

MODBUS communication protocol

- 1、Communication adopts RS485 bus, asynchronous serial signal 1 start bit, 8 data bits, 2 end bits, no parity check, baud rate 19200bps.
- 2、Comply with the standard MODBUS RTU protocol, 16-bit data structure, 16-bit CRC check low byte is in front of high byte.

3、The unit is determined from address #1 to address #8 according to the dial code 2-4.

- 4、The upper computer is the calling host, and the controller is the slave.

- 5、Master-slave communication uses three commands:

03H (Read holding registers(4x))

TX: [device address]+[command number03H] + [Starting register address high 8 bits] + [lower 8 bits] + [The upper 8 bits of the number of registers read] + [lower 8 bits] + [The lower 8 bits of the CRC check] + [The upper 8 bits of the CRC check]

RX: [device address] + [command number03H] + [number of bytes returned] + data1] + [data2] +...+ [data n] + [The lower 8 bits of the CRC check] + [The upper 8 bits of the CRC check]

06H (Write single register)

TX: [device address] + [command number06H] + [The upper 8 bits of the register address to be set] + [lower 8 bits] + [The upper 8 bits of the lower data] + [lower 8 bits] + [The lower 8 bits of the CRC check] + [The upper 8 bits of the CRC check]

RX: If the command sent by the computer is returned as it is, otherwise it will not respond

10H (Write multiple register)

TX: [device address] + [command number10H] + [Starting register address high 8 bits] + [lower 8 bits] + [The upper 8 bits of the number of registers] + [lower 8 bits] + [number of memory bytes] + [Data 1 high 8 bits] + [lower 8 bits] +.... + [data N high 8bits] + [lower 8 bits] + [The lower 8 bits of the CRC check] + [The upper 8 bits of the CRC check]

RX: [device address] + [command number10H] + [Starting register address high 8 bits] + [lower 8 bits] + [The upper 8 bits of the number of registers] + [lower 8 bits] + [The lower 8 bits of the CRC check] + [The upper 8 bits of the CRC check]

6、Modified parameters are on machine #1, and other units can only be queried.

Data add (R-only read, RW-read and write)

Data add	Instructions	Data range	Note
R 0x0000	Invalid		
R 0x0001	Invalid		
R 0x0002	Switching input symbol		bit 0 : A/C Linkage switch bit 1 : Linkage switch bit 2 : Heating linkage bit 3 : Cooling linkage bit 4 : Flow Switch bit 5 : High pressure switch bit 6 : Phase sequence detection bit 7 : Invalid
R 0x0003	Working status mark		bit 0 : hotwater demand bit 1 : Heating demand bit 2 : With or without heating bit 3 : With or without cooling bit 4 : Antilegionella on bit 5 : cooling demand bit 6 : Alarm downtime bit 7 : defrost
R 0x0004	Output symbol 1		bit 0 : Compressor bit 1 : Invalid bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Fan bit 6 : 4-way valve bit 7 : High or low fan speed:0-low 1-high

R 0x0005	Output symbol 2		bit 0 : Chassis heater bit 1 : Invalid bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Heating heater bit 6 : Three-way valve bit 7 : Hotwater heater
R 0x0006	Output symbol 3		bit 0 : A/C PUMP bit 1 : Crank heater bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Assistant solenoid valve bit 6 : Pump bit 7 : Invalid
R 0x0007	Failure symbol 1		bit 0 : Hotwater temp bit 1 : Ambi temp bit 2 : coil temp. bit 3 : Invalid bit 4 : Outlet temp. bit 5 : High pressure sensor failure bit 6 : Invalid bit 7 : Phase sequence
R 0x0008	Failure symbol 2		bit 0 : Water flow failure bit 1 : Invalid bit 2 : High protection of heating water outlet bit 3 : Invalid bit 4 : Invalid bit 5 : Invalid bit 6 : Invalid

			bit 7 : Invalid
R 0x0009	Failure symbol 3		bit 0 : Invalid bit 1 : Invalid bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Invalid bit 6 : Outlet gas temp. failure bit 7 : Invalid
R 0x000A	Failure symbol 4		bit 0 : Water inlet temp. failure bit 1 : Exhaust temperature is too high bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Low protection of cooling water outlet bit 6 : Inlet gas temp. failure bit 7 : Invalid
R 0x000B	Failure symbol 5		bit 0 : Low pressure protection bit 1 : High pressure protection bit 2 : Coil temperature is too high bit 3 : Invalid bit 4 : Invalid bit 5 : Invalid bit 6 : High pressure sensor failure bit 7 : Low pressure sensor failure
R 0x000C	Failure symbol 6		bit 0 : Invalid bit 1 : Invalid bit 2 : Invalid bit 3 : Invalid bit 4 : sec antifreeze bit 5 : one antifreeze

			bit 6 : Invalid bit 7 : Invalid
R 0x000D	Failure symbol 7		bit 0 : Invalid bit 1 : Ambient temperature is too low bit 2 : Invalid bit 3 : Invalid bit 4 : frequency conversion module is faulty bit 5 : 2# Dc fan failure bit 6 : 1# Dc fan failure bit 7 : Invalid
R 0x000E	Inlet temp.		n*0.1℃
R 0x000F	Hotwater temp.		n*0.1℃
R 0x0010	Invalid		
R 0x0011	Ambi temp.		n*0.5℃
R 0x0012	Outlet temp.		n*0.1℃
R 0x0013	Invalid		
R 0x0014	Invalid		
R 0x0015	Suct gas temp.		n*0.5℃
R 0x0016	Coil temp.		n*0.5℃
R 0x0017	Invalid		
R 0x0018	Invalid		
R 0x0019	Invalid		
R 0x001A	Invalid		
R 0x001B	Exhaust temp.		n*1℃
R 0x001C	EEV1 step.		
R 0x001D	EEV2 step.		
R 0x001E	Comp. frequency		
R 0x001F	Frequency conversion failure 1		
R 0x0020	Frequency conversion failure 2		
R 0x0021	DC bus voltage		

R 0x0022	Driving temp.		n*0.5℃
R 0x0023	Comp. current		
R 0x0024	Target frequency		
R 0x0025	Invalid		
R 0x0026	DC fan 1 speed		
R 0x0027	DC fan 2 speed		
R 0x0028	Evap. temp.		n*0.1℃
R 0x0029	Cond. temp.		n*0.1℃
R 0x002A	Frequency conversion fault 8 bits higher		If the values are 0xFF, corresponding faults are reported
R 0x002B	Frequency conversion failure 8 bits lower		
R 0x002C	Controller Version		
R 0x002D	Display Version		
R 0x002E	DC pump speed		
R 0x002F	Suct. press		n*0.1bar
R 0x0030	Disch. press		n*0.1bar
R 0x0031	DC fan target		
RW 0x0032	Parameter marker definition		bit 0 : 0-OFF, 1-ON(bit add:0x0320) bit 1 : MV mode: 0-Auto, 1- manu(bit add:0x0321) (A45) bit 2 : Manual frequency selection(bit add:0x0322) bit 3 : Invalid bit 4 : Invalid bit 5 : AV MODE: 0-Auto, 1- manu(bit add:0x0325) (B01) bit 6 : AV init outlet stp. (bit add:0x0326) (B93) bit 7 : Invalid
RW 0x0033	Control mark 1		bit 0 :Constant freq adj: 0-N0, 1-YES (bit add:0x0330) (R29)

			bit 1 : Pressure switch enable: 1-use, 0-Unuse (bit add:0x0331) (F01) bit 2 :AV cool enable: 0-use, 1-Unuse (bit add:0x0332) (B74) bit3 :AV control mode : 0 Enhan , 1- Exhau (bit add:0x0333) (B92) bit 4 : DCfan 1 enable: 0-Unuse, 1-use (bit add:0x0334) (D01) bit 5 : DCfan 2 enable: 0-Unuse, 1-use (bit add:0x0335) (D02) bit 6 : Parameters reset 0-Unuse , 1-use (bit add:0x0336) bit 7 : Failure reset 0-Unuse, 1-use (bit add:0x0337)
RW 0x0034	Control mark 2		bit 0 : antilegionella Enale 0-Unuse, 1-use (bit add:0x0340) bit 1 : Two/Three function 0-Unuse, 1-use (G01) (bit add:0x0341) bit 2 : Invalid bit 3 : Invalid bit 4 : Invalid bit 5 : Invalid bit 6 : Invalid bit 7 : Invalid
RW 0x0035	Timeband		bit0 : Timeband 1 Enale (bit add:0x0350) bit1 : Timeband 2 Enale (bit add:0x0351) bit2 : Timeband 3 Enale (bit add:0x0352)
RW 0x0036	P06 Unit mode	0 DHW 1 Heating 2 Cooling 3 Heating+DHW 4 Cooling+DHW	

RW 0x0037	H01 Defrost freq.	30-120HZ	
RW 0x0038	H08 Defros period 1	10MIN~120MIN	
RW 0x0039	H11 Defros period 2	10MIN~120MIN	
RW 0x003A	H14 Defros period 3	10MIN~120MIN	
RW 0x003B	H15 Comp total run	1-60	n*5min
RW 0x003C	H16 Comp continuous run	5MIN -90MIN	
RW 0x003D	H05 Defrost time	5-20MIN	
RW 0x003E	A01 MV preiod	20S~90S	
RW 0x003F	A14 MV heat initial 0	0~240	n*2P
RW 0x0040	A15 MV heat initial 1	0~240	n*2P
RW 0x0041	A16 MV heat initial 2	0~240	n*2P
RW 0x0042	A17 MV heat initial 3	0~240	n*2P
RW 0x0043	A18 MV heat initial 4	0~240	n*2P
RW 0x0044	A19 MV heat initial 5	0~240	n*2P
RW 0x0045	A20 MV heat initial 6	0~240	n*2P
RW 0x0046	A21 MV heat initial 7	0~240	n*2P
RW 0x0047	A22 MV cool initial 0	0~240	n*2P
RW 0x0048	A23 MV cool initial 1	0~240	n*2P
RW 0x0049	A24 MV cool initial 2	0~240	n*2P
RW 0x004A	A25 MV cool initial 3	0~240	n*2P
RW 0x004B	A26 MV water init. 0	0~240	n*2P
RW 0x004C	A27 MV water init. 1	0~240	n*2P
RW 0x004D	A28 MV water init. 2	0~240	n*2P
RW 0x004E	A29 MV water init. 3	0~240	n*2P
RW 0x004F	A30 MV water init. 4	0~240	n*2P
RW 0x0050	A31 MV water init. 5	0~240	n*2P
RW 0x0051	A32 MV water init. 6	0~240	n*2P
RW 0x0052	A33 MV water init. 7	0~240	n*2P
RW 0x0053	A34 MV heat lower 0	0~240	n*2P
RW 0x0054	A34 MV heat lower 1	0~240	n*2P

RW 0x0055	A34 MV heat lower 2	0~240	n*2P
RW 0x0056	A34 MV heat lower 3	0~240	n*2P
RW 0x0057	A34 MV heat lower 4	0~240	n*2P
RW 0x0058	A34 MV heat lower 5	0~240	n*2P
RW 0x0059	A34 MV heat lower 6	0~240	n*2P
RW 0x005A	A34 MV heat lower 7	0~240	n*2P
RW 0x005B	A43 MV defrost open	0~240	n*2P
RW 0x005C	A44 MV water lower	25~75	n*2P
RW 0x005D	A46 MV manual open	10~225	n*2P
RW 0x005E	A47 MV SH ratio	1~6	
RW 0x005F	A48 MV SH diff.	1~180	
RW 0x0060	A50 MV comp. keep time	0~250S	n*2S
RW 0x0061	A51 MV def. keep time	0~250S	n*2S
RW 0x0062	B02 AV manual open	10~225	n*2P
RW 0x0063	B04 AV exhaust ratio	1~6	
RW 0x0064	B05 AV exhaust diff.	0~180	
RW 0x0065	B06 AV SH ratio	1~6	
RW 0x0066	B07 AV SH diff.	0~180	
RW 0x0067	B08 AV period	10~20S	
RW 0x0068	B19 AV heat initial 0	0~240	Outlet temp. ≤B93, n*2P
RW 0x0069	B20 AV heat initial 1	0~240	n*2P
RW 0x006A	Invalid		
RW 0x006B	Invalid		
RW 0x006C	Invalid		
RW 0x006D	Invalid		
RW 0x006E	Invalid		
RW 0x006F	Invalid		
RW 0x0070	B27 AV water initial 0	0~240	Outlet temp. ≤B93, n*2P
RW 0x0071	B28 AV water initial 1	0~240	n*2P
RW 0x0072	Invalid		

RW 0x0073	Invalid		
RW 0x0074	Invalid		
RW 0x0075	Invalid		
RW 0x0076	Invalid		
RW 0x0077	Invalid		
RW 0x0078	B35 AV heat lower 0	0~240	n*2P
RW 0x0079	B36 AV heat lower 1	0~240	n*2P
RW 0x007A	B37 AV heat lower 2	0~240	n*2P
RW 0x007B	B38 AV heat lower 3	0~240	n*2P
RW 0x007C	B39 AV heat lower 4	0~240	n*2P
RW 0x007D	B40 AV heat lower 5	0~240	n*2P
RW 0x007E	B41 AV heat lower 6	0~240	n*2P
RW 0x007F	B42 AV heat lower 7	0~240	n*2P
RW 0x0080	B43 AV defrost open	0~240	n*2P
RW 0x0081	B44 AV cool open	0~240	n*2P
RW 0x0082	F02 HP protect value	0-250	(n+250)*0.1bar
RW 0x0083	F03 HP recover value	0-250	(n+250)*0.1bar
RW 0x0084	F04 LP protect value	0-200	n*0.1bar
RW 0x0085	F05 LP recover value	0-200	n*0.1bar
RW 0x0086	D03 Cool dcfan max speed	0~100	n*10rpm
RW 0x0087	D04 Cool dcfan min speed	0~100	n*10rpm
RW 0x0088	D05 Cool dcfan high press	10-40	
RW 0x0089	D06 Cool dcfan open diff.	2-10	n*10bar
RW 0x008A	D07 Cool dcfan close diff.	2-10	n*10bar
RW 0x008B	D08 Cool dcfan init speed	0~100	n*10rpm
RW 0x008C	D09 Heat dcfan max speed	0~100	n*10rpm
RW 0x008D	D10 Heat dcfan min speed	0~100	n*10rpm
RW 0x008E	D11 Heat dcfan low press	5-15	n*10bar
RW 0x008F	D12 Heat dcfan open diff.	2-10	n*10bar
RW 0x0090	D13 Heat dcfan close diff.	2-10	n*10bar

RW 0x0091	D14 Heat DCfan init speed	0~100	n*10rpm
RW 0x0092	D15 DCfan adjust period	0-30	
RW 0x0093	D16 DCfan adjust speed 1	0~100	Speed difference \geq 200
RW 0x0094	D17 DCfan adjust speed 2	0~100	200>Speed difference \geq 100
RW 0x0095	D18 DCfan adjust speed 3	0~100	100>Speed difference \geq 50
RW 0x0096	D19 DCfan adjust speed 4	0~100	50>Speed difference \geq 20
RW 0x0097	D20 DCfan adjust speed 5	0~100	20>Speed difference \geq 5
RW 0x0098	B45 AV water lower 0	0~240	n*2P
RW 0x0099	B46 AV water lower 1	0~240	n*2P
RW 0x009A	B47 AV water lower 2	0~240	n*2P
RW 0x009B	B48 AV water lower 3	0~240	n*2P
RW 0x009C	B49 AV water lower 4	0~240	n*2P
RW 0x009D	B50 AV water lower 5	0~240	n*2P
RW 0x009E	B51 AV water lower 6	0~240	n*2P
RW 0x009F	B52 AV water lower 7	0~240	n*2P
RW 0x00A0	B53 AV heat exhaust 0	50~125℃	T \geq 14℃
RW 0x00A1	B54 AV heat exhaust 1	50~125℃	[9, 14)
RW 0x00A2	B55 AV heat exhaust 2	50~125℃	[4, 9)
RW 0x00A3	B56 AV heat exhaust 3	50~125℃	[-5, 4)
RW 0x00A4	B57 AV heat exhaust 4	50~125℃	[-10, -5)
RW 0x00A5	B58 AV heat exhaust 5	50~125℃	[-16, -10)
RW 0x00A6	B59 AV heat exhaust 6	50~125℃	[-23, -16)
RW 0x00A7	B60 AV heat exhaust 7	50~125℃	T<-23℃
RW 0x00A8	B61 AV water exh. 0	50~125℃	T \geq 14℃
RW 0x00A9	B62 AV water exh. 1	50~125℃	[9, 14)
RW 0x00AA	B63 AV water exh. 2	50~125℃	[4, 9)
RW 0x00AB	B64 AV water exh. 3	50~125℃	[-5, 4)
RW 0x00AC	B65 AV water exh. 4	50~125℃	[-10, -5)
RW 0x00AD	B66 AV water exh. 5	50~125℃	[-16, -10)
RW 0x00AE	B67 AV water exh. 6	50~125℃	[-23, -16)

RW 0x00AF	B68 AV water exh. 7	50~125℃	T<-23℃
RW 0x00B0	B69 AV cool exhaust 0	50~125℃	T≥38℃
RW 0x00B1	B70 AV cool exhaust 1	50~125℃	[30, 38)
RW 0x00B2	B71 AV cool exhaust 2	50~125℃	[25, 30)
RW 0x00B3	B72 AV cool exhaust 3	50~125℃	T<25℃
RW 0x00B4	B73 AV open delay	0~180S	
RW 0x00B5	B75 AV off exh diff	0~30	
RW 0x00B6	B76 AV heat exh diff 0	0~125℃	T≥14℃
RW 0x00B7	B77 AV heat exh diff 1	0~125℃	[9, 14)
RW 0x00B8	B78 AV heat exh diff 2	0~125℃	[4, 9)
RW 0x00B9	B79 AV heat exh diff 3	0~125℃	[-5, 4)
RW 0x00BA	B80 AV heat exh diff 4	0~125℃	[-10, -5)
RW 0x00BB	B81 AV heat exh diff 5	0~125℃	[-16, -10)
RW 0x00BC	B82 AV heat exh diff 6	0~125℃	[-23, -16)
RW 0x00BD	B83 AV heat exh diff 7	0~125℃	T<-23℃
RW 0x00BE	B84 AV water exh diff 0	0~125℃	T≥14℃
RW 0x00BF	B85 AV water exh diff 1	0~125℃	[9, 14)
RW 0x00C0	B86 AV water exh diff 2	0~125℃	[4, 9)
RW 0x00C1	B87 AV water exh diff 3	0~125℃	[-5, 4)
RW 0x00C2	B88 AV water exh diff 4	0~125℃	[-10, -5)
RW 0x00C3	B89 AV water exh diff 5	0~125℃	[-16, -10)
RW 0x00C4	B90 AV water exh diff 6	0~125℃	[-23, -16)
RW 0x00C5	B91 AV water exh diff 7	0~125℃	T<-23℃
RW 0x00C6	P03 Temp. diff	2℃~18℃	
RW 0x00C7	F39 AC constant temp diff	1~10℃	
RW 0x00C8	P05 Temp. diff	2℃~18℃	
RW 0x00C9	F40 WT constant temp diff	1~10℃	
RW 0x00CA	P04 Hotwater setp.	10~55	n*0.5℃ (Read only lower 8 bits)
RW 0x00CB	P02 Cooling setp	12~30	n*0.5℃ (Read only lower 8 bits)
RW 0x00CC	P01 Heating setp	10~55	n*0.5℃ (Read only lower 8 bits)

RW 0x00CD	F44 WT temp calibration	-30~30	
RW 0x00CE	F45 Inlet temp calibration	-30~30	
RW 0x00CF	F46 Outlet temp calibration	-30~30	
RW 0x00D0	F49 WT temp offset stp.	30~55	
RW 0x00D1	F50 Inlet temp offset stp.	30~55	
RW 0x00D2	F42 Water temp offset	0~50	
RW 0x00D3	F43 Inlet temp offset	0~50	
RW 0x00D4	H03 Defrost in stp.	-15℃~-1℃	
RW 0x00D5	H04 Defrost exit stp.	1℃~40℃	
RW 0x00D6	H07 Def ambi coil 1	0℃~30℃	
RW 0x00D7	H10 Def ambi coil 2	0℃~30℃	
RW 0x00D8	H13 Def ambi coil 3	0℃~30℃	
RW 0x00D9	H09 Defrost ambi stp.1	-30℃~30℃	
RW 0x00DA	H12 Defrost ambi stp.2	-30℃~30℃	
RW 0x00DB	H04 Defrost ambi stp	-30℃~30℃	
RW 0x00DC	A02 MV heating SH 1	-5℃~10℃	$T \geq 14^{\circ}\text{C}$
RW 0x00DD	A03 MV heating SH 2	-5℃~10℃	[9, 14)
RW 0x00DE	A04 MV heating SH 3	-5℃~10℃	[4, 9)
RW 0x00DF	A05 MV heating SH 4	-5℃~10℃	[-5, 4)
RW 0x00E0	A06 MV heating SH 5	-5℃~10℃	[-10, -5)
RW 0x00E1	A07 MV heating SH 6	-5℃~10℃	[-16, -10)
RW 0x00E2	A08 MV heating SH 7	-5℃~10℃	[-23, -16)
RW 0x00E3	A09 MV heating SH 8	-5℃~10℃	$T < -23^{\circ}\text{C}$
RW 0x00E4	A10 MV cooling SH 1	-5℃~10℃	$T \geq 38^{\circ}\text{C}$
RW 0x00E5	A11 MV cooling SH 2	-5℃~10℃	[30, 38)
RW 0x00E6	A12 MV cooling SH 3	-5℃~10℃	[25, 30)
RW 0x00E7	A13 MV cooling SH 4	-5℃~10℃	$T < 25^{\circ}\text{C}$
RW 0x00E8	A42 MV exhaust stp.	70℃~125℃	
RW 0x00E9	B03 AV start ambi	11℃~45℃	
RW 0x00EA	B09 AV exhaust stp.	70~120	

RW 0x00EB	B10 AV off exh stp.	40~70	
RW 0x00EC	B11 AV heating SH 1	-10~10	$T \geq 14^{\circ}\text{C}$
RW 0x00ED	B12 AV heating SH 2	-10~10	[9, 14)
RW 0x00EE	B13 AV heating SH 3	-10~10	[4, 9)
RW 0x00EF	B14 AV heating SH 4	-10~10	[-5, 4)
RW 0x00F0	B15 AV heating SH 5	-10~10	[-10, -5)
RW 0x00F1	B16 AV heating SH 6	-10~10	[-16, -10)
RW 0x00F2	B17 AV heating SH 7	-10~10	[-23, -16)
RW 0x00F3	B18 AV heating SH 8	-10~10	$T < -23^{\circ}\text{C}$
RW 0x00F4	D21 AC fan switch ambi.1	-10~50°C	
RW 0x00F5	D22 AC fan switch ambi.2	-10~50°C	
RW 0x00F6	R16 Exhaust high TP0	50~125°C	
RW 0x00F7	R17 Exhaust high TP1	50~125°C	
RW 0x00F8	R18 Exhaust high TP2	50~125°C	
RW 0x00F9	R19 Exhaust high TP3	50~125°C	
RW 0x00FA	R20 Exhaust high TP4	50~125°C	
RW 0x00FB	Manual frequency setting		
RW 0x00FC	Freq of water R00	30~120Hz	$T \geq 14^{\circ}\text{C}$
RW 0x00FD	Freq of water R01	30~120Hz	[9, 14)
RW 0x00FE	Freq of water R02	30~120Hz	[4, 9)
RW 0x00FF	Freq of water R03	30~120Hz	[-5, 4)
RW 0x0100	Freq of water R30	30~120Hz	[-10, -5)
RW 0x0101	Freq of water R31	30~120Hz	[-16, -10)
RW 0x0102	Freq of water R32	30~120Hz	[-23, -16)
RW 0x0103	Freq of water R33	30~120Hz	$T < -23^{\circ}\text{C}$
RW 0x0104	Freq of heat R04	30~120Hz	$T \geq 14^{\circ}\text{C}$
RW 0x0105	Freq of heat R05	30~120Hz	[9, 14)
RW 0x0106	Freq of heat R06	30~120Hz	[4, 9)
RW 0x0107	Freq of heat R07	30~120Hz	[-5, 4)
RW 0x0108	Freq of heat R08	30~120Hz	[-10, -5)

RW 0x0109	Freq of heat R09	30~120Hz	[-16, -10)
RW 0x010A	Freq of heat R10	30~120Hz	[-23, -16)
RW 0x010B	Freq of heat R11	30~120Hz	T<-23℃
RW 0x010C	Freq of cool R12	30~120Hz	T≥38℃
RW 0x010D	Freq of cool R13	30~120Hz	[30, 38)
RW 0x010E	Freq of cool R14	30~120Hz	[25, 30)
RW 0x010F	Freq of cool R15	30~120Hz	T<25℃
RW 0x0110	Freq adj lower limit R21	0~125Hz	
RW 0x0111	Freq adj lower limit R22	0~125Hz	
RW 0x0112	Freq adj lower limit R23	0~125Hz	
RW 0x0113	Freq adj lower limit R24	0~125Hz	
RW 0x0114	Freq adj lower upper R25	0~125Hz	
RW 0x0115	Freq adj lower upper R26	0~125Hz	
RW 0x0116	Freq adj lower upper R27	0~125Hz	
RW 0x0117	Freq adj lower upper R28	0~125Hz	
RW 0x0118			
RW 0x0119	Timeband 1 ON hour	0-23	
RW 0x011A	Timeband 1 ON minutes	0-59	
RW 0x011B	Timeband 1 OFF hour	0-23	
RW 0x011C	Timeband 1 OFF minutes	0-59	
RW 0x011D	Timeband 2 ON hour	0-23	
RW 0x011E	Timeband 2 ON minutes	0-59	
RW 0x011F	Timeband 2 OFF hour	0-23	
RW 0x0120	Timeband 2 OFF minutes	0-59	
RW 0x0121	Timeband 3 ON hour	0-23	
RW 0x0122	Timeband 3 ON minutes	0-59	
RW 0x0123	Timeband 3 OFF hour	0-23	
RW 0x0124	Timeband 3 OFF minutes	0-59	
RW 0x0125	Invalid		
RW 0x0126	Invalid		

RW 0x0127	Invalid		
RW 0x0128	Invalid		
RW 0x0129	Invalid		
RW 0x012A	Invalid		
RW 0x012B	Invalid		
RW 0x012C	Invalid		
RW 0x012D	ECO freq of water R34	30~120Hz	
RW 0x012E	ECO freq of water R35	30~120Hz	
RW 0x012F	ECO freq of water R36	30~120Hz	
RW 0x0130	ECO freq of water R37	30~120Hz	
RW 0x0131	ECO freq of water R38	30~120Hz	
RW 0x0132	ECO freq of water R39	30~120Hz	
RW 0x0133	ECO freq of water R40	30~120Hz	
RW 0x0134	ECO freq of water R41	30~120Hz	
RW 0x0135	ECO freq of heat R42	30~120Hz	
RW 0x0136	ECO freq of heat R43	30~120Hz	
RW 0x0137	ECO freq of heat R44	30~120Hz	
RW 0x0138	ECO freq of heat R45	30~120Hz	
RW 0x0139	ECO freq of heat R46	30~120Hz	
RW 0x013A	ECO freq of heat R47	30~120Hz	
RW 0x013B	ECO freq of heat R48	30~120Hz	
RW 0x013C	ECO freq of heat R49	30~120Hz	
RW 0x013D	ECO freq of cool R50	30~120Hz	
RW 0x013E	ECO freq of cool R51	30~120Hz	
RW 0x013F	ECO freq of cool R52	30~120Hz	
RW 0x0140	ECO freq of cool R53	30~120Hz	
RW 0x0141	Night freq of water R54	30~120Hz	
RW 0x0142	Night freq of water R55	30~120Hz	
RW 0x0143	Night freq of water R56	30~120Hz	
RW 0x0144	Night freq of water R57	30~120Hz	

RW 0x0145	Night freq of water R58	30~120Hz	
RW 0x0146	Night freq of water R59	30~120Hz	
RW 0x0147	Night freq of water R60	30~120Hz	
RW 0x0148	Night freq of water R61	30~120Hz	
RW 0x0149	Night freq of heat R62	30~120Hz	
RW 0x014A	Night freq of heat R63	30~120Hz	
RW 0x014B	Night freq of heat R64	30~120Hz	
RW 0x014C	Night freq of heat R65	30~120Hz	
RW 0x014D	Night freq of heat R66	30~120Hz	
RW 0x014E	Night freq of heat R67	30~120Hz	
RW 0x014F	Night freq of heat R68	30~120Hz	
RW 0x0150	Night freq of heat R69	30~120Hz	
RW 0x0151	Night freq of cool R70	30~120Hz	
RW 0x0152	Night freq of cool R71	30~120Hz	
RW 0x0153	Night freq of cool R72	30~120Hz	
RW 0x0154	Night freq of cool R73	30~120Hz	
RW 0x0155	Test freq of water R74	30~120Hz	
RW 0x0156	Test freq of water R75	30~120Hz	
RW 0x0157	Test freq of water R76	30~120Hz	
RW 0x0158	Test freq of water R77	30~120Hz	
RW 0x0159	Test freq of water R78	30~120Hz	
RW 0x015A	Test freq of water R79	30~120Hz	
RW 0x015B	Test freq of water R80	30~120Hz	
RW 0x015C	Test freq of water R81	30~120Hz	
RW 0x015D	Test freq of heat R82	30~120Hz	
RW 0x015E	Test freq of heat R83	30~120Hz	
RW 0x015F	Test freq of heat R84	30~120Hz	
RW 0x0160	Test freq of heat R85	30~120Hz	
RW 0x0161	Test freq of heat R86	30~120Hz	
RW 0x0162	Test freq of heat R87	30~120Hz	

RW 0x0163	Test freq of heat R88	30~120Hz	
RW 0x0164	Test freq of heat R89	30~120Hz	
RW 0x0165	Test freq of cool R90	30~120Hz	
RW 0x0166	Test freq of cool R91	30~120Hz	
RW 0x0167	Test freq of cool R92	30~120Hz	
RW 0x0168	Test freq of cool R93	30~120Hz	
RW 0x0169	E01 Economic heat ambi 1	-30~50°C	
RW 0x016A	E02 Economic heat ambi 2	-30~50°C	
RW 0x016B	E03 Economic heat ambi 3	-30~50°C	
RW 0x016C	E04 Economic heat ambi 4	-30~50°C	
RW 0x016D	E05 Economic water ambi 1	-30~50°C	
RW 0x016E	E06 Economic water ambi 2	-30~50°C	
RW 0x016F	E07 Economic water ambi 3	-30~50°C	
RW 0x0170	E08 Economic water ambi 4	-30~50°C	
RW 0x0171	E09 Economic cool ambi 1	-30~50°C	
RW 0x0172	E10 Economic cool ambi 2	-30~50°C	
RW 0x0173	E11 Economic cool ambi 3	-30~50°C	
RW 0x0174	E12 Economic cool ambi 4	-30~50°C	
RW 0x0175	E13 Economic heat temp 1	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x0176	E14 Economic heat temp 2	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x0177	E15 Economic heat temp 3	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x0178	E16 Economic heat temp 4	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x0179	E17 Economic water temp 1	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x017A	E18 Economic water temp 2	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x017B	E19 Economic water temp 3	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x017C	E20 Economic water temp 4	10~55	n*0.5°C (Read only lower 8 bits)
RW 0x017D	E21 Economic cool temp 1	12~30	n*0.5°C (Read only lower 8 bits)
RW 0x017E	E22 Economic cool temp 2	12~30	n*0.5°C (Read only lower 8 bits)
RW 0x017F	E23 Economic cool temp 3	12~30	n*0.5°C (Read only lower 8 bits)
RW 0x0180	E24 Economic cool temp 4	12~30	n*0.5°C (Read only lower 8 bits)

RW 0x0181	G08 Comp. delay	1~60min	
RW 0x0182	G06 Comp. delay	1~60min	
RW 0x0183	G07 Hotwater heater Ext.	-30~30°C	
RW 0x0184	G05 heating heater Ext.	-30~30°C	
RW 0x0185	G03 Start internal	1~120min	
RW 0x0186	F13 DC pump mode	0 manual/1 auto	
RW 0x0187	F14 DC pump cycle	10~120s	
RW 0x0188	F15 DC pump freq set	10~100%	
RW 0x0189	F16 DC pump max freq	10~100%	
RW 0x018A	F17 DC pump min freq	10~100%	
RW 0x018B	F18 DC pump scale factor	1~10	
RW 0x018C	F19 DC pump diff.	0~100	
RW 0x018D	G04 Delta temp.set	5~30°C	
RW 0x018E	F21 Comp freq scale factor	1~10	
RW 0x018F	F22 Comp freq diff	0~100	
RW 0x0190	F23 Compressor mode	0 NOR, 1 ECO, 2 Night, 3 Test	
RW 0x0191	G09 Enable switch	NO linkage YES amb	
RW 0x0192	G10 Ambtemp switch setp.	-20~30°C	
RW 0x0193	G11 Ambtemp diff.	1~10°C	
RW 0x0194	F27 Limit freq temp diff	5~20°C	
RW 0x0195	F28 Dec.freq temp diff	5~20°C	
RW 0x0196	F29 Limit freq outlet low	0~20°C	
RW 0x0197	F30 Dec.freq outlet low	0~20°C	
RW 0x0198	F31 Limit freq outlet high	30~80°C	
RW 0x0199	F32 Dec freq outlet high	30~80°C	
RW 0x019A	Temp.set point of antilegionella	30~70	
RW 0x019B	weekday of antilegionella	0(Sun)~6(Sat)	

RW 0x019C	Start timer of antilegionella	0~23	
RW 0x019D	End timer of antilegionella	0~23	
RW 0x019E	G02 Pump work	0-Interval, 1-Normal 2-Demand	
RW 0x019F	F35 Antifreeze cycle	1~60min	
RW 0x01A0	F36 Three-way valve cycle	1~60hour	
RW 0x01A1	F37 Pump cycle in error	1~120min	
RW 0x01A2	F38 Comp freq cycle	20~60s	
RW 0x01A3	F41 Air too low stp.	-40~0	
RW 0x01A4	Hotwater Set temp of Timeband 1	56~120	n*0.5℃ (Read only lower 8 bits)
RW 0x01A5	heat Set temp of Timeband 1	30~100	n*0.5℃ (Read only lower 8 bits)
RW 0x01A6	cool Set temp of Timeband 1	14~60	n*0.5℃ (Read only lower 8 bits)
RW 0x01A7	Hotwater Set temp of Timeband 2	56~120	n*0.5℃ (Read only lower 8 bits)
RW 0x01A8	heat Set temp of Timeband 2	30~100	n*0.5℃ (Read only lower 8 bits)
RW 0x01A9	cool Set temp of Timeband 2	14~60	n*0.5℃ (Read only lower 8 bits)
RW 0x01AA	Hotwater Set temp of Timeband 3	56~120	n*0.5℃ (Read only lower 8 bits)
RW 0x01AB	heat Set temp of Timeband 3	30~100	n*0.5℃ (Read only lower 8 bits)
RW 0x01AC	cool Set temp of Timeband 3	14~60	n*0.5℃ (Read only lower 8 bits)
RW 0x01AD	Week set of Timeband 1	0~6	
RW 0x01AE	Week set of Timeband 2	0~6	
RW 0x01AF	Week set of Timeband 3	0~6	
RW 0x01B0	H17 Def fan high press	20~40bar	
RW 0x01B1	H18 Def fan speed	20~100	n*10rpm
RW 0x01B2	F47 High press adjust	-50~50	
RW 0x01B3	F48 Low press adjust	-50~50	
RW 0x01B4	F51 Air too low diff	1~10℃	
RW 0x01B5	B93 AV init outlet stp	20~60℃	
RW 0x01B6	F53 Outlet temp offset stp	30~55℃	
RW 0x01B7	F52 Outlet temp offset	0~50℃	

RW 0x01B8	F54 Heat upper limit stp	10~80	
RW 0x01B9	F55 Cool lower limit stp	7~30	
RW 0x01BA	F56 Model selection	1~10	1- A102508 2- A202508 3- A103008 4- A203008 5- A104008 6- A204008 7- A105008 8- A205008 9- A106008 10- A206008
RW 0x01BB	R94 Oil return freq.	10~70	