MODBUS RTU Communication Protocol

From: To:

VesioN 1.0 upDate:

1.TraNsmissioN Format

BauD Rate	9600bps
Start bit	1
Byte wiDth	8
Parity	N
Stop bits	1
Slave aDDress	centralized control : H30; DTU&WIFI:99

2.Packet Format

ADDress	FuNctioN	CRC checksum
16bits	16bits 03:FuNctioN of reaDiNG multi reGisters 16:FuNctioN of preseNtiNG multi reGisters	16bits

3.Data types

Data Types	DescriptioN（X is the communication transmission value, and the formula is the transformation from the transmission value to the display value）
ENUM	formula：X*1 Unit operating state 0-cooling/1-heating/250-Defrost, X=1, display value=1, means heating
Binary	Binary data type,X=2, display value transfer to Binary value。formula：X*1 0000 0000 0000 0010, means the second value=1。If it is a fault bit , it means that the fault bit occurs;If it is a switch bit, it means the switch is disconnected;If the load bit, the load is turned on.
TEMP	0.1℃ resolution,If 25 ° C is on display, the data transmitted by the protocol is 250 according to the above formula.When -25 ° is displayed, the data transmitted by the protocol is -250;When bit15 is 1, it means a negative number; when bit15 is 0, it means a positive number;When the value is 32767, the corresponding sensor failure is indicated
TEMP1	Unit 0.5, X=60, display value= 0。formula：(X-60)*0.5
DIGI1	Unit 1, X=123, display value=123。formula：X*1
DIGI2	Unit=10,X=123,display value=1230。formula：X*10
DIGI3	Unit=100,X=123,display value=12300。formula：X*100
DIGI4	Unit=5,X=2,display value=10。formula：X*5
DIGI5	Unit=0.1,X=123,display value=12.3。formula：X*0.1
DIGI6	Unit=0.001,X=123,display value=0.123。formula：X*0.001
DIGI7	Unit=0.5,X=123,display value=61.5。formula：X*0.5

DIGI8	Unit=2,X=123,display value=246。formula：X*2 byte
DIGI9	Unit=0.01,X=100,display value=1。formula：X*0.01
Red base: the data type already used; W/R：read or write , R only read;	

4.MailiNG aDDress

ADDress	FuNctioN	Number	CoNteNt	Byte leNGth	moDe	DescriptioN	Mark	Remark
1001	03/16					All the yellow parts in this agreement,the bar code are only used for centralized control or DTU, color screen and WIFI module need not be processed		
1002	03/16							
1003	03/16							
1004	03/16							
1005	03/16							
1006	03/16							
1007	03/16							
1008	03/16							
1009	03/16							
1010	03/16							
1011	03/16	Power	Power on/off	double byte	W/R	ON/OFF(ON：1/OFF：0)		ENUM
1012	03/16	Mode	Mode	double byte	W/R	MoDe (0：INtelliGeNt moDe//2：EcoNomic MoDe/3：HybriD MoDe:/4：HiGh DemaND moDe/7：VacatioN MoDe)		ENUM
1013	03/16	Mode_REAL	Actual operation mode	double byte	W/R	MoDe (0：INtelliGeNt moDe//2：EcoNomic MoDe/3：HybriD MoDe:/4：HiGh DemaND moDe/		ENUM
1014	03/16	M06	Booster works independently	double byte	W/R	（2：OFF/1：ON/0：complete Instructions）	No Power-off memory function	ENUM
1015	03/16	M07	Compulsive defrosting	double byte	W/R	（0：OFF/1：ON）；0：OFF（Adress value=1001）Available	No Power-off memory function	ENUM
1016	03/16	M17	Ventilation mode	double byte	W/R	（0-OFF/1-Low speed/2-High speed）		ENUM
1017	03/16							
1018	03/16							
1019	03/16							
1020	03/16	/01	Usage of 005	double byte	W/R	（0-Low speed air/2-Solar heat pump）		ENUM
1021	03/16	/02	Usage of 006	double byte	W/R	（0-No output/2-Solar heat pump/3-Solar Drain valve）		ENUM
1022	03/16							
1023	03/16							
1024	03/16							
1025	03/16							
1026	03/16							
1027	03/16							
1028	03/16							
1029	03/16							
1030	03/16							
1031	03/16							
1032	03/16							
1033	03/16							
1034	03/16	D01	Defrosting startup temp	double byte	W/R	Unit:1℃/Range-30~0℃		TEMP1
1035	03/16	D02	Defrosting shutdown temp	double byte	W/R	Unit:1℃/Range0~30℃		TEMP1
1036	03/16	D03	Duration of defrosting	double byte	W/R	Unit:1min/Range30~90℃		DIGI1

1037	03/16	D04	Longest duration of defrosting	double byte	W/R	(Longest duration of defrosting 3miN,actual value=3*2=6（D04）):Unit:1min/Range 1~20		DIGI7
1038	03/16	D05	Shortest duration of defrosting	double byte	W/R	(Shortest duration of defrosting 3miN, actual value=3*2=6（D05）);Unit:1min/Range 0~D04		DIGI7
1039	03/16	D06	Defrosting way	double byte	W/R	（0-Standard/1-Eco/2-Intelligent）		ENUM
1040	03/16	D07	Intelligent defrosting	double byte	W/R	Unit:1℃/Range10~20℃		TEMP1
1041	03/16							
1042	03/16							
1043	03/16							
1044	03/16							
1045	03/16							
1046	03/16	G01	Disinfection target temp	double byte	W/R	Unit:1℃/Range30~70℃		TEMP1
1047	03/16	G02	Duration of disinfection	double byte	W/R	（Value=0, no disinfection）;Unit:1min/Range 0~90		DIGI1
1048	03/16	G03	Startup point of	double byte	W/R	Unit:1h/Range 0~23		DIGI1
1049	03/16	G04	Circle of disinfection	double byte	W/R	Unit:1d/Range 1~99/default 7days		DIGI1
1050	03/16							
1051	03/16							
1052	03/16							
1053	03/16							
1054	03/16							
1055	03/16	E01	EEV adjustment mode	double byte	W/R	（0-Non-auto/1-Auto）		ENUM
1056	03/16	E02	Target degree of supreheat	double byte	W/R	Unit:1℃/Range -20~20		TEMP1
1057	03/16	E03	Original position of EEV	double byte	W/R	Unit:10steps/Range 0~50		DIGI2
1058	03/16	E04	Minimal opening position of EEV	double byte	W/R	(≤5, Controller handling=5);Unit:10steps/Range 0~50		DIGI2
1059	03/16	E05	Position of EEV for	double byte	W/R	Unit:10steps/Range 0~50		DIGI2
1060	03/16							
1061	03/16							
1062	03/16							
1063	03/16							
1064	03/16							
1065	03/16							
1066	03/16	H32	Circle of submitting data	double byte	W/R	1~255（Min）		DIGI1
1067	03/16	H01	Remenber the status of	double byte	W/R	（0-No/1-Yes）		ENUM
1068	03/16							
1069	03/16	H03	Heating source	double byte	W/R	（0-Air source）		ENUM
1070	03/16							
1071	03/16							
1072	03/16							
1073	03/16	H07	Temperature unit	double byte	W/R	（0-Celsius degree/1-Fahrenheit degree）		ENUM
1074	03/16	H98	Model mode parameter	double byte	W/R	0-0X07 ; 1-0X17; 2-0X08; 3-0X18		ENUM
1075	03/16	H99	Compensate to the shown temp	double byte	W/R	（0-NO/1-YES）（Note：H99 is stored on the controller）		ENUM
1076	03/16	H30	Device address	double byte	W/R	1~255		DIGI1
1077	03/16	H31	Intelligent control mode	double byte	W/R	（0-Centralized control/1-DTU&WIFI）		ENUM

1078	03/16							
1079	03/16							
1080	03/16	N01	The sensor to control	double byte	W/R	（0-Bottom/1-Top）		ENUM
1081	03/16	N02	Longest running time of	double byte	W/R	Unit:1min/Range0~30		DIGI1
1082	03/16	N03	Temp hysteresis of solar	double byte	W/R	Unit:1℃/Range0~20℃		TEMP1
1083	03/16	N04	Activate the nighttime	double byte	W/R	（0-NO/1-YES）		ENUM
1084	03/16	N05	Startup point of the	double byte	W/R	Unit:1h/Range0~23		DIGI1
1085	03/16	N06	Shutdown point of the	double byte	W/R	Unit:1h/Range0~23		DIGI1
1086	03/16	N07	Startup temp of decreasing	double byte	W/R	Unit:1℃/Range40~90℃		TEMP1
1087	03/16	N08	Temp hysteresis of	double byte	W/R	Unit:1℃/Range1~40℃		TEMP1
1088	03/16	N09	Solar water releasing temp	double byte	W/R	Unit:1℃/Range50~90℃		TEMP1
1089	03/16	N10	Shutdown temp of solar	double byte	W/R	Unit:1℃/Range50~90℃		TEMP1
1090	03/16	N11	Working mode of solar	double byte	W/R	（0-NO/1-YES）		ENUM
1091	03/16					All the yellow parts in this agreement,the bar code are only used for centralized control or DTU, color screen and WIFI module need not be processed		
1092	03/16							
1093	03/16							
1094	03/16							
1095	03/16							
1096	03/16							
1097	03/16							
1098	03/16							
1099	03/16							
1100	03/16							
1101								
1102								
1103								
1104	03/16	R01	Target temp	double byte	W/R	Unit:1℃/Range10~75℃		TEMP1
1105	03/16							
1106	03/16	R03	Return difference of heat	double byte	W/R	Unit:1℃/Range1~20℃		TEMP1
1107	03/16	R04	Enable R05 as setpoint of	double byte	W/R	（0-NO/1-YES）		ENUM
1108	03/16	R05	Setpoint of booster	double byte	W/R	Unit:1℃/Range30~90℃		TEMP1
1109	03/16	R06	Booster startup delay	double byte	W/R	Unit:1℃/Range0~90℃		DIGI4
1110	03/16	R07	Booster replaces heat	double byte	W/R	（0-NO/1-YES）		ENUM
1111	03/16	R08	Setpoint of ambient temp	double byte	W/R	Unit:1℃/Range-20~10℃		TEMP1
1112	03/16	R09	Setpoint of ambient temp	double byte	W/R	Unit:1℃/Range0~30℃		TEMP1
1113	03/16	R10	Setpoint of ambient temp	double byte	W/R	Unit:1℃/Range10~40℃		TEMP1
1114	03/16							
1115	03/16	R12	Ambient temp of shutting	double byte	W/R	Unit:1℃/Range-30~5℃		TEMP1
1116	03/16							
1117	03/16	R14	The target temp of second	double byte	W/R	10～60℃		TEMP1
1118	03/16	R15	Maximal ambient temp of	double byte	W/R	—55~80℃		TEMP1
1119	03/16							
1120	03/16	R17	Enable top sensor to	double byte	W/R	（0-NO/1-YES）		ENUM
1121	03/16	R18	Return difference of heat	double byte	W/R	Unit:1℃/Range1~20℃		TEMP1
1122	03/16	R19	Setpoint 1 of ambient	double byte	W/R	30～90℃		TEMP1
1123	03/16	R20	Setpoint 2 of ambient temp	double byte	W/R	30～90℃		TEMP1
1124								
1125								
1126								
1127								

1128								
1129	03/16	L01	Enable vacation mode			bit0:Vacation mode date (0-NO/1-YES)		Binary
1130	03/16	L02	Vacation-year			0~99Y		DIGI1
1131	03/16	L03	Vacation-month			1~12M		DIGI1
1132	03/16	L04	Vacation-day			1~31D		DIGI1
1133	03/16	L05	Enable timer mode			bit0:Timer1ON (0-NO/1-YES); bit1:Timer1OFF (0-NO/1-YES); bit2:Timer2ON (0-NO/1-YES); bit3:Timer2OFF (0-NO/1-YES);		Binary
1134	03/16	L06	Hour setting of turning on			0~23h		DIGI1
1135	03/16	L07	Minute setting of turning			0~59min		DIGI1
1136	03/16	L08	Hour setting of turning			0~23h		DIGI1
1137	03/16	L09	Minute setting of turning			0~59min		DIGI1
1138	03/16	L10	Hour setting of turning on			0~23h		DIGI1
1139	03/16	L11	Minute setting of turning			0~59min		DIGI1
1140	03/16	L12	Hour setting of turning			0~23h		DIGI1
1141	03/16	L13	Minute setting of turning			0~59min		DIGI1
1142								
1143								
1144								
1145								
1146								
1147								
1148								
1149								
1150								
1151	03/16	M11	System Clock Modify Enable	double byte	W/R	Flag bit for whether or not the current	No Power-off	Binary
1152	03/16	M12	System Current minute	double byte	W/R	(minute) (0~59)	No Power-off memory function	DIGI1
1153	03/16	M13	System current o'clock	double byte	W/R	(o'clock) (0~23)	No Power-off memory function	DIGI1
1154	03/16	M14	System current date	double byte	W/R	(date) (1~31)	No Power-off memory function	DIGI1
1155	03/16	M15	System current month	double byte	W/R	(month) (1~12)	No Power-off memory function	DIGI1
1156	03/16	M16	System current year	double byte	W/R	(year) (0~99)	No Power-off memory function	DIGI1
1157					W/R		No Power-off memory function	
1158	03/16		APP Online Heartbeat	double byte	W/R	0x5AA5	No Power-off	DIGI1
1159								
1160								
1161								
1162								
1163								
1164								
1165								

1166								
1167								
1168								
1169								
1170								
1171								
1172								
1173								
1174								
1175								
1176								
1177								
1178								
1179								
1180								

ADDress	FuNctioN	Number	CoNteNt	Byte leNGth	moDe	DescriptioN	Mark	Remark
2001	03/16					All the yellow parts in this agreement,the bar code are only used for centralized control or DTU, color screen and WIFI module need not be processed		
2002	03/16							
2003	03/16							
2004	03/16							
2005	03/16							
2006	03/16							
2007	03/16							
2008	03/16							
2009	03/16							
2010	03/16							
2011	16		Main program version	double byte	R	11 means software version V1.1		DIGI5
2012	16		Software code	double byte	R	1234 means software version 35005-311234; 12means software version 35005-310012		DIGI1
2013	16		Controller program version	double byte	W	11 means software V1.1		DIGI5
2014	16		Software code	double byte	W	1234 means software version 35005-311234; 12means software version 35005-310012		DIGI1
2015								
2016								
2017								
2018								
2019	16	T01	Ambient temperature	double byte	W			TEMP1
2020	16	T02	bottom temperature	double byte	W			TEMP1
2021	16	T03	top temperature	double byte	W			TEMP1
2022	16	T04	coil temperature	double byte	W			TEMP1
2023	16	T05	suction temperature	double byte	W			TEMP1
2024	16	T06	solar temperature	double byte	W			TEMP1
2025	16	T10	APP/display interface	double byte	W			TEMP1
2026	16	T20	Enter parameter out of	double byte	W			GIDI1
2027	16	T21	Memory chip EEPROM number	double byte	W			
2028	16			double byte	W			
2029	16			double byte	W			

2030	16			double byte	W			
2031	16			double byte	W			
2032	16			double byte	W			
2033	16			double byte	W			
2034	16			double byte	W			
2035	16			double byte	W			
2036	16			double byte	W			
2037	16			double byte	W			
2038	16			double byte	W			
2039	16			double byte	W			
2040	16			double byte	W			
2041	16			double byte	W			
2042	16			double byte	W			
2043	16			double byte	W			
2044	16			double byte	W			
2045	16			double byte	W			
2046	16			double byte	W			
2047	16			double byte	W			
2048	16			double byte	W			
2049	16			double byte	W			
2050	16	State0	Slave component status	double byte	W	Bit0：（S01）Remote oN/off switch（1=OP, 0=CL） Bit2：（S03） low pressure switch（1=OP, 0=CL） Bit3：（S04） HiGh pressure switch（1=OP, 0=CL） Bit4：（S05）Shortened time signal1=OP, 0=CL） Bit5：（S06）External heat source switch Bit6：Reserve Bit7：Reserve Bit8：（O01）Compressor（0=OFF, 1=ON）（0=OFF, 1=ON） Bit9：（O02）Electrical heater（0=OFF, 1=ON） Bit10：（O03）4-way valve（0=OFF, 1= ON） Bit11：（O04）FaN hiGh speeD（0=OFF, 1=ON） Bit12：（O05）FaN low speeD/solar pump（0=OFF, 1=ON） Bit13：（O06）Reserve/solar pump/solar valve pump（0=OFF, 1=ON） Bit14:O12 Electric anode3V_DE; Bit15:O13 Electric anodeMV_DE;		Binary

2051	16	State1	Slave function status	double byte	W	Bit0：O14 shutDowN（O= NO，1=YES） Bit1：O15DTU&WIFI online or not（O=NO ，1=YES） Bit2：O16Defrost（O=NO，1=YES） bit3: O17Whether the system enters the hot water function（O=NO，1=YES）		Binary
2052	16			double byte	W			
2053	16			double byte	W			
2054	16			double byte	W			
2055	16			double byte	W			
2056	16			double byte	W			
2057	16			double byte	W			
2058	16			double byte	W			
2059	16			double byte	W			
2060	16	007	EEV current position	double byte	W	unit 1℃ /range 0~480		DIGI1
2061	16	008	Accumulative running time	double byte	W	0～9999h		DIGI1
2062	16	009	Accumulative running time	double byte	W	0～9999h		DIGI1
2063	16			double byte	W			
2064	16			double byte	W			
2065	16			double byte	W			
2066	16			double byte	W			
2067	16			double byte	W			
2068	16			double byte	W			
2069	16			double byte	W			
2070	16			double byte	W			
2071	16			double byte	W			
2072	16			double byte	W			
2073	16			double byte	W			
2074	16			double byte	W			
2075	16			double byte	W			
2076	16			double byte	W			
2077	16			double byte	W			
2078	16			double byte	W			
2079	16			double byte	W			
2080	16			double byte	W			
2081	16			double byte	W			
2082	16			double byte	W			
2083	16			double byte	W			
2084	16			double byte	W			

2085	16	Fault0	Failure（W10）	double byte	W	Bit0：AmbieNt seNsor failure（0=NO，1=YES）P04 Bit1：Bottom seNsor failure（0=NO，1=YES）P01 Bit2：Top seNsor failure（0=NO，1=YES）P02 Bit3：Coil seNsor failure（0=NO，1=YES）P05 Bit4：SuctioN seNsor failure（0=无NO，1=YES）P07 Bit5：Solar seNsor failure（0=NO，1=YES）P034 Bit8：HiGh pressure protectioN（0=NO，1=YES）E01 Bit9：Low pressure protectioN（0=NO，1=YES）E02 Bit13：Antifreezing protection（water tank）（0=NO，1=YES）E09		Binary
2086	16			double byte	W			
2087	16			double byte	W			
2088	16			double byte	W			
2089	16			double byte	W			
2090	16			double byte	W			