

MODBUS RTU Three-phase energy storage communication protocol

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amend record

version number	change content	Responsible	change date
V100	initial version	Liu Shengli	2020.09.16

1. overview

This agreement applies to the communication protocol between our company's three-phase energy storage inverter and the host computer monitoring and DSP. Adopt MODBUS RTU communication protocol. This protocol can read the operation information of the inverter and control the operation of the inverter in real time.

2. physical interface

2.1. use RS485/RS232, for asynchronous transceiver mode, master-slave mode, fixed baud rate.

--- Baud rate: 9600bps

--- Parity bits: none

--- Data bits: 8

--- stop bit: 1

2.2. Interframe Space Time Requirements

3. data frame format

Slave Address	Function code	Data	CRC Check
8-Bits	8-Bits	Nx8-Bits	16-Bits

Slave Address area: It is the corresponding slave address, which must match the slave address of the inverter. **Function code area:** Function code, currently only open 03H, 10H function code.

Function code (Hex)	Chinese name	register address	Function
02H	Read switch input status		Read the content of the fault information register
03H	read holding register	0~59/500~2000	Read the contents of the setup register
04H	read input register		Read inverter information content
05H	write a single coil		Switch machine setting function
06H	write a single holding register		set single-byte function
10H	Write multiple holding registers	60-499	set multibyte function

Data area: Including the starting register address, data length, number of data bytes, and data content. The high byte is in front and the low byte is in the back.

CRC Check area: CRC Table look-up check method, the low byte comes first and the high byte follows.

4. Handling of error messages and data

Slave reply (16base):

Slave Address	Function code	Error code	CRC Check	
XX	xx 0x80	XX	low byte	high byte
			XX	XX

The inverter communication module detects CRC. When there is an error other than the code error, the information must be sent back to the host, and the highest position of the function code is 1, that is, on the basis of the function code sent by the host 128.

The error code returned by the inverter communication module response:

0x01 Illegal function code The server does not understand the function code

0x02 Illegal data address associated with request

0x03 Illegal data value associated with request

0x04 Service Fault Inverter Communication Module Cannot Get Data Fault During Execution

5. Detailed protocol description

0-59 The register address is a readable register type, 0x03 function code. 60-499 The

register address is a readable and writable register type, 0x10 function code. 500-2000

The register address is a readable register type, 0x03 function code.

5.1.03 Read the inherent attribute area, corresponding to the function code 0x03, address range 0-59

Addr	Register meaning	R/W	data range	unit	note
000	Equipment type Device type	R			0X0200 string machine inverter 0X0300 Single Phase Energy Storage Machine hybrid 0X0400 micro inverter MI micro inverter 0X0500 Three-phase energy storage machine phase 3 hybrid
001	Modbus address	R	[1,247]		
002	Communication protocol version Communication protocol version	R	'0'~'9'; 'A'~'Z'		The version of this protocol to which the firmware complies, such as 0x 0102 represent 1.2 Version
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), and the tenth byte is 0x38 (8).
	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	power level Rated Power	R	0x0000		
009	reserved word undefined	R	0x0000		
010	reserved word undefined	R			
011	Control board auxiliary microcontroller software version number Assistant program version	R	0xFFFF		Bit0-7 starting program bootloader software Bit8-15 auxiliary program Assistant program

	Dashboard launcher version number bootloader software version				
012	reserve undefined	R			
013	reserve undefined	R			
014	Dashboard Firmware Version - field2 Control panel firmware version-2	R			
015	Control Board Firmware Version - Major Version Control panel firmware master version	R			
016	Communication Board Firmware Version - Field1 Comm panel firmware version-1	R			
017	Communication Board Firmware Version - Field2 Comm panel firmware version-2	R			
018	Communication Board Firmware Version - Major Version Comm panel firmware master version	R			
019	Safety type Safety type	R			
020	Rated power low word Rated power low word	R		0.1W	
021	Rated power high word Rated power high word	R		0.1W	
022	MPPTNumber of channels and phases MPPT number and phases	R	[1,8]/[1,3]		MI 0x0503: five-mppts three-phase
023	Grid-connected voltage level/Rated Grid Voltage	R	[0-3]		0: 127/220V 1: 220/380V
024					
025	reserveSN byte 01				
	reserveSN byte 02				
026	reserveSN byte 03				
	reserveSN byte 04				
027	reserveSN byte 05				
	reserveSN byte 06				
028	reserveSN byte 07				
	reserveSN byte 08				
029	reserveSN byte 09				

	reserveSN byte 10				
030					
031					
059					

5.1.10 Readable and writable variable attribute area, the corresponding function code is 0x10.

Addr	Register meaning	R/W	data range	unit	note
60	Remote lock enable Remote Lock	R/W			0x0002 shutdownturn off 0x0000 start upturn on
61	POST time self-check time	R/W	[0,1000]	S	MI
62	system time1byte system time byte 01	R/W	[0,255]	Year year	MIby20 00Year as base value Based on the year 2000
	system time2byte system time byte 02	R/W	[1,12]	moon month	
63	system time3byte system time byte 03	R/W	[1,31]	day day	
	system time4byte system time byte 04	R/W	[0,23]	hour hours	
64	system time5byte system time byte 05	R/W	[0,59]	pointminutes	
	system time6byte system time byte 06	R/W	[0,59]	second Sec	
65	lower limit of insulation resistance Minimum insulation impediment	R/W	[100,20000]	0.1K Ω	
66	reserve Undefine				
67	reserve Undefine				
68	reserve Undefine				

69	reserve Undefined				
70	reserve Undefined				
71	reserve Undefined				
72	reserve Undefined				
73	reserve Undefined				
74	mailing address Communication address	R	0x0000	-	
75	Communication baud rate MI: Zigbee or PLC	R	0x0000	-	
76	reserve Undefined	R/W			
77	Active power regulation	R/W	[0,1200]	0.1%/1%	like800Indicates adjusted to 80.0% MI If 800, adjust to 80.0%
78	Reactive power regulation	R/W	[0,1200]	0.1%	like800Indicates adjusted to 80.0% If 800, adjust to 80.0%
79	Apparent Power Adjustment Apparent power regulation	R/W	[0,1200]	0.1%	like800Indicates adjusted to 80.0% If 800, adjust to 80.0%
80	Enable switch Switch on and off enable	R/W	[0,1]	-	0: shutdown 1: boot MI 2: shutdown 0: power off 1: power on
81	Restore factory enable Factory reset enable	R/W	[0,1]		0: disable 1: enable
82	Self-test time Self-checking time	R/W	[0,1]	-	0-360 seconds
83	Island Protection Enabled Island protection enable	R/W	[0,1]		0: disable 1: enable
84	MPPT road number MPPT number	R/W	[0,1]	-	0: disable 1: enable
85	GFDI Enable GFDI enable	R/W	[0,1]		0: disable 1: enable
86					
87	RISO Enable RISO enable	R/W	[0,1]		0: disable 1: enable
88	Grid-connected standard Grid Standard	R/W	[0,20]		1, China 2, Brazil 3, India

					4,EN50438 5,other
89					
90	Low voltage ride through enable Low voltage across enable				0: disable 1: enable
91	control panelEEPROMinitial use able MCU-EEPROM initial enabled	R/W	[0,2]	-	0:normal workwork normal 1: Initialize the control boardEEPROM init mcu eeprom
92	communication boardEEPROMinitial use able Comm-EEPROM initial enabled	R/W			0:normalwork normal 1: Initialize the communication boardEEPROM init comm eeprom
93	Control board test control command Factory only				Bit0 Open test enable (enabling the latter is only valid) Test enable=1 if use later bit Bit1 Turn on all fans of the inverteropen all Bit4 fans turn onGensignal relay open Gen signal relay
94	Communication board test control command Factory only	R/W	[0,3]	-	Bit0 Open test enable (enabling the latter is only valid) Test enable=1 if use later bit Bit2 flash board allled, honey device, back light, showing red, yellow and blue Flash display board for all LEDs, honey maker, backlight, display red, yellow and blue Bit3 Start lithium battery interface test Open lithium battery interface test Bit5 Restart the LCD program Restart lcd
95					
96	power generation correction factor Power WH Factor	R/W		-0.01	100 mean 1 111 mean 1.11
97	SolarEnter asSPU TEST MODE				
98	battery charge type Control Mode	R/W			0x0000 Lead-Battery, four-stage charging method 0x0001 Lithium battery
99	Equalization V	R/W	[3800,6100]	0.01V	1480 means 14.8v
100	Absorption V	R/W	[3800,6100]	0.01V	1440 means 14.4v
101	Float V	R/W	[3800,6100]	0.01V	1440 means 14.4v
102	battery capacity Batt Capacity	R/W	[0,2000]	1 Ah	200 means 200AH
103	Empty_v	R/W		0.01V	

104	Minimum limit active power Zero Export power	R/W			
105	Perform a balance charge every few days Equalization day cycle	R/W	[0 90]	day	
106	Balanced charge execution time Equalization time	R/W	[0 20]	0.5Hour	resolution0.5Hour Resolution 0.5 h [0-20]correspond0-10hour but hairMCUyes[0-100]
107	temperature compensation value TEMPCO	R/W	[0,50]	1mV/°C	with positive and negativeinttypeSigned int
108	Battery maximum charging current Max A Charge	R/W	[0,185]	1A	0-185A
109	Battery maximum discharge current Max A discharge	R/W	[0,185]	1A	0-185A
110	reserve undefined	R/W			
111	Battery work depends on voltage or capacity quantity battery operates according to voltage or capacity	R/W			According to voltageAccording to the voltage According to capacityAccording to the capacity 2 no batteryno battery
112	Lithium battery wake-up flag Lithium battery wake up sign bit	R/W			0 enabled 1 Disable
113	Battery internal resistance battery resistance value	R/W	[0,6000]	mΩ	
114	Battery Charging Efficiency Battery charging efficiency	R/W	[0-100]	0.1%	983express98.3% 983 is 98.3%
115	battery capacityShut Down battery capacity ShutDown	R/W	[0,100]	1%	low volume cutoff Low capacity cutoff point
116	battery capacityRestart battery capacity Restart	R/W	[0,100]	1%	protect recovery point Protection recovery point
117	battery capacityLowBatt battery capacityLowBatt	R/W	[0,100]	1%	
118	battery voltageShut Down battery voltage ShutDown	R/W	[3800,6100]	0.01V	low protection pointcut off 41V Low protection point cutoff 41V
119	battery voltageRestart battery voltage Restart	R/W	[3800,6100]	0.01V	Reboot /recover 52V
120	battery voltageLowBatt battery voltageLowBatt	R/W	[3800,6100]	0.01V	depth of discharge 46V Discharge depth 46V
121	Generator maximum running time Maximum operating time of generator			0.1 hours	120express12Hour 120 is 12 hours
122	Generator Cooling Time Generator cooling time			0.1 hours	120express12Hour 120 is 12 hours

123	Generator charging start voltage point Generator charging Starting voltage point	R/W	[0000 6300]	0.01V	The battery voltage is lower than this value and the generator starts charging The battery voltage is less than this value
124	Generator charge starting capacity point Generator charging starting capacity point	R/W	[0000 6300]	1%	The battery capacity is less than this value and the generator starts charging The battery capacity is less than this value
125	Generator charging current to battery Generator charges the battery current	R/W	[0000 185]	1A	Generator charging current to battery The generator charges the battery
126	Mains charging start voltage point Grid charging Start voltage point o	R/W	[0000 6300]	0.01v	
127	Mains charging starting capacity point grid charging start capacity point	R/W	[0000 6300]	1%	
128	Mains charging current to battery Grid charge the battery current	R/W	[0000 185]	1A	Mains charging current to battery Grid charge the battery current
129	Generator charging enable Generator is charged to enable	R/W			
130	Mains charging enabled Grid is charged to enable	R/W			
131	AC couplefrequency cap setting	R/W	5000-6500		5000-6500
132	Forcibly turn on the generator as a load Function Force on generator as load function	R/W			The premise is235number register is enabled1 The premise is that register 234 has enabled 1 0not mandatoryDo not force 1 mandatory force
133	Generator input as load output Enable generator input is enabled as the load output	R/W			0Only as generator inputonly Gen use 1Smart load outputonly smart load output 2Enable as inverter inputonly micro inverter input
134	generator loadOFFVoltage SmartLoad OFF batt Voltage	R/W	[3800 6300]	0.01V	
135	generator loadOFFelectricity SmartLoad OFF batt	R/W	[0000 100]	1%	
136	generator loadONVoltage SmartLoad ON batt Voltage	R/W	[3800 6300]	0.01V	
137	generator loadONElectricity SmartLoad ON batt	R/W	[0000 100]	1%	
138	Output voltage level setting	R/W			0 express220V means 220V

	Output voltage level setting				<p>1 express230V means 230V</p> <p>2 express240V means 240V</p> <p>3 express120V means 120V</p> <p>4 133VAC</p>
139	Minimum to start the generatorsolarachievement Rate minimum solar power required to start a generator	R/W	[0,8000]	1W	
140	Generator grid connection signal Gen_Grid_Signal On				
141	energy management mode Energy management model				<p>Bit0-1 10battery priority modebattery first mode</p> <p>11load priority modeload first mode Indicates the</p> <p>Bit2-3 passive grid-connected power balance function Represents passive grid-connected power balance function</p> <p>10not openclose 11turn onopen</p> <p>Bit4-5 Indicates active grid-connected power balance function Represents active grid-connection power balance function</p> <p>10not openclose 11turn onopen</p>
142	limitcontrol function limit control function	R/W		0/1	<p>0x00Enable selling electricity sell electricity enabled</p> <p>0x01enable built-in built-in enabled</p> <p>0x02enable external extraposition enabled</p>
143	Limit grid-connected maximum power output Limit the maximum power output of the grid connection	R/W	[0,8000]	1W	<p>Represents the total power</p> <p>Represents total power</p>
144	Direction of external current sensor External current sensor clamp phase	R/W	[xx,00]	1W	[11][12]
145	Photovoltaic electricity sales Solar sell	R/W			<p>0x00PV does not sell electricitysolar Don't sell 0x01Photovoltaic electricity salessolar sell</p>
146	Advanced peak shaving and valley filling function enabled Time of Use Selling enabled	R/W			<p>Bit0 0 disable 1 enable</p> <p>Bit1 monday 0-disable 1-enable</p> <p>Bit2 Tuesday</p>

					... Bit7 sunday
147	three phaseABCGrid phase sequence setting Grid Phase	R/W			0 0 120 240 1 0 240 120
148	Time point of electricity selling mode1 Sell mode time point 1	R/W	[0000 2359]		2359Indicate timetwenty three: 59 2359 means time 23:59
149	Time point of electricity selling mode2 Sell mode time point 2	R/W	[0000 2359]		Time
150	Time point of electricity selling mode3 Sell mode time point 3	R/W	[0000 2359]		
151	Time point of electricity selling mode4 Sell mode time point 4	R/W	[0000 2359]		
152	Time point of electricity selling mode5 Sell mode time point5	R/W	[0000 2359]		
153	Time point of electricity selling mode6 Sell mode time point6	R/W	[0000 2359]		
154	Time point of electricity selling mode1power Sell mode time point 1	R/W	[0000 8000]	1W	Affected by the maximum discharge power of the battery Affected by the maximum discharge power of the battery
155	Time point of electricity selling mode2power Sell mode time point 2	R/W	[0000 8000]	1W	power
156	Time point of electricity selling mode3power Sell mode time point 3	R/W	[0000 8000]	1W	
157	Time point of electricity selling mode4power Sell mode time point 4	R/W	[0000 8000]	1W	
158	Time point of electricity selling mode5power Sell mode time point 5	R/W	[0000 8000]	1W	
159	Time point of electricity selling mode6power Sell mode time point 6	R/W	[0000 8000]	1W	
160	Time point of electricity selling mode1Voltage Sell mode time point 1	R/W	[0000 6300]	0.01V	Affected by battery voltage Is affected by the battery voltage
161	Time point of electricity selling mode2Voltage Sell mode time point 2	R/W	[0000 6300]	0.01V	Voltage
162	Time point of electricity selling mode3Voltage Sell mode time point 3	R/W	[0000 6300]	0.01V	

163	Time point of electricity selling mode4Voltage Sell mode time point 4	R/W	[0000 6300]	0.01V	
164	Time point of electricity selling mode5Voltage Sell mode time point 5	R/W	[0000 6300]	0.01V	
165	Time point of electricity selling mode6Voltage Sell mode time point 6	R/W	[0000 6300]	0.01V	
166	1capacity1 capacity	R/W	[0,100]	1%	soc
167	2capacity2 capacity	R/W	[0,100]	1%	
168	3capacity3 capacity	R/W	[0,100]	1%	
169	4capacity4 capacity	R/W	[0,100]	1%	
170	5capacity5 capacity	R/W	[0,100]	1%	
171	6capacity6 capacity	R/W	[0,100]	1%	
172	point in time1Charging enable Time point 1 charge enable	R/W	[0,1]		Bit0 Indicates that grid charging is enabledgrid charging enable Bit1 Indicates that the generator charging is enabledgen charging enable
173	point in time2Charging enable Time point 2 charge enable	R/W	[0,1]		ditto
174	point in time3Charging enable Time point 3 charge enable	R/W	[0,1]		ditto
175	point in time4Charging enable Time point 4 charge enable	R/W	[0,1]		ditto
176	point in time5Charging enable Time point 5 charge enable	R/W	[0,1]		ditto
177	point in time6Charging enable Time point 6 charge enable	R/W	[0,1]		ditto

178	Control Board Special Function Bits1 Microinverter export to grid cutoff	R/W	[0,1]	All need to be changed to two-position control need two bits control - 00 no action-01 no action-10 disable-11 enable - 00Nowork-01Nowork-10Disable-11Enable Bit0-1 10: Disable 11: enable Bit2-3 10:Gen peak-shaving disable 11:Gen peak-shaving enable Bit4- 5: 10:Grid peak-shaving disable 11:Grid peak-shaving enable 10:On Grid Bit6-7 always on disable 11:On Grid always on enable 10:external relay disable Bit8-9 11:external relay disable Bit10-11 10: Lithium battery lost report failure disable Loss of lithium battery report fault disable 11:Lithium battery lost report failureenable Loss of lithium battery report fault enable
179	Control Board Special Function Bits2 1,externalCTAutomatic detection of orientation 2,forced offline	R/W	[0,1]	Bit0-1 10: ExternalCTAutomatic detection of orientationdisable Externl ct direction check disable 11:enable Bit2-3 10: Forced to work off-griddisable Forced off-grid work disable 11:enable

180	Restore grid connection time Restore connection time	R/W	[10 300]		
181	Solar Arc Faultmode on Solar Arc Fault Mode	R/W	[0 1]		0x00closureClose 0x01turn onopen
182	Grid-connected standard Grid Mode	R/W	[0 1]		0=common standardgeneral standard 1=UL1741&IEE1547 2 = CPUC RULE21 3 = SRD-UL1741 ...
183	Grid frequency setting Grid Frequency	R/W	[0 1]		0x00 50HZ 0x01 60hz
184	Grid type setting Grid Type Now it is three-phase, invalid	R/W	[0 3]		0x00single phase default220V Single-phase 240v / 230v / 220v 0x01 Indicates two-phase120V/240V Stands for two-phase 120V/240V 0x02Indicates a three-phase system208V 120Spend120V Represents the three-phase system 208V 120 degrees 120V 0X03 120V Single Phase
185	Grid high voltage protection point Grid Vol High	R/W	[1800 2700]	0.1V	
186	Grid low voltage protection point Grid Vol Low	R/W	[1800 2700]	0.1V	
187	Power grid frequency high protection point Grid Hz High	R/W	[4500 6500]	0.01Hz	
188	Grid frequency low protection point Grid Hz Low	R/W	[4500 6500]	0.01Hz	
189	Generator connected to grid input The generator is connected to the grid input	R/W	[1 0]		0 disable 1 enabled
190	GEN peak shaving Power	R/W	[0 16000]	1w	
191	GRID peak shaving Power	R/W	[0 16000]	1w	
192	Smart Load Open Delay	R/W	[1 120]	1Minute	
193	outputPFvalue setting (active power regulation) Output PF value Settings	R/W	[800 1200]		800Indicates adjusted to80% 1200logo adjusted to 120% 800 for 80%, 1200 for 120%
194	external relay bit External relay bit	R/W	[0 0xFFFF]		Bit0-8correspond8relay bits Bit0-8 correspond to 8 relay bits
195	ARC_facTory_Bhigh position ARC_facTory_B high word	R/W	[0,65535]		The combination of high position and status can be displayed in numerical value High and status combination, with numerical

					display can be
196	low low word	R/W	[0,65535]		
197	ARC_facTory_I high bit ARC_facTory_I high word	R/W	[0,65535]		
198	low low word	R/W	[0,65535]		
199	ARC_facTory_Fhigh position ARC_facTory_F high word	R/W	[0,65535]		
200	low low word	R/W	[0,65535]		
201	ARC_facTory_Dhigh position ARC_facTory_D high word	R/W	[0,65535]		
202	low low word	R/W	[0,65535]		
203	ARC_facTory_Thigh position ARC_facTory_T high word	R/W	[0,65535]		
204	low low word	R/W	[0,65535]		
205	ARC_facTory_Chhigh position ARC_facTory_C high word	R/W	[0,65535]		
206	low low word	R/W	[0,65535]		
207	ARC_facTory_Frzhhigh position ARC_facTory_Frz high word	R/W	[0,65535]		
208	low low word	R/W	[0,65535]		
209	Ups_delay time	R/W		1S 0 as default 1 1S	
210	Charging voltage charging voltage	R/W		0.01V	
211	discharge voltage discharge voltage	R/W		0.01V	
212	Charge current limit charging current limiting	R/W		1A	
213	discharge current limit Discharge current limiting	R/W		1A	
214	current capacity real time capacity	R/W		1%	
215	current voltage real time voltage	R/W		0.01V	
216	current current	R/W		1A	

	real time current				
217	Current Temperature real time temp	R/W		0.1C	1000correspond0Spend1200express20.0Spend800express - 20.0C 1000 corresponds to 0 degrees 1200 means 20.0 degrees 800 means -20.0C
218	Off-grid charging current limiting maximum value Maximum charge current limit	R/W		1A	
219	Off-grid discharge current limit maximum Maximum discharge current limiting	R/W			
220	Lithium battery warning bit Lithium battery alarm position	R/W			0x0001
221	Lithium battery fault bit Lithium battery fault location	R/W	[0,65535]		
222	Lithium battery sign2 Lithium battery symbol 2	R/W	[0,65535]		Bit0 vacancyVacancy Bit1 Strong punch signStrong impact marks
223	Lithium battery type Lithium battery type	R/W			0x0000 ZTE Pyrene Dronergy Lithium PYLON SOLAX universalCANprotocol 0x0001 TianbangdaRS485modbusprotocol 0x0002 KOKprotocol 0x0003 keith 0X0004 TopPay agreement 0X0005 Paine485protocol 0X0006 Jellis485protocol 0X0007 Xinwangda485protocol 0X0008 Xin Ruineng485protocol 0X0009 Tianbangda485protocol 0X000A Shenggao Electriccanprotocol
224	lithium batterySOH Lithium battery SOH				
225					
226					
227	Upgrade LCD test	R/W	[0,1]		
228	Communication board setting function Comm board setting function	R/W			Bit0-1 time school Bit2-3 beep Bit4-5 AM/PM

					Bit6-7 Auto-dim - 00no actionno work - 01no actionno work - 10Disabilitydisable - 11Enableenable
229					
230					
231					
232					
233					
234					
235					
236					
237					
238					
239					
240	Enter the initial test program in the factory	R/W			=12345 enter
241					
242					
243					
244					
245					
246					
247					
248					
249					
250					
251					
252					
253					
254					
255					
256					
257					
258					
259					
260					
261					
262					
263					
264					
265					
266					

267					
268					
269	Grid1_I				
270	Grid2_I				
271	Grid3_I				
272	Grid_V_L1				
273	Grid_V_L2				
274	Grid_V_L3				
275	Limit1_I				
276	Limit2_I				
277	Limit3_I				
278	PV1_V				
279	PV1_I				
280	PV2_V				
281	PV2_I				
282	INV_A_I				
283	INV_B_I				
284	INV_C_I				
285	INV_A_V				
286	INV_B_V				
287	INV_C_V				
288	BAT_I				
289	BAT_V				
290					
291					
292					
293					
294					
295					
296					
297					
298					
299					
300					
301					
302					
303					
304					
305					
306					
307					
308					
309					

310	SolarDoWindinput enable Solar makes Wind input enable	R/W	[0,1]		Bit0 Solar1 Bit1 Solar2
311	Voltage 1	R/W	[500,5000]	0.1V	
312	Voltage 2	R/W		0.1V	
313	Voltage 3	R/W		0.1V	
314	Voltage 4	R/W		0.1V	
315	Voltage 5	R/W		0.1V	
316	Voltage 6	R/W		0.1V	
317	Voltage 7	R/W		0.1V	
318	Voltage 8	R/W		0.1V	
319	Voltage 9	R/W		0.1V	
320	Voltage 10	R/W		0.1V	
321	Voltage 11	R/W		0.1V	
322	Voltage 12	R/W		0.1V	
323	Current 1	R/W	[0-200]	0.1A	
324	Current 2	R/W		0.1A	
325	Current 3	R/W		0.1A	
326	Current 4	R/W		0.1A	
327	Current 5	R/W		0.1A	
328	Current 6	R/W		0.1A	
329	Current 7	R/W		0.1A	
330	Current 8	R/W		0.1A	
331	Current 9	R/W		0.1A	
332	Current 10	R/W		0.1A	
333	Current 11	R/W		0.1A	
334	Current 12	R/W		0.1A	
335	reserve Undefine				
336	in parallel1 Parallel-1				
337	in parallel2 Parallel-2				
338	reserve Undefine				
339	reserve Undefine				
340	Photovoltaic maximum selling power Max Solar Sell Power		R/W	1W	
341	reserve Undefine				
342	reserve Undefine				

343	reserve Undefine				
344	Power grid information monitoring method Grid check from Meter or CT	R/W			BIT00: 0:CT 1:Meter BIT01: -BIT15: undefine
345					
346					
347	externalCTRatio CT ratio	R/W		30<--> 30:1	U16
348	externalMeter CTRatio Meter CT ratio	R/W		30<--> 30:1	U16
349					
350	chargeThe input slope control of the loop A positive number	R/W	[0-500]	W	Cycle-by-cycle power variation Cycle by cycle power variation
351	chargeThe input slope control of the loop negative number	R/W	[0-500]	W	Cycle-by-cycle power variation Cycle by cycle power variation
359	The off-grid overload voltage is less than180V duration				
360					
380	California low pressure and high pressure ride through CA_LHVRTEnable California low pressure high pressure through CA_LHVRT enable	R/W	[0,1]		0: disable 1: enable
381	CA_HV2	R/W	[1000,3000]		
382	CA_HV1	R/W			
383	CA_LV1	R/W			
384	CA_LV2	R/W			
385	CA_LV3	R/W			
386	CA_HV2_Time	R/W	[0,300]		0 is 0.16S
387	CA_HV1_Time	R/W			
388	CA_LV1_Time	R/W			
389	CA_LV2_Time	R/W			
390	CA_LV3_Time	R/W			
391	California low frequency high frequency crossing CA_LHFRTEnable California low frequency high frequency traverses CA_LHFRT enable	R/W			
392	CA_HF2	R/W	[4500,6500]	0.01Hz	

393	CA_HF1	R/W			
394	CA_LF1	R/W			
395	CA_LF2	R/W			
396	CA_HF2_Time	R/W	[0,300]		
397	CA_HF1_Time	R/W			
398	CA_LF1_Time				
399	CA_LF2_Time				
400	californiaCA_QVEnable California CA_QV enable				
401	CA_QV_V1		[1000,3000]		
402	CA_QV_V2				
403	CA_QV_V3				
404	CA_QV_V4		[-44,+44]	0.01	
405	CA_QV_Q1				
406	CA_QV_Q2				
407	CA_QV_Q3				
408	CA_QV_Q4				
409	californiaCA_FWEnable California CA_FW enable				
410	CA_Fstart				
411	CA_Fstop				
412	californiaCA_VWEnable California CA_VW enable				
413	CA_Vstart				
414	CA_Vstop				
415	normal rising slope Normal upward slope	R/W	[1 100]	1%	
416	Soft start rate of rise Soft start rise rate	R/W	[1 100]	1%	
417	QV Response time	R/W	[0,90]	S	
418	VW Response time	R/W	[0,60]	S	
419	FW Response time				

5.2.03 Read-only real-time attribute area, the corresponding function code is 0x03.

Addr	Register meaning	R/W	data range	unit	note
500	Operating status run state	R	[0,5]	-	0000 standbystandby 0001 self-testself check 0002 normalnormal 0003 alarmalarm 0004 Faultfault

501	Active power generation on the grid side of the inverter on the same day quantity active power generation of today	R	[-32768,32767]	0.1kWh	
502	Reactive power generation on the grid side of the inverter for the day quantity reactive power generation of today	R	[-32768,32767]	0.1kVarh	
503	On-grid time of the day Grid connection time of today	R	[0,65535]	S	
504	The total active power generated by the grid side of the inverter low word active power generation of total low byte	R	[0,0xFFFFFFFF]	0.1kWh	
505	The total active power generated by the grid side of the inverter high character active power generation of total high byte	R			
506	Total reactive power generation on the grid side of the inverter low word reactive power generation of total low byte				
507	Total reactive power generation on the grid side of the inverter high character reactive power generation of total high byte				
508	Inverter Status Bits1	R			Debug only For debugging, meaningless Bit0:Internal fan presence bit;1have 0none Bit1:External fan presence bit;1have 0none
509	Inverter Status Bits1	R			Debug only For debugging, meaningless
510					
511					
512					
513					
514	Battery charge of the day Today charge of the battery			0.1kwh	
515	Battery discharge capacity of the day Today discharge of the battery			0.1kwh	
516	Battery accumulative charge low word Total charge of the battery low byte			0.1kwh	
517	Battery accumulative charge high word Total charge of the battery			0.1kwh	

	high byte				
518	Battery cumulative discharge low word Total discharge of the battery low byte			0.1kwh	
519	Battery cumulative discharge high word Total discharge of the battery high byte			0.1kwh	
520	Grid electricity purchase on the day Day_GridBuy_Power Wh			0.1kwh	
521	Electricity sold by the grid on the day Day_GridSell_Power Wh			0.1kwh	
522	Power grid accumulative power purchase low word Total_GridBuy_Power Wh_low word			0.1kwh	
523	Power grid accumulative power purchase high word Total_GridBuy_Power Wh_high word			0.1kwh	
524	Grid accumulative electricity sales low word Total_GridSell_Power Wh_low word			0.1kwh	
525	The cumulative electricity sold by the power grid is high Total_GridSell_Power Wh_high word			0.1kwh	
526	electricity consumption of the day Day_Load_Power Wh			0.1kwh	
527	Cumulative power consumption low word Total_Load_Power Wh_low word			0.1kwh	
528	Cumulative power consumption high word Total_Load_Power Wh_high word			0.1kwh	
529	Total of the dayPVpower generation Day_PV_Power Wh	R	[0,65535]	0.1kWh	
530	that dayPV-1power generation Day_PV-1_Power Wh			0.1kWh	
531	that dayPV-2power generation Day_PV-2_Power Wh			0.1kWh	
532	that dayPV-3power generation Day_PV-3_Power Wh			0.1kWh	
533	that dayPV-4power generation Day_PV-4_Power Wh			0.1kWh	
534	historyPVPower Generation Low Word Total PV_power Wh_low word	R		0.1kWh	

535	historyPVPower generation high word Total PV_power Wh_high word	R		0.1kWh	
536					
537					
538					
539	Generator working hours Generator working hours per day			0.1h	
540	DC transformer temperature (DC transformer temperature)	R	[0,3000]	0.1°C	offset1000
541	heat sink temperature Heat sink temperature		[0,3000]	0.1°C	
542	reserve temperature 1 undefined		[0,3000]	0.1°C	
543	reserve temperature 2 undefined	R	[0,3000]	0.1°C	
544	reserve temperature 3 undefined	R	[0,3000]	0.1°C	
545					
546					
547					
548	Fault status of the communication board Failure status of communication board	R	[0,0xFFFF]		Bit0 Flash chip error Bit1 time error Bit2 EEPROM error
549	MCU test flag MCU test flag				Bit0 Arc pull communication sign Arc pull communication sign Bit1 Parallel CAN communication Parallel CAN communication
550	LCD test flag LCD test flag	R	0x0000		Bit8 Lithium battery interface RS485 Lithium electric interface RS485 Bit9 Lithium electric interface CAN Lithium electric interface CAN Bit10 key1234 key1234 Bit11 LCD interrupt status lcd interrupt status
551	Switch state Turn off/on status	R			Low4The bit represents the switch signal 0000shutdown power off 0001start up power on
552	AC side relay status AC realy status	R			0 off 1 on Bit0 INVrelayINV relay Load relay Bit1 reservedundefined Bit2 Grid relaygrid relay Bit3 generator relaygen relay Bit4 Mains Powered Relaysgrid give power to relay

					Bit5	dry contactdry contact
553	Alarm information No.1Character Warning message word 1	R	[0,65535]		Bit0: reserved Bit1: Fan failure FAN_WARN Bit2: grid phase error grid phase wrong Bit3:	
554	Alarm information No.2Character Warning message word 2	R	[0,65535]			
555	Fault information No.1Character Fault information word 1	R	[0,65535]			
556	Fault information No.2Character Fault information word 2	R	[0,65535]			
557	Fault information No.3Character Fault information word 3	R	[0,65535]			
558	Fault information No.4Character Fault information word 4	R	[0,65535]		See fault information code table	
559	reserve					
560	reserve					
561	debug data Debug Data					
	561-583 test data					
583	debug data Debug Data	R	0x0000			
584	reserve undefined					
585	reserve undefined					
586	battery temperature battery temperature	R	[0,3000]	0.1°C		
587	battery voltage battery voltage	R		0.01V		
588	battery power battery capacity	R	[0,100]	1%		
589	reserve undefined	R				
590	Battery output power Battery output power	R		1W	S16	
591	battery output current Battery output current	R		0.01A	S16	
592	The corrected capacity of the battery Corrected_AH		[0,3000]	1AH	100 is 100AH	
593						
594						

595					
596					
597					
598	Grid side phase voltageA Grid phase voltage A	R		0.1V	
599	Grid side phase voltageB Grid phase voltage B	R		0.1V	
600	Grid side phase voltageC Grid phase voltage C	R		0.1V	
601	Grid side line voltageAB Grid line voltage AB	R		0.1V	reserve
602	Grid side line voltageBC Grid line voltage BC	R		0.1V	
603	Grid side line voltageCA Grid line voltage CA	R		0.1V	
604	Grid side insideAPhase power A phase power on the inner side of the grid	R		1W	S16
605	Grid side insideBPhase power B phase power on the inner side of the grid	R		1W	S16
606	Grid side insideCPhase power C phase power on the inner side of the grid	R		1W	S16
607	Grid side-inner total active power Total active power from side to side of the grid	R		1W	
608	Grid side-inner total apparent power Grid side - inside total apparent power	R		1W	reserve
609	Grid side frequency Grid-side frequency				
610	Grid side inner currentA grid side inner current A	R		0.01A	S16
611	Grid side inner currentB grid side inner current B	R		0.01A	S16
612	Grid side inner currentC grid side inner current C	R		0.01A	S16
613	Grid External - CurrentA Out-of-grid - current A	R		0.01A	S16
614	Grid External - CurrentB Out-of-grid - current B	R		0.01A	S16
615	Grid External - CurrentC Out-of-grid - current C	R		0.01A	S16
616	Grid External - PowerA Out-of-grid-power A	R		1W	S16
617	Grid External - PowerB Out-of-grid-power B	R		1W	S16
618	Grid External - PowerC Out-of-grid-power C	R		1W	S16
619	Grid external - total active power Out-of-grid - total power	R		1W	S16
620	Grid External - Total Apparent Power	R		1VA	S16

	Out-of-grid – total apparent power				
621	Grid-connected power factorPF Grid-connected power factor PF	R	R/W	[0,1000]	actual value*1000
622	grid sideAPhase power Grid side A-phase power			1W	The following three registers change according to the built-in and external settings The following three registers vary according to the built-in and external Settings
623	grid sideBPhase power Grid side B-phase power			1W	
624	grid sideCPhase power Grid side C-phase power			1W	
625	Grid side - total active power Grid side total power			1W	
626					
627	Inverter output phase voltageA Inverter output phase voltage A	R		0.1V	
628	Inverter output phase voltageB Inverter output phase voltage B	R		0.1V	
629	Inverter output phase voltageC Inverter output phase voltage C	R		0.1V	
630	Inverter output phase currentA Inverter output phase current A			0.01A	S16
631	Inverter output phase currentB Inverter output phase current B			0.01A	S16
632	Inverter output phase currentC Inverter output phase current C			0.01A	S16
633	Inverter output phase powerA Inverter output phase power A	R		1W	S16
634	Inverter output phase powerB Inverter output phase power B	R		1W	S16
635	Inverter output phase powerC Inverter output phase power C			1W	S16
636	Inverter output total active power Inverter output total power	R		1W	S16
637	Inverter output total apparent power Inverter output total apparent power			1W	S16

638	inverter frequency Inverter frequency			0.01Hz	U16
639					
640	upsLoad side phase powerA UPS load-side phase power A			1W	U16
641	upsLoad side phase powerB UPS load-side phase power B			1W	U16
642	upsLoad side phase powerC UPS load-side phase power C			1W	U16
643	upsTotal power on load sideC UPS load-side total power			1W	U16
644	load phase voltageA Load phase voltage A	R		0.1V	U16
645	load phase voltageB Load phase voltage B	R		0.1V	U16
646	load phase voltageC Load phase voltage C			0.1V	U16
647	Load current measurementAinvalid Load phase current A no use	R		0.01A	S16
648	Load current measurementBinvalid Load phase current B no use	R		0.01A	S16
649	Load current measurementCinvalid Load phase current C no use	R		0.01A	S16
650	Load side phase powerA Load phase power A	R		1W	S16
651	Load side phase powerB Load phase power B	R		1W	S16
652	Load side phase powerC Load phase power C	R		1W	S16
653	Total active power on load side Load total power	R		1W	S16
654	Total apparent power reserve on the load side Load phase apparent power undefine	R		1W	S16
655	load frequency Load frequency	R		0.01Hz	
656					
657					
658					
659					
660					
661	GenPhase voltage of the portA Phase voltage of Gen port A			0.1V	
662	GenPhase voltage of the portB Phase voltage of Gen port B			0.1V	
663	GenPhase voltage of the portC Phase voltage of Gen port C			0.1V	
664	Genport powerA Phase power of Gen port A	R		1W	

665	Genport powerB Phase power of Gen port B			1W	
666	Genport powerC Phase power of Gen port C			1W	
667	GenThe total power of the port total power of Gen port			1W	
668					
669					
670					
671					
672	PV1input power PV1 input power	R		1W	
673	PV2input power PV2 input power	R		1W	
674	PV3input power PV3 input power	R		1W	
675	PV4input power PV4 input power	R		1W	
676	DC voltage1 Dc voltage 1	R	[0,65535]	0.1V	
677	DC1 Dc current 1	R	[0,65535]	0.1A	
678	DC voltage2 Dc voltage 2	R	[0,65535]	0.1V	
679	DC2 Dc current 2	R	[0,65535]	0.1A	
680	DC voltage3 Dc voltage 3	R	[0,65535]	0.1V	
681	DC3 Dc current 3	R	[0,65535]	0.1A	
682	DC voltage4 Dc voltage 4	R	[0,65535]	0.1V	
683	DC4 Dc current 4	R	[0,65535]	0.1A	
	reserve				
	reserve				
	reserve				
1000	Power grid information monitoring method Grid power check mode	R			BIT00: 0:CT 1:Meter BIT01-BIT15: undefine

5.3.03 battery read only area

Addr	Register meaning	R/W	data range	unit	note
2000-2999 for lithium battery register					
	battery ID				
	Sacred Sun Battery				
500	1 number 1 byte 1 number 2 bytes	R	'0'- '9' 'A'- 'Z'		ASCII characters
501	No. 1 3 bytes No. 1 4 bytes	R			
502	No. 1 5 bytes No. 1 6 bytes				
503	No. 1 7 bytes No. 1 8 bytes				
504	No. 1 9 bytes No. 1 10 bytes				
505	No. 1 11 bytes No. 1 12 bytes				
506	No. 2 1 byte No. 2 2 bytes	R	'0'- '9' 'A'- 'Z'		ASCII characters
507	No. 2 3 bytes No. 2 4 bytes	R			
508	No. 2 5 bytes No. 2 6 bytes				

509	No. 2 7 bytes				
	No. 2 8 bytes				
510	No. 2 9 bytes				
	No. 2 10 bytes				
511	No. 2 11 bytes				
	No. 2 12 bytes				
512	No. 3 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 3 2 bytes				
513	No. 3 3 bytes	R			
	No. 3 4 bytes				
514	No. 3 5 bytes				
	No. 3 6 bytes				
515	No. 3 7 bytes				
	No. 3 8 bytes				
516	No. 3 9 bytes				
	No. 3 10 bytes				
517	No. 3 11 bytes				
	No. 3 12 bytes				
518	No. 4 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 4 2 bytes				
519	No. 4 3 bytes	R			
	No. 4 4 bytes				
520	4th 5 bytes				
	No. 4 6 bytes				
521	No. 4 7 bytes				
	No. 4 8 bytes				
522	No. 4 9 bytes				
	No. 4 10 bytes				
523	No. 4 11 bytes				
	No. 4 12 bytes				
524	No. 5 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 5 2 bytes				
525	No. 5 3 bytes	R			
	No. 5 4 bytes				
526	No. 5 5 bytes				
	No. 5 6 bytes				
527	No. 5 7 bytes				
	No. 5 8 bytes				
528	No. 5 9 bytes				
	No. 5 10 bytes				
529	No. 5 11 bytes				
	No. 5 12 bytes				
530	No. 6 1 byte	R	'0'- '9' 'A'-		ASCII characters

	No. 6 2 bytes		'Z'		
531	No. 6 3 bytes	R			
	No. 6 4 bytes				
532	No. 6 5 bytes				
	No. 6 6 bytes				
533	No. 6 7 bytes				
	No. 6 8 bytes				
534	No. 6 9 bytes				
	No. 6 10 bytes				
535	No. 6 11 bytes				
	No. 6 12 bytes				
536	No. 7 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 7 2 bytes				
537	No. 7 3 bytes	R			
	No. 7 4 bytes				
538	No. 7 5 bytes				
	No. 7 6 bytes				
539	No. 7 7 bytes				
	No. 7 8 bytes				
540	No. 7 9 bytes				
	No. 7 10 bytes				
541	No. 7 11 bytes				
	No. 7 12 bytes				
542	No. 8 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 8 2 bytes				
543	No. 8 3 bytes	R			
	No. 8 4 bytes				
544	8th 5 bytes				
	No. 8 6 bytes				
545	No. 8 7 bytes				
	No. 8 8 bytes				
546	8th 9 bytes				
	No. 8 10 bytes				
547	No. 8 11 bytes				
	No. 8 12 bytes				
548	No. 9 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 9 2 bytes				
549	9th 3 bytes	R			
	No. 9 4 bytes				
550	9th 5 bytes				
	No. 9 6 bytes				
551	9th 7 bytes				
	9th 8 bytes				

552	No. 9 9 bytes				
	No. 9 10 bytes				
553	No. 9 11 bytes				
	No. 9 12 bytes				
554	No. 10 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 10 2 bytes				
555	No. 10 3 bytes	R			
	No. 10 4 bytes				
556	No. 10 5 bytes				
	No. 10 6 bytes				
557	No. 10 7 bytes				
	No. 10 8 bytes				
558	No. 10 9 bytes				
	No. 10 10 bytes				
559	No. 10 11 bytes				
	No. 10 12 bytes				
560	No. 11 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 11 2 bytes				
561	No. 11 3 bytes	R			
	No. 11 4 bytes				
562	No. 11 5 bytes				
	No. 11 6 bytes				
563	No. 11 7 bytes				
	No. 11 8 bytes				
564	No. 11 9 bytes				
	No. 11 10 bytes				
565	11 number 11 bytes				
	No. 11 12 bytes				
566	No. 12 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 12 2 bytes				
567	No. 12 3 bytes	R			
	No. 12 4 bytes				
568	No. 12 5 bytes				
	No. 12 6 bytes				
569	No. 12 7 bytes				
	No. 12 8 bytes				
570	No. 12 9 bytes				
	No. 12 10 bytes				
571	No. 12 11 bytes				
	No. 12 12 bytes				
572	No. 13 1 byte	R	'0'- '9' 'A'- 'Z'		ASCII characters
	No. 13 2 bytes				
573	No. 13 3 bytes	R			

	No. 13 4 bytes					
574	No. 13 5 bytes					
	No. 13 6 bytes					
575	No. 13 7 bytes					
	No. 13 8 bytes					
576	No. 13 9 bytes					
	No. 13 10 bytes					
577	No. 13 11 bytes					
	No. 13 12 bytes					
578	No. 14 1 byte		R	'0'-'9' 'A'-'Z'		ASCII characters
	No. 14 2 bytes					
579	No. 14 3 bytes		R			
	No. 14 4 bytes					
580	No. 14 5 bytes					
	No. 14 6 bytes					
581	No. 14 7 bytes					
	No. 14 8 bytes					
582	No. 14 9 bytes					
	No. 14 10 bytes					
583	No. 14 11 bytes					
	No. 14 12 bytes					
584	No. 15 1 byte		R	'0'-'9' 'A'-'Z'		ASCII characters
	No. 15 2 bytes					
585	No. 15 3 bytes		R			
	No. 15 4 bytes					
586	No. 15 5 bytes					
	No. 15 6 bytes					
587	No. 15 7 bytes					
	No. 15 8 bytes					
588	No. 15 9 bytes					
	No. 15 10 bytes					
589	No. 15 11 bytes					
	No. 15 12 bytes					
600	PACK1	Module Voltage			0.01V	
601		Module Current			0.1A	
602		Temperature - AVE				1250 mean 25.0°C
603		SOC			0.1	
604		Remain Capacity			0.1AH	

605		Total Capacity			0.1AH	
606		charge Voltage			0.01V	
607		charge Current			0.1A	
608		Discharge Current			0.1A	
609		Max Cell V			0.01V	
610		Min Cell V			0.01V	
611		cycle number			1	
612		Warming			--	
613		Fault			--	
614	PACK2	Module Voltage				
615		Module Current				
616		Temperature - 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	Temperature - 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		Temperature - 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		Temperature - 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		Temperature - 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		Temperature - 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		Temperature - 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		Temperature - 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	Temperature - 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		Temperature - 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	Temperature - 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		Temperature - 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		Temperature - 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		Temperature - 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				

5.4.memory record table

memory record table					
Addr.	Register meaning	R/W	Range	unit	note
1000	Inverter fault information	R			The length range is500
...		R			
...		R			

1499		R			

5.5.error code

warning code

Error code	Description /describe	Solutions/solution
W01	fan failure	
W02	phase error	

error code:Fault Code

Error code	Description /describe	Solutions/solution
F07	DC/DC_Softstart_Fault DC/DCsoft fault	DC/DC softstart fault 1. Check the battery fuse; 2. Restart and check whether it is in normal; 3. Seek help from us, if can't go back to noarmal state
F10	AuxPowerBoard_Failure Auxiliary power failure	Auxiliary power supply failure 1. Wait for minutes then check; 2. Remove wifi plug or other communicator; 3. Seek help from us, if can't go back to noarmal state
F13	Working mode change mode switch	Inverter work mode changed 1. wait for a minute and check; 2. Seek help from us, if can't go back to normal state.
F18	AC over current fault of hardware Hardware AC Overcurrent	AC side over current fault 1. Please check whether the backup load power and common load power are within the range; 2. Restart and check whether it is in normal; 3. Seek help from us, if can not go back to normal state.
F20	DC over current fault of the hardware Hardware DC overcurrent	DC side over current fault 1. Check PV module connect and battery connect; 2. Turn off the DC switch and AC switch and then wait one minute, then turn on the DC/AC switch again; 3. Seek help from us, if can not go back to normal state.
F22	Tz_EmergSStop_Fault Emergency stop fault (inverter locked)	Tz_EmergSStop_Fault Seek help from us, This failure hardly happens.
F23	AC leakage current is transient over current Instantaneous Leakage Current Fault	Leakage current fault 1. Check the cable of PV module and inverter; 2. Restart inverter; 3. Seek help from us, if can not go back to normal state.

F24	DC insulation impedance failure <small>Phalanx Insulation Resistance Fault</small>	PV isolation resistance is too low 1. Check the connection of PV panels and inverter is firmly and correctly; 2. Check whether the PE cable of inverter is connected to ground; 3. Seek help from us, if can not go back to normal state.
F26	The DC busbar is unbalanced DC bus unbalance	1. Please wait for a while and check whether it is normal; 2. If still same, and turn off the DC switch and AC switch and wait for one minute and then turn on the DC/AC switch; 3. Seek help from us, if can not go back to normal state.
F29	Parallel_CANBus_Fault <small>Parallel communication failure</small>	This fault only for inverters working in parallel mode 1. Check the parallel setting according to the instructions; 2. Check the connection of the CANBus; 3. Seek help from us
F35	No AC grid <small>No electricity</small>	No Utility 1. Please confirm grid is lost or not; 2. Check the grid connection is good or not; 3. Check the switch between inverter and grid is on or not; 4. Seek help from us, if can not go back to normal state.
F41	Parallel_system_Stop <small>Shutdown failure of parallel system</small>	In parallel system, due to other inverter faults. 1. Wait for minutes then check all inverters in this parallel system; 2. If inverter can't go back to normal state, record fault codes of all inverters, then seek help from us.
F42	AC line low voltage Low line voltage fault	Grid voltage fault 1. Check the AC voltage is in the range of standard voltage in specification; 2. Check whether grid AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state.
F46/F49	Bcakup_Battery_Fault <small>backup battery failure</small>	Backup battery fault. 1. Check the battery capacity; 2. Check the connection between batteries and inverters; 3. If inverter can't go back to normal after load reduction, seek help from us
F47	AC over frequency <small>Exchange too frequently</small>	Grid frequency out of range 1. Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state.
F48	AC lower frequency <small>AC underfrequency</small>	Grid frequency out of range 1. Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state.

F56	DC busbar voltage is too low <small>Bus voltage is too low</small>	Battery voltage low 1. Check whether battery voltage is too low; 2. If the battery voltage is too low, using PV or grid to charge the battery; 3. Seek help from us, if can not go back to normal state.
F58	BMS communication fault <small>BMScommunication fail</small>	
F63	ARC fault arc fault	1. ARC fault detection is only for US market; 2. Check PV module cable connection and clear the fault; 3. Seek help from us, if can not go back to normal state.
F64	heat sink high temperature failure <small>Radiator temperature is too high</small>	Heat sink temperature is too high 1. Check whether the work environment temperature is too high; 2. Turn off the inverter for 10mins and restart; 3. Seek help from us, if can not go back to normal state.

6.appendix

6.1.Appendix I:

6.2.Appendix II:

6.3.Appendix III:

6.4.Appendix IV

6.5.Appendix V: