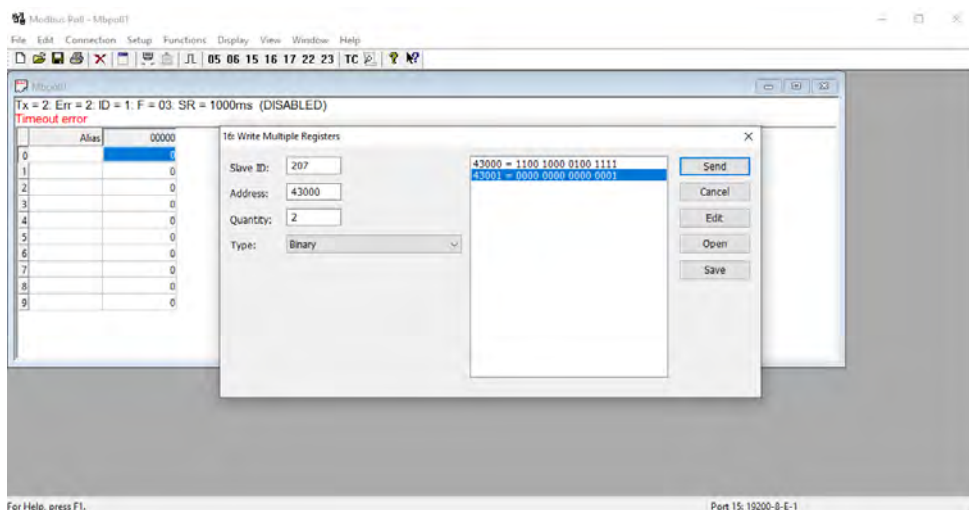


Photo 3. Entering value OXC84F0001 into registers 43000 and 43001

# HRQ-MODBUS

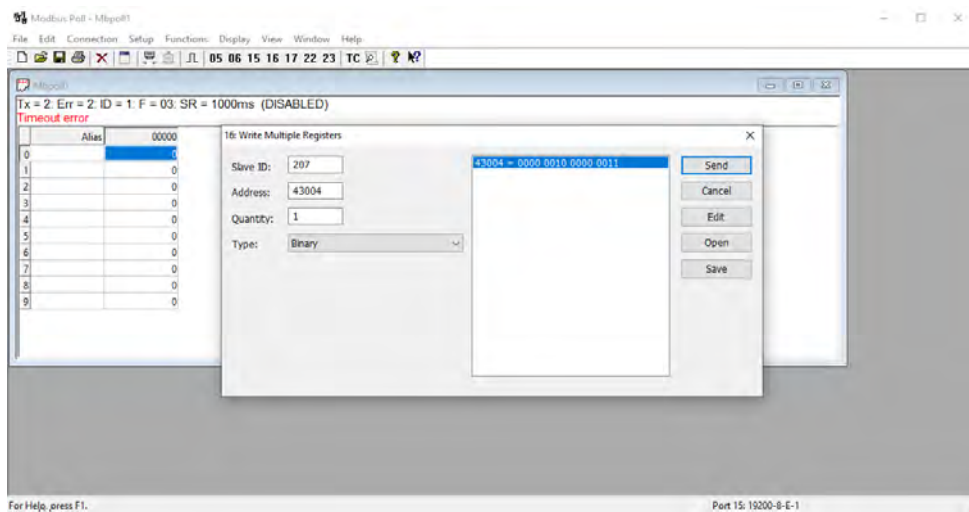


Photo 4. Entering value 0X0203 into register 430044

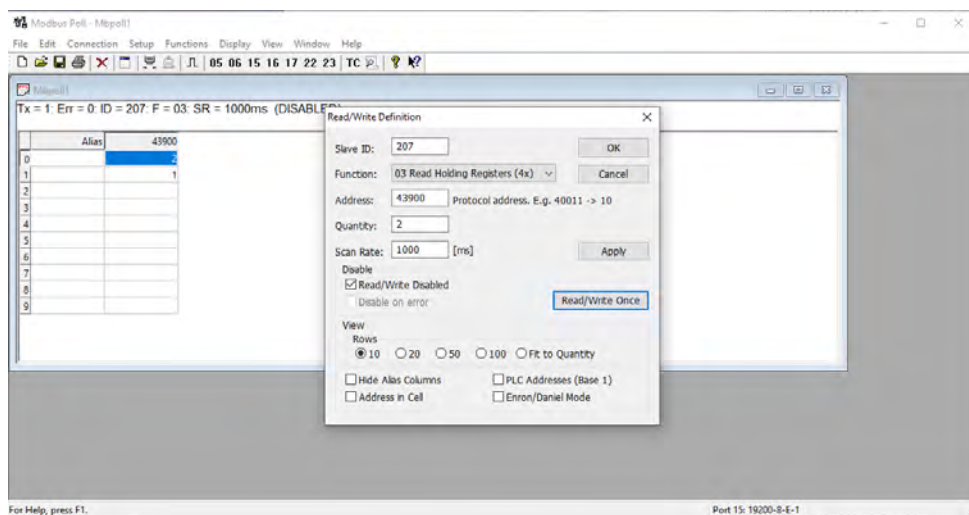


Photo 5. Register readout

For the given registers, the values should be:

- 43900 - 2
- 43901 - 1

**Important!**

After the first pairing made correctly, power off the recuperator, restart it and wait for the data readout. The data should be read out when the fans start up.

Each time the recuperator resets, the data will be read automatically.

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## 3.1. Pairing with foreign control devices

If you need to adjust the connection of the gateway (Slave) to the master module (Master), there are appropriate settings to change. These options are available at the address for pairing.

Options available to change:

<i>Address for pairing (42001)</i>	
Value	Transmission
100-207 (default 207)	RS485
1	Other

<i>Baud rate (42000)</i>	
Value	Rate
0	300
1	600
2	1200
3	2400
4	4800
5	9600
6	19200 (default)
7	38400
8	57600
9	115200

<i>Parity bit (41998)</i>	
Value	Transfer line
0	None
1	Odd
2	Even (default)

<i>Stop bits (41999)</i>	
Value	Stop bit
0	1 (default)
1	2



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## 4. Physical connection

The communication network is shown below. The control board may be connected to RS485 to which more than one device is connected. Address conflicts on this line should be eliminated and necessary software settings should be made in order to ensure data communication.

If the line is too long or if there is any communication problem, install a 120 Ω resistor on both ends of the line, as shown in the diagram.

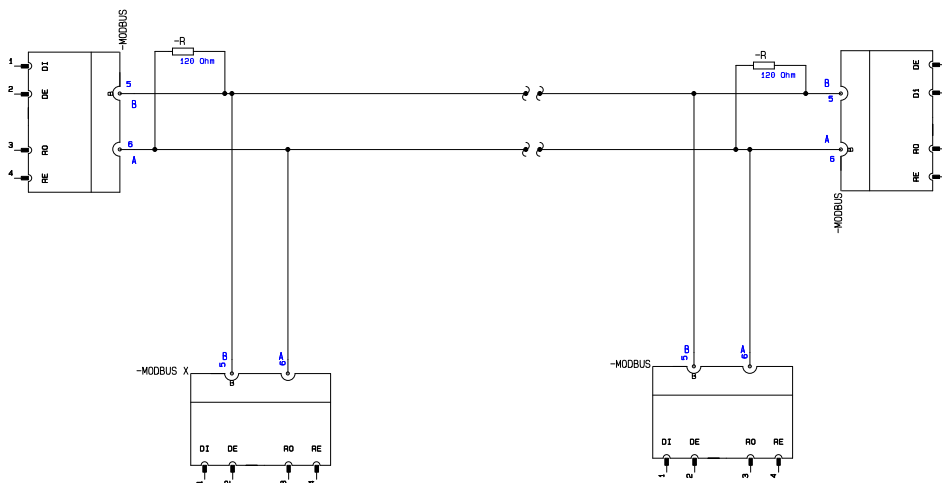


Photo 6. Resistor installation diagram

## 5. Modbus function

The communication package is the same for each function. First, information concerning the address of the relevant module is sent in the package. After adding the information type, the CRC code is sent, being a failure code evaluating the package accuracy.

The control board handles two of the standard Modbus functions. Those codes are: 03 register readout and 16 register write.

<i>Main device data transfer</i>	
Address information	Function code
0x02	0x03
<i>Control board response</i>	
Address information	Function code
0x02	0x03

Table 1. Sample 03 function data transfer package.

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<i>Main device data transfer</i>	
Address information	Function code
0x02	0x16

<i>Control board response</i>	
Address information	Function code
0x02	0x03

Table 2. Sample 16 function data transfer package.

## 6. Modbus register list

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
40002	R-	<b>Product Type + Sub ID + Manufacturer ID</b>	-	UINT32	Yes
40003		0001C84Fh			
40005	R-	<b>OEM number</b>	-	UINT8	Yes
		6Ah			
40011-	R-	<b>String to identify the product</b>	-	STRING	Yes
40020		VMD-02RPS54			
40101	R-	<b>RF Communication status</b>	-	UINT16	Yes
		0 = No Error			
		1 = Error ( no communication for at least 30 minutes)	-	UINT16	Yes
40102	R-	<b>Battery Status</b>			
		FFFFh (no battery)			
40103	R-	<b>Fault status</b>	-	UINT16	Yes
		0 = Fan ok			
		1 = Fan failure			
41000	R-	<b>Actual Ventilation speed</b>		UINT8	Yes
		0 = OFF			
		1 = Speed 1, low			
		2 = Speed 2, medium			
		3 = Speed 3, high			
		11 = Speed 1 temporary override, timer			
		12 = Speed 2 temporary override, timer			
		13 = Speed 3 temporary override, timer			
		22 = Absolute minimum speed, away			
		23 = Absolute maximum speed, boost			
		24 = Auto mode			
41001	R-	<b>Actual Exhaust Fan speed</b>	%	UINT8	Yes
		0 = Off			
		<b>200 = Highest speed</b>			
		FFh = Not available			

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Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
41002	R-	<b>Actual Inlet Fan speed</b> 0 = Off 200 = Highest speed FFh = Not available	%	UINT8	Yes
41003	R-	<b>Error Code</b> 0 No fault <b>1 Nonspecific fault</b> 2 Emergency stop <b>3 Fan 1 supply error</b> 4 X22 sensor error 5 X23 sensor error 6 X21 sensor error 7 X20 sensor error 8 Fan 2 error 254 Binding mode active 255 Device identification active <i>Note: Not implemented in VMD yet</i>	-	UINT8	Yes
41004	R-	<b>Remaining Time Temporary override</b> Note: this value is only valid when the actual Ventilation speed equals 11, 12, or 13	Min	UINT16	Yes
41005- 41006	R- R-	<b>Indoor Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41007- 41008	R- R-	<b>Outdoor Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41009- 41010	R- R-	<b>Exhaust Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41011- 41012	R- R-	<b>Supply Temperature</b> Value equals NAN when there is no known outdoor temperature available A value below -273°C indicates there is problem with the sensor	°C	FLOAT	Yes
41013	R-	<b>Preheater</b> 0% = Preheater off 100% = Pre heater maximum	%	UINT8	Yes
41014	R-	<b>Filter Dirty</b> 0 = Filter OK 1 = Filter dirty	-	UINT8	Yes
41015	R-	<b>Defrost</b> 0 = Defrost inactive 1 = Defrost active	-	UINT8	Yes
41016	R-	<b>Bypass position</b> 0% = closed 100% = Open <i>Note: Values above 120% indicates an error</i>			

**HRQ-MODBUS**

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
41500	RW	<b>Requested system ventilation speed</b> 0 = OFF 1 = Absolute minimum speed, away 2 = Speed 1, low 3 = Speed 2, nominal 4 = Speed 3, high 5 = Auto mode 7 = Absolute maximum speed, boost <i>Note: the value returned by reading is the BRDG internal value and not the value from the fan.</i>	-	UINT8	Yes
41501	-W	<b>Override Time speed 1</b> When this value is written the fan automatically switches over to Speed 1 Temporary override mode. <i>Note: maximum allowed amount of hours is 18</i>	%	UINT8	Yes
41502	-W	<b>Override Time speed 2</b> When this value is written the fan automatically switches over to Speed 2 Temporary override mode. <i>Note: maximum allowed amount of hours is 18</i>	Min	UINT16	No
41503	-W	<b>Override Time speed 3</b> When this value is written the fan automatically switches over to Speed 3 Temporary override mode <i>Note: maximum allowed amount of hours is 18</i>	Min	UINT16	No
42000	-W	<b>Reset Air Filter Timer</b> Value 0 resets filter timer	-	UINT8	No
42001	R-	<b>Indoor Humidity</b> EFh = not available F0h = shorted sensor F1h = open sensor F2h = not available error F3h = out of range high F4h = out of range low F5h = not reliable F6h-FEh = reserved error FFh = non-specified error	%	UINT8	No
42002	RW	<b>Standby speed supply</b> Min : 0 % Max : 40 % Note: Setting Tag 61	%	UINT8	Yes
42003	RW	<b>Low speed supply</b> Min : 0 % Max : 80 % Note: Setting Tag 63	%	UINT8	Yes
42004	RW	<b>Low speed exhaust</b> Min : 0 % Max : 80 % Note: Setting Tag 64	%	UINT8	Yes
42005	RW	<b>Medium speed supply</b> Min : 0 % Max : 100 % Note: Setting Tag 65	%	UINT8	Yes

# HRQ-MODBUS

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
42006	RW	<b>Medium speed exhaust</b> Min : 10 % Max : 100 % Note: Setting Tag 66	%	UINT8	Yes
42007	RW	<b>High speed supply</b> Min : 0 % Max : 100 % Note: Setting Tag 67	%	UINT8	Yes
42008	RW	<b>High speed exhaust</b> Min : 10% Max : 100 % Note: Setting Tag 68	%	UINT8	Yes
42009 42010	RW	<b>Frost protection pre-heater setpoint</b> Min : -20 °C Max : 50 °C Note: Setting Tag 39	°C	FLOAT	Yes
42011 42012	RW	<b>Room temperature heating setpoint</b> Min : 0 °C Max : 30 °C Note: Setting Tag 117	°C	FLOAT	Yes
42013 42014	RW	<b>Room temperature heating setpoint</b> Min : 0 °C Max : 30 °C Note: Setting Tag 117	°C	FLOAT	Yes
42015 42016	RW	<b>Room temperature cooling offset</b> Min : 1 K Max : 10 K Note: Setting Tag 132	K	FLOAT	Yes
42017	RW	<b>Post heater/cooler Supply heating setpoint only VMD-02RPS66 and VMD-02RPS78</b> Min : -20 °C Max : 50 °C Note: Setting Tag 171	°C	SINT8	Yes
42018	RW	<b>Post heater/cooler Supply cooling offset only VMD-02RPS66 and VMD-02RPS78</b> Min : 0 K Max: 10 K Note: Setting Tag 174	K	UINT8	Yes
42019	RW	<b>Maximum Constant Pressure only VMD-02RPS66 and VMD-02RPS78</b> Min : 0 Pa Max : 500 Pa Note: Setting tag 218	Pa	UINT16	Yes
42020	RW	<b>Fireplace Demand Duration</b> Min: 0 Sec Max: 60000 Sec Note: Setting tag 238	Sec	UINT16	Yes

# HRQ-MODBUS

RF Node Registers (Time schedule) only VMD-02RPS66 and VMD-02RPS78					
Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
49000	RW*	<b>Operation</b> 0 = Read a time schedule switch point 1 = Change a time schedule switch point	-	UINT8	
49001	R-	<b>Time schedule Operation Status</b> Current status of the time schedule action 0 = No action has been performed yet 1 = Configuration of time schedule is modified (A write on register "Operation (49000)" is needed to update the target) 2 = Configuring the time schedule on the target is ongoing 3 = Configuring the time schedule on the target is finished <i>Note: (check register 49002 to see if the change in the time schedule was accepted by the product)</i> 4 = RF communication problem	-	UINT8	
49002	R-	<b>Status</b> 0 = Okay 1 = Not okay This indicates that product accept the new command. <i>Note: In case of a read not okay could indicate you read beyond the actual used number of switch points.</i>	-	UINT8	
49010	R-	<b>Number Of Switch Points</b>	-	UINT16	
49011	RW	<b>Index Switch Point</b>	-	UINT16	
49012	RW	<b>Day Of Week</b> 0 = Monday 1 = Tuesday 2 = Wednesday 3 = Thursday 4 = Friday 5 = Saturday 6 = Sunday 9Fh = Monday, Tuesday, Wednesday, Thursday, Friday E0h = Saturday, Sunday FFh = All days	-	UINT8	
49013	RW	<b>Hour</b>	h	UINT8	
49014	RW	<b>Minutes</b>	min	UINT8	
49015	RW	<b>Switch Point Control Mode</b> 1 = Off 2 = Auto 3 = Holiday, low, middle, high, boost	-	UINT8	
49016	RW	<b>Switch Point Auto RH</b> 0 = RH control enabled 1 = No RH control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49017	RW	<b>Switch Point Auto CO<sub>2</sub></b> 0 = CO2 control enabled 1 = No CO2 control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49018	RW	<b>Switch Point Auto VOC</b> 0 = VOC control enabled 1 = No VOC control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	
49019	RW	<b>Switch Point Auto Temperature</b> 0 = Temperature control enabled 1 = No temperature control <i>Note: (this register is only considered when register 49015 is set to "Auto")</i>	-	UINT8	

# HRQ-MODBUS

RF Node Registers (Time schedule) only VMD-02RPS66 and VMD-02RPS78

Reg No.	Read Write	Function / Name value	Unit	Data Type	Cached
49020	RW	<b>Switch Point Continuous</b> 221 = Holiday 227 = Boost 228 = Low 229 = Middle 230 = High <i>Note: (this register is only considered when register 49015 is set to "Holiday, low, middle, high, boost")</i>	-	UINT8	
49050	R-	<b>Time schedule active</b> 0 – Time schedule is not active 1 – Time schedule is active 2 – Time schedule is active, but is changing the time schedule <i>Note: A read on this register starts a RF query to the device. Read again to read the last received value.</i>	-	UINT8	Yes
49051	R-	<b>Time schedule available</b> 0 – Time schedule not available 1 – Time schedule is available <i>Note: A read on this register starts a RF query to the device. Read again to read the last received value.</i>	-	UINT8	Yes
49052	R-	<b>UI schedule type</b> 1 = 24h (Every day the same) 2 = 5-2 (Mo-Fr, Sa-Su) 3 = 7 day	-	UINT8	Yes
49053	R-	<b>Switch Points Per Day</b> 0 = No Fixed number of switched points per day 1 until 15	-	UINT8	Yes
49054	R-	<b>Available UI schedule type</b> bit 1: 24h (Every day the same) bit 2: 5-2 (Mo-Fr, Sa-Su) bit 3: 7 day	-	UINT8	Yes
49055	R-	<b>Max Switch Points Per Day</b> A number between 1 - 15	-	UINT8	Yes
49056	R-	<b>UI</b> 0 = not available to display 1 = Time schedule read only 2 = Time schedule read and write possible	-	UINT8	Yes
49055	R-	<b>Max Switch Points Per Day</b> A number between 1 - 15	-	UINT8	Yes
49056	R-	<b>UI</b> 0 = not available to display 1 = Time schedule read only 2 = Time schedule read and write possible	-	UINT8	Yes
49057	R-	<b>Max Number Of Switch Points</b> Total available switch points	-	UINT8	Yes
49060	RW*	<b>Activate time schedule</b> Write this register to (re-)activate or deactivate the time schedule 0 = Deactivates the time schedule 1 = Activate the time schedule (this also ends temporary override) 2 = Set time schedule in edit mode	-	UINT8	Yes
49061	RW*	<b>UI schedule type</b> 1 = 24h (Every day the same) 2 = 5-2 (Mo-Fr, Sa-Su) 3 = 7 day	-	UINT8	
49062	RW*	<b>Switch Points Per Day</b> Value between 1 (default) till 6	-	UINT8	