Modbus RTU Protocol

2.6 Modbus_RTU

2.6 function code of Modbus_RTU protocol

The following table lists only the function codes to which this protocol applies.

function code	Function code type	explain	remark
0x03	Public function code	Read the register	Contains reads to a single register and multiple registers
0x10	Public function code	write the register	Contains writes to a single register and multiple registers

2.6.1(0x03)

2.6.1 read register (function code: 0x03)

1 PDU Request the PDU

data structure	data length	data range
function code	1 1 byte	0x03
Starting register address	2 2 byte	0x0000~0xFFFF
Number of registers	2 2 byte	0x0001~ 0x007D

2 PDU Normal response PDU

data structure	data length	data range
function code	1 1 byte	0x03
byte count	1 1 byte	N×2
Register values	N×2 N×2 byte	

N= Note: N= number of registers

3 PDU Abnormal response PDU

data structure	data length	data range
wrong code	1 1 byte	0x83
exception code	1 1 byte	“ ” See "exception code" for details.

4 give a typical example

107 3 PDU

Request to read out three consecutive register values starting at address 107 (describe PDU only) :

request		normal response		exceptional response	
field name	field value	field name	field value	field name	field value
function code	0x03	function code	0x03	wrong code	0x83
Hi Starting address Hi	0x00	byte count	0x06	exception code	0x04
Lo Starting address Lo	0x6B	[107]Hi Register [107] Hi	0x02		
Hi Number of registers Hi	0x00	[107]Lo Register [107] Lo	0x2B		
Lo Register number Lo	0x03	[108]Hi Register [108] Hi	0x00		
		[108]Lo Register [108] Lo	0x00		
		[109]Hi Register [109] Hi	0x00		
		[109]Lo Register [109] Lo	0x64		

2.6.2 (0x10)

2.6.2 write register (function code: 0x10)

1 PDU

Request the PDU

data structure	data length	data range
function code	1 1 byte	0x10
Starting register address	2 2 byte	0x0000~0xFFFF
Number of registers	2 2 byte	0x0001~0x007B

byte count	1 1 byte	N×2
Register values	N×2 N×2 byte	

N=

Note: N= number of registers

2 PDU

Normal response PDU

data structure	data length	data range
function code	1 1 byte	0x10
Starting register address	2 2 byte	0x0000~0xFFFF
Number of registers	2 2 byte	0x0001~0x007B

3 PDU

Abnormal response PDU

data structure	data length	data range
wrong code	1 1 byte	0x90
exception code	1 1 byte	“ ” See "exception code" for details.

4

give a typical example

0x000A 0x0102 1 PDU

Request to write 0x000A and 0x0102 to the two registers starting at address 1 (describing only PDU) :

request		normal response		exceptional response	
field name	field value	field name	field value	field name	field value
function code	0x10	function code	0x10	wrong code	0x90
Hi Starting address Hi	0x00	Hi Starting address Hi	0x00	exception code	0x04
Lo Starting address Lo	0x01	Lo Starting address Lo	0x01		
Hi Number of registers Hi	0x00	Hi Number of registers Hi	0x00		
Lo Register number Lo	0x02	Lo Register number Lo	0x02		
	0x04				

byte count					
Hi Register value Hi	0x00				
Lo Register value Lo	0x0A				
Hi Register value Hi	0x01				
Lo Register value Lo	0x02				

[remark] **Baud rate: 9600bps RS232 or RS485**
[remark] Reserved words, reserved bytes, reserved bits, and unsupported registers a re all filled with 0x00.
[remark] this protocol is for Microinverter,string inverter and storage inverter

Addr	Register meaning	R/W	data range	unit	note
Intrinsic attribute region					
000	Device type	R			0X0200 0X0300 0X0400 MI
001	Modbus address	R	[1,247]		MI
002	Communication protocol version	R	'0'~'9'; 'A'~'Z'		0x 0102 1.2 MI
003	SN byte 01	R	'0'~'9'; 'A'~'Z'		The serial number is ten ASCII characters, If "AH12345678", Byte 01 is 0x41 (A), The 02nd byte is 0x48 (H), …… The 09th byte is 0x37 (7), The tenth byte is 0x38 (8). MI
	SN byte 02				
004	SN byte 03	R	'0'~'9'; 'A'~'Z'		
	SN byte 04				
005	SN byte 05	R	'0'~'9'; 'A'~'Z'		
	SN byte 06				
006	SN byte 07	R	'0'~'9'; 'A'~'Z'		
	SN byte 08				
007	SN byte 09	R	'0'~'9'; 'A'~'Z'		
	SN byte 10				
008	Rated Power	R	0x0000		2 single-phase inverter 3three-phase inverter

					8Single-phase storage inverter
009	undefined	R	0x0000		
	1 Delivery time byte 01	R	[0,255]	Year	Based on the year 2000MI
010	2 Delivery time byte 02		[1,12]	Month	
	3 Delivery time byte 03	R	[1,31]	Day	
011	4 Delivery time byte 04		[0,23]	Hour	
	5 Delivery time byte 05	R	[0,59]	Minute	
012	6 Delivery time byte 06		[0,59]	Sec	
013	Firmware version of control board	R			MI
014	Firmware version of communication board	R			
015	Safety type	R			MI
016	Rated power low word	R		0.1W	MI
017	Rated power high word	R		0.1W	MI
018	MPPT MPPT number and phases	R	[1,8]/[1,3]		MI 0x0503: five-mppts three-phase
019	undefined	R	0x0000		

Variable attribute area					
020	Remote Lock	R/W			
021		R/W	[0,1000]	S	MI

	self-check time				
022	1 system time byte 01	R/W	[0,255]	Year	MI 20 00 Based on the year 2000
	2 system time byte 02		[1,12]	Month	
023	3 system time byte 03	R/W	[1,31]	Day	
	4 system time byte 04		[0,23]	Hour	
024	5 system time byte 05	R/W	[0,59]	Minute	
	6 system time byte 06		[0,59]	Sec	
025	Minimum insulation impedance	R/W	[100,20000]	0.1KΩ	
026	Dc voltage upper limit	R/W	[2000,10000]	0.1V	
027	Grid voltage Upper limit	R/W	[1600,5500]	0.1V	MI
028	Grid voltage Lower limit	R/W	[1600,5500]	0.1V	MI
029	Grid frequency upper limit	R/W	[4500,6500]	0.01 Hz	MI
030	Grid frequency lower limit	R/W	[4500,6500]	0.01 Hz	MI
031	grid current Upper limit	R/W	[10,20000]	0.1A	
032	Starting voltage upper limit	R/W	[7000,9000]	0.1V	
033	Starting voltage lower limit	R/W	[4500,9000]	0.1V	
034	OverFrq_Derate_point	R/W	[4500,6500]	0.01HZ	MI
035	OverFrq_De_rate	R/W	[0,100]		MI
036	Internal temperature upper limit	R/W	[500,3000]	0.1℃	

037	Communication address	R	0x0000	-	MI
038	Communication baud rate	R	0x0000	-	MI
039	Power factor regulation	R/W	[0,2000]	0.001	The value after the true value is offset by +1000For example -0.852 is 148 0 is 1000 0.982 is1982
040	Active power regulation	R/W	[0,1200]	0.1%/1%	800 80.0% MI If 800, adjust to 80.0%
041	Reactive power regulation	R/W	[0,1200]	0.1%	800 80.0% If 800, adjust to 80.0%
042	Apparent power regulation	R/W	[0,1200]	0.1%	800 80.0% If 800, adjust to 80.0%
043	Switch on and off enable	R/W	[0,1]	-	0 1MI 2 0: power off 1: power on
044	Factory reset enable	R/W	[0,1]		0: disable 1: enable
045	Self-checking time	R/W	[0,1]	-	0-360 seconds
046	Island protection enable	R/W	[0,1]		MI 0: disable 1: enable
047	MPPT MPPT number MI	R/W	[0,1]	-	
048	GFDI GFDI enable	R/W	[0,1]	-	MI 0: disable 1: enable
049	RCD RCD enable MI	R/W	[0,1]	-	0: disable 1: enable
050	RISO RISO enable	R/W	[0,1]		0: disable 1: enable
051	GridStandard	R/W	[0,20]		1, 2, 3,4EN50438 5,MI 1, China 2, Brazil 3, India 4, EN50438 5, others
052	PV PV curve enable	R/W	[0,1]		0: disable 1: enable
053	Low voltage across enable				0: disable 1: enable
054	EEPROM EEPROM initial enabled	R/W	[0,2]	-	0: MI 1: EEPROM 2: EEPROM 0: normal operation 1: initialize the control board EEPROM 2: initialize the communication board

					EEPROM
055	1 Factory only	R/W	[0,3]	-	Bit0 () Bit1 Bit2 LED, Bit3
056	Limter Limter function enable	R/W	0x0000	-	
057	PowerWH Factor	R/W		-0.01	100 mean 1 111 mean 1.11
058	RSD RSD enable	R/W	0x0001	-	0x0001

Run the data area in real time							
059	run state		R	[0,5]	-	MI	See the code table of running state
060	DayActive PowerWh		R	[-32768,32767]	0.1kWh	MI	Signed int
061	DayReactive PowerWh		R	[-32768,32767]	0.1kVarh	Signed int	
062	Day Grid Work Time		R	[0,65535]	S		
063	Total_Active_PowerWh low word		R	[0,0xFFFFFFFF]	0.1kWh	MI	Signed int
064	Total_Active_PowerWh high word		R				
065	String	Total_Reactive_PowerWh low word	R	[0,0xFFFF]	0.1kVarh		
	Hybird	PVSG:Month_PV_PowerWh			1kwh		
	MI	1			0.1kwh		
066	String	Total_Reactive_PowerWh high word	R	[0,0xFFFF]	0.1kVarh		
	Hybird	Month_Load_PowerWh			1kwh		
	MI	2			0.1kwh		
067	String	Total Work time low word	R	[0,0xFFFF]	0.1h		
	Hybird	SG: Month_Grid_PowerWh			1kwh		
	MI	3			0.1kwh		
068	String	Total Work time high word	R	[0,0xFFFF]	0.1h	DLN LCD statistics, DLN high status reversed	
	Hybird	PVYear_PV_PowerWh Low word			0.1kwh		
	MI	4			0.1kwh		
069	String	inverter efficiency	R	[0,999]	0.1%		
	Hybird	PVYear_PV_PowerWh high word			0.1kwh		
	MI	1			0.1kwh		
070	String	AB Grid voltage AB	R	[0,9999]	0.1V		
	Hybird	Day_Batt_Charge _PowerWh			0.1kwh		
	MI	1					

	String	BC Grid voltage BC			0.1V	
	Hybird	Day_Batt_Discharge_PowerWh				
071	MI	2	R	[0,9999]	0.1kwh	
	String	AC Grid voltage AC			0.1V	
	Hybird	tatol_Batt_charge_PowerWh_low word				
072	MI	2	R	[0,9999]	0.1kwh	
	String	A Grid voltage A			0.1V	
	Hybird	tatol_Batt_charge_PowerWh _high_word				
073			R	[0,9999]	0.1kwh	MI
	String inverter	B Grid voltage B			0.1V	
	Hybird inverter					
074	MI	tatol_Batt_Discharge_PowerWh_low word 3	R	[0,9999]	0.1kwh	
	String	C Grid voltage C			0.1V	
075	Hybird MI	tatol_Batt_Discharge_PowerWh_high_word 3	R	[0,9999]	0.1kwh	
	String	A Grid current A			0.1A	
076	Hybird	Day_GridBuy_Power Wh	R	[0,65535]	0.1kwh	MI
	String	B Grid current B			0.1A	
	Hybird	Day_GridSell_Power Wh				
077	MI	4	R	[0,65535]	0.1kwh	
	String inverter	C Grid current C			0.1A	
078	Hybird MI	Total_GridBuy_Power Wh_low word 4	R	[0,65535]	0.1kwh	
079	Grid frequency		R	[0,9999]	0.01Hz	MI
	String	Displays low power bytes			0.1W	
080	Hybird	Total_Grid Buy_Power Wh_high word	R	0x0000	0.1kwh	
	String	Displays high power bytes			0.1W	
081	Hybird	Total_GridSell_Power Wh_low word	R	0x0000	0.1kwh	
08	String		R	[0,0xFFFFFFFF	0.1W	

2	inverter	Input_active_power_low word		]		
	Hybird	Total_GridSell_Power Wh_high word			0.1kwh	
	String	Input active power high word			0.1W	
083	Hybird	Generator daily operating time	R		0.1	24024
	String	output apparent power low word			0.1VA	
084	Hybird	SG:Day_Load_Power Wh	R	[0,0xFFFF]	0.1kwh	
	String	output apparent power high word			0.1VA	
085	Hybird	Total_Load_Power Wh_low word	R	[0,0xFFFF]	0.1kwh	
	String	Output active power low word			0.1W	
086	Hybird	Total_Load_Power Wh_high word	R	[0,0xFFFF]	0.1kwh	
	String	Output active power high word			0.1W	
087	Hybird	Year_Load_Power Wh_low word	R	[0,0xFFFF]	0.1kwh	MI
	String	Output reactive power low word			0.1Var	
088	Hybird	Year_Load_Power Wh_high word	R	[0,0xFFFF]	0.1kwh	
089	Output reactive power high word		R			
090	(DC) Radiator temperature (DCTransformer temperature)		R	[0,3000]	0.1°C	MI
091	IGBT (AC) IGBT temperature (Radiator temperature)		R	[0,3000]	0.1°C	-56.2°C 438 0°C 1000 50.5 °C 1505 -56.2°Cindicated as 438 0°C indicated as 1000 50.5 °Cindicated as 1505
092	1 () inductance 1 temperature (Void)		R	[0,3000]	0.1°C	
093	power factor		R	R/W	[0,1000]	*1000
094	SD SD Card Status		R	[0,3000]	0.1°C	1000 SD2000 1000 indicated as SD fault2000 normal
095	environment temperature		R	[0,3000]	0.1°C	
096	PV historyPV PowerWh low word		R		0.1kWh	
097	PV historyPV PowerWh high word		R	[0,0xFFFFFFFF]	0.1kWh	

	String inverter	RCD RCD leak current			0.01A	
098	Hybird	Year_GridSell_Power Wh_low word	R	[0,65535]	0.1kwh	
	String	Limter Limter power			1W	
099	Hybird	Year_GridSell_Power Wh_high word	R	0x0000	0.1kwh	
100	Other test flag bits		R	0x0000		Bit0 Bit1 CAN 1 Bit8 RS485 Bit9 CAN Bit10 1234 Bit0 arc communication sign Bit8 li-ion battery interface RS485 Bit9 Li-ion battery interface CAN Bit10 buttons 1 2 3 4 Bit11 1
101	1 Warning message word 1		R	[0,65535]	-	See the alarm information coding table
102	2 Warning message word 2		R	[0,65535]		See the alarm information coding table
103	1 Fault information word 1		R	[0,65535]		MI See the fault information coding table
104	2 Fault information word 2		R	[0,65535]		See the fault information coding table
105	3 Fault information word 3		R	[0,65535]		See the fault information coding table
106	4 Fault information word 4		R	[0,65535]		See the fault information coding table
107	Corrected_AH		R	[0,1000]	1AH	100 is 100AH
108	PV Day PV PowerWh		R	[0,65535]	0.1kWh	
10	1		R	[0,65535]	0.1V	MI

9	Dc voltage 1				
110	1 Dc current 1	R	[0,65535]	0.1A	MI
111	2 Dc voltage 2	R	[0,65535]	0.1V	MI
112	2 Dc current 2	R	[0,65535]	0.1A	MI
113	3 Dc voltage 3	R	[0,65535]	0.1V	MI
114	3 Dc current 3	R	[0,65535]	0.1A	MI
115	4 Dc voltage 4	R	[0,65535]	0.1V	MI
116	4 Dc current 4	R	[0,65535]	0.1A	MI
117	undefined	R	0x0000	-	undefined
118	undefined	R	0x0000		
~~119~~	~~PV4 PV3 PV2 PV1 Whether the damage~~	~~R~~	~~0x0000~~		~~0x0000 Means no damage, 0x1000 PV4 Indicates that PV4 is corrupt 0x0100 PV3 Denotes PV3 corruption~~
120	Debug Data	R	0x0000		
121	Debug Data	R	0x0000		
122	Debug Data	R	0x0000		
123	Debug Data	R	0x0000		
124	Debug Data	R	0x0000		

198	Input_active_ power_low word	R	1W		
199	Input active power high word	R	1W		
200	Day_Load_Power Wh		0.01kwh		
201	history_Load_Power Wh_low word		0.1kwh		
202	history_Load_Power Wh_high word		0.1kwh		
203	Meter_active_ power_low word	R	1W		int Signed int
204	Meter active power high	R	1W		int Signed int

	word				
205	Day_ GridSell _Power Wh		0.01kwh		
206	history_ GridSell _Power Wh_low word		0.1kwh		
207	history_ GridSell _Power Wh_high word		0.1kwh		
208	Day_ GridBuy _Power Wh		0.01kwh		
209	history_ GridBuy _Power Wh_low word		0.1kwh		
210	history_ GridBuy _Power Wh_high word		0.1kwh		

150	L1-N Grid side voltage L1-N	R		0.1V	
151	L2-N Grid side voltage L2-N	R		0.1V	
152	L1-L2 Grid side voltage L1-L2	R		0.1V	
153	L1-L2 Voltage at middle side of relay L1-L2	R		0.1V	

154	L1-N inverter output voltage L1-N	R		0.1V	
155	L2-N inverter output voltage L2-N	R		0.1V	
156	L1-L2 inverter output voltage L1-L2	R		0.1V	
157	L1 Load voltage L1	R		0.1V	
158	L2 Load voltage L2	R		0.1V	
159		R			
160	L1 Grid side current L1	R		0.01A	int Signed int
161	L2 Grid side current L2	R		0.01A	int Signed int
162	LimterL1 Grid external Limter current L1	R		0.01A	int Signed int
163	LimterL2 Grid external Limter current L2	R		0.01A	int Signed int
164	L1 Inverter output current L1	R		0.01A	int Signed int
165	L2 Inverter output current L2	R		0.01A	int Signed int
166	Gen Gen Do micro inverse power input	R		1W	
167	L1 Grid side L1 power	R		1W	int Signed int
168	L2 Grid side L2 power	R		1W	int Signed int
169	L1L2 Total power of grid side L1L2	R		1W	int 00 Signed int > 0 BUY < 0 SELL
170	Limter1 Grid external Limter1	R		1W	int Signed int

	power				
171	Limter2 Grid external Limter2 power	R		1W	int Signed int
172	Grid external Total Power	R		1W	int Signed int
173	L1 inverter outputs L1 power	R		1W	int Signed int
174	L2 inverter outputs L2 power	R		1W	int Signed int
175	inverter_output Total power	R		1W	int Signed int
176	L1 Load side L1 power	R		1W	int Signed int
177	L2 Load side L2 power	R		1W	int Signed int
178	load side Total power	R		1W	int Signed int
179	L1 Load current L1	R		0.01A	int Signed int
180	L2 Load current L2	R		0.01A	int Signed int
181	undefined	R			
182	battery temperature	R	[0,3000]	0.1℃	+1000 120020.0℃ Real value of offset + 1000 1200 is 20.0 ℃
183	battery voltage	R		0.01V	410041.0V 4100 mark of 41.0 V
184	battery capacity	R	[0,100]	1%	
185	undefined	R			
186	PV1 PV1 input power	R		1W	
187	PV2 PV2 input power	R		1W	
188	PV3 PV3 input power	R		1W	
189	PV4 PV4 input power	R		1W	
190		R		1W	int Signed int

	Battery output power				
191	Battery output current	R		0.01A	int Signed int
192	load frequency	R		0.01Hz	
193	Inverter output frequency	R		0.01Hz	
194	Grid side relay status	R			• Disconnect • closed
195	Generator side relay status	R			4 Low 4 indicates the state of generator relay 0not attached 1 actuation 2vacancy 3Represents the suction and closing of the generator under operation 4 The high 4 bits indicate the switch signal 0 power off 1 power on
196		R			
197		R			

200	Control Mode	R/W	-	-	0x0000 Lead-Battery, four-stage charging method 0x0001 Lithium battery
201	Equalization V	R/W	[3800,6100]	0.01V	1480 means 14.8v
202	Absorption V	R/W	[3800,6100]	0.01V	1440 means 14.4v

203	Float V	R/W	[3800,6100]	0.01V	1440 means 14.4v
204	Batt Capacity	R/W	[0,2000]	1 Ah	200 means 200AH
205	Lithium battery capacity of LCD	R/W		1%	
206	1 Battery low temperature protection point 1	R/W		0.1℃	1000 120120.1℃ Real value migration such as 1000 to 1201 said 20.1 ℃
207	Equalization day cycle	R/W	[0 90]	Day	
208	Equalization time	R/W	[0 20]	0.5Hour	0.5 Resolution 0.5 h
209	TEMPCO	R/W	[0,50]	1mV/℃	int Signed int
210	Max A Charge	R/W	[0,185]	1A	0-185A
211	Max A discharge	R/W	[0,185]	1A	0-185A
212	undefined	R/W			
213	battery operates according to voltage or capacity	R/W			• According to the voltage • According to the capacity 2 no battery
214	Lithium battery wake up sign bit	R/W			0 enabled 1 Disable
215	battery resistance value	R/W	[0,6000]	mΩ	
216	Battery charging efficiency	R/W	[0-100]	0.1%	98398.3% 983 is 98.3%
217	ShutDown battery capacity ShutDown	R/W	[0,100]	1%	Low capacity cutoff point
218	Restart battery capacityRestart	R/W	[0,100]	1%	Protection recovery point
219	LowBatt battery capacityLowBatt	R/W	[0,100]	1%	
220	ShutDown battery voltageShutDown	R/W	[3800,6100]	0.01V	cutoff 41V Low protection point cutoff 41V
22	Restart	R/	[3800,6100	0.01V	Reboot /recover

1	battery voltageRestart	W	]		52V
222	LowBatt battery voltageLowBatt	R/W	[3800,6100]	0.01V	46V Discharge depth 46V
223	Maximum operating time of generator			0.1 hours	12012 120 is 12 hours
224	Generator cooling time			0.1 hours	12012 120 is 12 hours
225	Generator charging Starting voltage point	R/W	[0000 6300]	0.01V	The battery voltage is less than this value
226	Generator charging starting capacity point	R/W	[0000 6300]	1%	The battery capacity is less than this value
227	Generator charges the battery current	R/W	[0000 185]	1A	The generator charges the battery
228	Grid charging Start voltage point o	R/W	[0000 6300]	0.01v	
229	Grid charging start capacity point	R/W	[0000 6300]	1%	
230	Grid charge the battery current	R/W	[0000 185]	1A	Grid charge the battery current
231	Generator is charged to enable	R/W			
232	Grid is charged to enable	R/W			
233	SolarPSU Solar Input as PSU	R/W	[0 1]		0solar 1PSU 0 is solar 1 is PSU
234	Force on generator as load function	R/W			2351 The premise is that register 234 has enabled 1 0 Do not force 1 force
235	generator input is enabled as the load output	R/W			0 Disable generator input 1 Enable generator input as load output 2 Enable as inverter input
236	OFF SmartLoad OFF batt Voltage	R/W	[3800 6300]	0.01V	

237	OFF SmartLoad OFF batt	R/W	[0000 100]	1%	
238	ON SmartLoad ON batt Voltage	R/W	[3800 6300]	0.01V	
239	ON SmartLoad ON batt	R/W	[0000 100]	1%	
240	PWM PWM Test Enable	R/W			0 default 1 pwm To enter the PWM test function
241	solar minimum solar power required to start a generator	R/W	[0,8000]	1W	
242	Gen_Grid_Signal On				
243	Energy management model				0Battery priority mode 1Load first mode
244	limit limit control function	R/W		0/1	0x00 sell electricity enabled 0x01 built-in enabled 0x02 extraposition enabled
245	Limit the maximum power output of the grid connection	R/W	[0,8000]	1W	Represents total power
246	External current sensor clamp phase	R/W	[xx,00]	1W	[11][12]
247	Solar sell	R/W			0x00 solar Don't sell 0x01 solar sell
248	Time of Use Selling enabled	R/W			0 Disable 0xFF enabled
249	undefined undefined	R/W			

250	1 Sell mode time point 1 Sell mode time point 1	R/W	[0000 2359]		23592359 2359 means time 23:59
251	2 Sell mode time point 2	R/W	[0000 2359]		
252	3 Sell mode time point 3	R/W	[0000 2359]		
253	4 Sell mode time point 4	R/W	[0000 2359]		
254	5 Sell mode time point5	R/W	[0000 2359]		
255	6 Sell mode time point6	R/W	[0000 2359]		
256	1 Sell mode time point 1 power	R/W	[0000 8000]	1W	Affected by the maximum discharge power of the battery
257	2 Sell mode time point 2 power	R/W	[0000 8000]	1W	
258	3 Sell mode time point 3 power	R/W	[0000 8000]	1W	
259	4 Sell mode time point 4 power	R/W	[0000 8000]	1W	

260	5 Sell mode time point 5 power	R/W	[0000 8000]	1W	
261	6 Sell mode time point 6 power	R/W	[0000 8000]	1W	
262	1 Sell mode time point 1 voltage	R/W	[0000 6300]	0.01V	Is affected by the battery voltage
263	2 Sell mode time point 2 voltage	R/W	[0000 6300]	0.01V	
264	3 Sell mode time point 3 voltage	R/W	[0000 6300]	0.01V	
265	4 Sell mode time point 4 voltage	R/W	[0000 6300]	0.01V	
266	5 Sell mode time point 5 voltage	R/W	[0000 6300]	0.01V	
267	6 Sell mode time point 6 voltage	R/W	[0000 6300]	0.01V	
268	1 1 capacity	R/W	[0,100]	1%	
269	2 2 capacity	R/W	[0,100]	1%	
270	3 3 capacity	R/W	[0,100]	1%	
271	4 4 capacity	R/W	[0,100]	1%	
272	5 5 capacity	R/W	[0,100]	1%	
273	6 6 capacity	R/W	[0,100]	1%	
274	1 Time point 1 charge enable	R/W	[0,1]		
275	2 Time point 2 charge enable	R/W	[0,1]		
276	3 Time point 3 charge enable	R/W	[0,1]		
277	4 Time point 4 charge enable	R/W	[0,1]		
278	5 Time point 5 charge enable	R/W	[0,1]		
279	6 Time point 6 charge enable	R/W	[0,1]		

280	Microinverter export to grid cutoff	R/W	[0,1]		Bit0-3 0:Disable 1:enable Bit4-7 0:Gen peak-shaving disable 1:Gen peak-shaving enable Bit8-11 0:Grid peak-shaving disable 1:Grid peak-shaving enable Bit12-16 On Grid always on
281		R/W	[0,1]		
282	Restore connection time	R/W	[10 300]		
283	Solar Arc Fault Solar Arc Fault Mode turned on	R/W	[0 1]		0x00 Close 0x01 open 0x02 0201 Arc fault reset, the inverter received 02 that the LCD issued a clear mark, and then automatically back to 01
284	Grid Mode	R/W	[0 1]		0= general standard 1= UL1741&IEE1547 2= CPUC RULE21 3= SRD-UL1741 .....
285	Grid Frequency	R/W	[0 1]		0x00 50HZ 0x01 60hz
286	Grid Type	R/W	[0 3]		0x00 240V/230V/220V Single-phase 240 v / 230 v / 220 v 0x01 120V/240V Stands for two-phase 120V/240V 0x02 208V 120120V Represents the three-phase system 208V 120 degrees 120V 0X03 120V Single Phase
287	Grid Vol High	R/W	[1800 2700]	0.1V	
28		R/	[1800	0.1V	

8	Grid Vol Low	W	2700]		
289	Grid Hz High	R/W	[4500 6500]	0.01Hz	
290	Grid Hz Low	R/W	[4500 6500]	0.01Hz	
291		R/W	[1 0]		0 disable 1 enabled
292	GEN peak shaving Power	R/W	[0 16000]	1w	
293	GRID peak shaving Power	R/W	[0 16000]	1w	
294	SmartLoad Open Delay	R/W	[1 120]	1Minute	
295	PF	R/W	[800 1200]		80080% 1200120% 800 for 80%, 1200 for 120%
296	Type of inverter	R/W	[0 1]		0 European single phase 1 North American biphasic
297	ARC_facTory_B ARC_facTory_B high word	R/W	[0,65535]		High and status combination, with numerical display can be
298	Low word	R/W	[0,65535]		
299	ARC_facTory_IARC_facTory_I high word	R/W	[0,65535]		
300	Low word	R/W	[0,65535]		
301	ARC_facTory_F ARC_facTory_F high word	R/W	[0,65535]		
302	Low word	R/W	[0,65535]		
303	ARC_facTory_D ARC_facTory_D high word	R/W	[0,65535]		
304	Low word	R/W	[0,65535]		
305	ARC_facTory_T ARC_facTory_T high word	R/W	[0,65535]		
306	Low word	R/W	[0,65535]		
307	ARC_facTory_C ARC_facTory_C high word	R/W	[0,65535]		
308	Low word	R/W	[0,65535]		
30	ARC_facTory_Frz	R/	[0,65535]		

309	ARC_facTory_Frz high word	W			
310	Low_word	R/W	[0,65535]		
311		R/W			
312	charging voltage	R/W		0.01V	
313	discharge voltage	R/W		0.01V	
314	charging current limiting	R/W		1A	
315	Discharge current limiting	R/W		1A	
316	real time Capacity	R/W		1%	
317	real time voltage	R/W		0.01V	
318	real time current	R/W		1A	
319	real time temp	R/W		0.1C	10000 120020.0 800 -20.0C 1000 corresponds to 0 degrees 1200 means 20.0 degrees 800 means -20.0C
320	_Maximum charge current limit	R/W		1A	
321	Maximum discharge current limiting	R/W			
322	Lithium battery alarm position	R/W			0x0001
323	Lithium battery fault location	R/W	[0,65535]		
324	2 Lithium battery symbol 2	R/W	[0,65535]		Bit0 Vacancy Bit1 Strong impact marks
325	Lithium battery type	R/W			0x0000 PYLON SOLAX CAN 0x0100 RS485modbus 0x0200 KOK 0x0300 keith 0X0400 0X0500 485

326					
327					
328					
329					
330		R/W			Bit0 01 Bit1 beep 01
331	CA_LHVRT California low pressure high pressure through CA_LHVRT enable	R/W	[0,1]		0: disable 1: enable
332	CA_HV2	R/W	[1000,3000]	0.1V	
333	CA_HV1	R/W			
334	CA_LV1	R/W			
335	CA_LV2	R/W			
336	CA_LV3	R/W			
337	CA_HV2_Time	R/W	[0,300]		0 is 0.16S
338	CA_HV1_Time	R/W			
339	CA_LV1_Time	R/W			
340	CA_LV2_Time	R/W			
341	CA_LV3_Time	R/W			
342	CA_LHFRT California low frequency high frequency traverses CA_LHFRT enable	R/W			
343	CA_HF2	R/W	[4500,6500]	0.01Hz	
344	CA_HF1	R/W			
345	CA_LF1	R/W			
34	CA_LF2	R/			

6		W			
347	CA_HF2_Time	R/W	[0,300]		
348	CA_HF1_Time	R/W			
349	CA_LF1_Time				
350	CA_LF2_Time				
351	CA_QV California CA QV enable				
352	CA_QV_V1		[1000,3000]		
353	CA_QV_V2				
354	CA_QV_V3				
355	CA_QV_V4		[-44,+44]	0.01	
356	CA_QV_Q1				
357	CA_QV_Q2				
358	CA_QV_Q3				
359	CA_QV_Q4				
360	CA_FW California CA FW enable				
361	CA_Fstart				
362	CA_Fstop				
363	CA_VW California CA_VW enable				
364	CA_Vstart				
365	CA_Vstop				
366	Normal upward slope	R/W	[1 100]	1%	
367	Soft start rise rate	R/W	[1 100]	1%	100% default 100%
368					

369					
370					
390	Solar1Wind Solar1 do Wind Input can make	R/W	[0,1]		0: disable 1: enable
391	Solar2Wind Solar2 do Wind Input can make	R/W	[0,1]		0: disable 1: enable
392	Voltage 1	R/W	[500,5000]	0.1V	
393	Voltage 2	R/W		0.1V	
394	Voltage 3	R/W		0.1V	
395	Voltage 4	R/W		0.1V	
396	Voltage 5	R/W		0.1V	
397	Voltage 6	R/W		0.1V	
398	Voltage 7	R/W		0.1V	
399	Voltage 8	R/W		0.1V	
400	Voltage 9	R/W		0.1V	
401	Voltage 10	R/W		0.1V	
402	Voltage 11	R/W		0.1V	
403	Voltage 12	R/W		0.1V	
404	Current 1	R/W	[0-200]	0.1A	
405	Current 2	R/W		0.1A	
406	Current 3	R/W		0.1A	
407	Current 4	R/W		0.1A	
408	Current 5	R/W		0.1A	

409	Current_6	R/W		0.1A	
410	Current_7	R/W		0.1A	
411	Current_8	R/W		0.1A	
412	Current_9	R/W		0.1A	
413	Current_10	R/W		0.1A	
414	Current_11	R/W		0.1A	
415	Current_12	R/W		0.1A	
416					
417	1	R/W	--	--	Bit0 1:Parallel Enable 0: Parallel Disable Bit1 1:Master 0:Slave Bit2-7 Void Bit8-9 Phase(00:A,01:B,10:C,11:void) Bit10-15 Modbus SN(0-63)
418	2	R	--	--	Bit0-4 A Phase inverter Num Bit5-9 B Phase inverter Num Bit10-14 C Phase inverter Num Bit15 Void
419					
420					

Addr.		R/W	Range	Unit	note
For Hybird inverter Real-time data 3 Fifteen Battery packs ID num.(this is only for TIAN-POWER)					
	ID				
500	11 12	R	'0' - '9' 'A' - 'Z'		ASCII
501	13 14	R			
502	15				

	16				
503	17				
	18				
504	19				
	110				
505	111				
	112				
506	21	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	22				
507	23	R			
	24				
508	25				
	26				
509	27				
	28				
510	29				
	210				
511	211				
	212				
512	31	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	32				
513	33	R			
	34				
514	35				
	36				
515	37				
	38				
516	39				
	310				
517	311				
	312				
518	41	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	42				
519	43	R			
	44				
520	45				
	46				
521	47				
	48				
522	49				
	410				
523	411				
	412				
524	51	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	52				
525	53	R			
	54				
526	55				
	56				
527	57				
	58				

528	59 510				
529	511 512				
530	61 62	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
531	63 64	R			
532	65 66				
533	67 68				
534	69 610				
535	611 612				
536	71 72	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
537	73 74	R			
538	75 76				
539	77 78				
540	79 710				
541	711 712				
542	81 82	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
543	83 84	R			
544	85 86				
545	87 88				
546	89 810				
547	811 812				
548	91 92	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
549	93 94	R			
550	95 96				
551	97 98				
552	99 910				
553	911				

	912				
554	101	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	102				
555	103	R			
	104				
556	105				
	106				
557	107				
	108				
558	109				
	1010				
559	1011				
	1012				
560	111	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	112				
561	113	R			
	114				
562	115				
	116				
563	117				
	118				
564	119				
	1110				
565	1111				
	1112				
566	121	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	122				
567	123	R			
	124				
568	125				
	126				
569	127				
	128				
570	129				
	1210				
571	1211				
	1212				
572	131	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	132				
573	133	R			
	134				
574	135				
	136				
575	137				
	138				
576	139				
	1310				
577	1311				
	1312				
578	141	R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	142				

579	143		R			
	144					
580	145					
	146					
581	147					
	148					
582	149					
	1410					
583	1411					
	1412					
584	151		R	‘0’ - ‘9’ ‘A’ - ‘Z’		ASCII
	152					
585	153		R			
	154					
586	155					
	156					
587	157					
	158					
588	159					
	1510					
589	1511					
	1512					
600	PACK1	Module Voltage				
601		Module Current				
602		Temperater-AVE				
603		SOC				
604		Remain Capacity				
605		Total Capacity				
606		Charge Voltage				
607		Charge Current				
608		Discharge Current				
609		Max Cell V				
610		Min Cell V				
611		Cycle number				
612		Warming				
613		Fault				
614	PACK2	Module Voltage				
615		Module Current				
616		Temperater-AVE				
617		SOC				
618		Remain Capacity				
619		Total Capacity				
620		Charge Voltage				
621		Charge Current				
622		Discharge Current				
623		Max Cell V				

624		Min Cell V				
625		Cycle number				
626		Warming				
627		Fault				
628	PACK3	Module Voltage				
629		Module Current				
630		Temperater-AVE				
631		SOC				
632		Remain Capacity				
633		Total Capacity				
634		Charge Voltage				
635		Charge Current				
636		Discharge Current				
637		Max Cell V				
638		Min Cell V				
639		Cycle number				
640		Warming				
641		Fault				
642	PACK4	Module Voltage				
643		Module Current				
644		Temperater-AVE				
645		SOC				
646		Remain Capacity				
647		Total Capacity				
648		Charge Voltage				
649		Charge Current				
650		Discharge Current				
651		Max Cell V				
652		Min Cell V				
653		Cycle number				
654		Warming				
655		Fault				
656	PACK5	Module Voltage				
657		Module Current				
658		Temperater-AVE				
659		SOC				
660		Remain Capacity				
661		Total Capacity				
662		Charge Voltage				
663		Charge Current				
664		Discharge Current				
665		Max Cell V				
666		Min Cell V				
667		Cycle number				

668		Warming				
669		Fault				
670	PACK6	Module Voltage				
671		Module Current				
672		Temperater-AVE				
673		SOC				
674		Remain Capacity				
675		Total Capacity				
676		Charge Voltage				
677		Charge Current				
678		Discharge Current				
679		Max Cell V				
680		Min Cell V				
681		Cycle number				
682		Warming				
683		Fault				
684	PACK7	Module Voltage				
685		Module Current				
686		Temperater-AVE				
687		SOC				
688		Remain Capacity				
689		Total Capacity				
690		Charge Voltage				
691		Charge Current				
692		Discharge Current				
693		Max Cell V				
694		Min Cell V				
695		Cycle number				
696		Warming				
697		Fault				
698	PACK8	Module Voltage				
699		Module Current				
700		Temperater-AVE				
701		SOC				
702		Remain Capacity				
703		Total Capacity				
704		Charge Voltage				
705		Charge Current				
706		Discharge Current				
707		Max Cell V				
708		Min Cell V				
709		Cycle number				
710		Warming				
711		Fault				

712	PACK9	Module Voltage				
713		Module Current				
714		Temperater-AVE				
715		SOC				
716		Remain Capacity				
717		Total Capacity				
718		Charge Voltage				
719		Charge Current				
720		Discharge Current				
721		Max Cell V				
722		Min Cell V				
723		Cycle number				
724		Warming				
725		Fault				
726	PACK10	Module Voltage				
727		Module Current				
728		Temperater-AVE				
729		SOC				
730		Remain Capacity				
731		Total Capacity				
732		Charge Voltage				
733		Charge Current				
734		Discharge Current				
735		Max Cell V				
736		Min Cell V				
737		Cycle number				
738		Warming				
739		Fault				
740	PACK11	Module Voltage				
741		Module Current				
742		Temperater-AVE				
743		SOC				
744		Remain Capacity				
745		Total Capacity				
746		Charge Voltage				
747		Charge Current				
748		Discharge Current				
749		Max Cell V				
750		Min Cell V				
751		Cycle number				
752		Warming				
753		Fault				
754	PACK12	Module Voltage				
755		Module Current				

756		Temperater-AVE				
757		SOC				
758		Remain Capacity				
759		Total Capacity				
760		Charge Voltage				
761		Charge Current				
762		Discharge Current				
763		Max Cell V				
764		Min Cell V				
765		Cycle number				
766		Warming				
767		Fault				
768	PACK13	Module Voltage				
769		Module Current				
770		Temperater-AVE				
771		SOC				
772		Remain Capacity				
773		Total Capacity				
774		Charge Voltage				
775		Charge Current				
776		Discharge Current				
777		Max Cell V				
778		Min Cell V				
779		Cycle number				
780		Warming				
781		Fault				
782	PACK14	Module Voltage				
783		Module Current				
784		Temperater-AVE				
785		SOC				
786		Remain Capacity				
787		Total Capacity				
788		Charge Voltage				
789		Charge Current				
790		Discharge Current				
791		Max Cell V				
792		Min Cell V				
793		Cycle number				
794		Warming				
795		Fault				
796	PACK15	Module Voltage				
797		Module Current				
798		Temperater-AVE				
799		SOC				

800		Remain Capacity				
801		Total Capacity				
802		Charge Voltage				
803		Charge Current				
804		Discharge Current				
805		Max Cell V				
806		Min Cell V				
807		Cycle number				
808		Warming				
809		Fault				