

Growatt Inverter Modbus RTU Protocol_II

V1.13

2019-1-16

Growatt New Energy CO.,LTD

No.	Version	Date	Notice	Signature
1	V1.00	2017-3-27	The first version	May
2	V1.01	2017-4-28	Modify max data length to 125 words. Add Inputreg50-52 for line voltage	May
3	V1.02	2017-7-18	Add SP storage and offline inverter message Modify Input reg. First and Second group sequence Modify Holding register First group sequence ModigystringPID fault code and warning code Modify fifth and sixth group for Gridfault record	May
4	V1.03	2017-8-2	Modify Hybrid Abnoram/Fault/warning bit definition	Ericxiong
5	V1.04	2018-3-29	Add Inputing178,179,180,181 for Warning Value1,Warning Value2,Warning Value3 and FaultCode Add Holding240 for aging Check Step Add Inputing112 for INV warn code Add Inputing113 for real Power Percent Add Inputing114 forinv start delay time Add Inputing115 for INVAllFaultCode Add holding267-298 for DSP debugdata address Add Inputing182-197 for DSP debugdata value Add Inputing198 for USB Aging Test OK flag Add Inputing199 for USB Flash Aging Test OK flag Add Inputing200 for ISO check value Add holding299 for ActiveOverloadEnable Add Inputing 201-203 for R、S、T DCI Current Add Inputing204 for PIDBusVolt Add Inputing205 forGFCI Curr Add Inputing 206-227 for APF/SVG information Add holding 300 for SVG/APF mode	
6	V1.05	2018-6-28	Add InputingReg 525~529 for Setting up GPRS IP Address Add HodlingReg 90 as the step to set up GPRS IP Address	huo.zhao

7	V1.06	2018.8.30	Add HoldingReg 301 for BDEW LVRT KFactor Add holdingReg 302 for BDEW ZeroCurrentMode Enable Add Inputing228 for 232 Aging Test OK flag Add holding133-147 for new serial number 30 bit	Yimin.Yang
8	V1.07	2018.9.12	AddholdingReg 122~123 for export limit set and change Longitude and latitudetoholdingReg 241~242; Add holdingReg 42 for English G100 fail safe set; Union MAX and StorageaboutholdingReg112~115;	Kin
9	V1.08	2018.9.18	Add thirteen group 2000~2124 for Storage power's SPA1-3K	Kin
10	V1.09	2018.10.23	Add Holding 303 for SVGAPFEqualRatio Add Holding 304 for Anti-Backflow Failed PowerRate Change Input 206 bit0-7 for SVG/APF Status , bit8-15 for SVGAPFEqualRatio Change Holding BLVersion to 148-151(old is 118-121) Add houding 118-121 for New model set	Yimin.Yang
11	V1.10	2018.10.29	Add holding reg 3000~3124 for TL-X and TL-XH; Add input reg 3000~3249 for TL-X and TL-XH;	Zhenyuan.li
12	V1.11	2018.11.01	1、 modify holding reg 122, add set CT select; 2、 change new SN reg to holding reg 209~223; 3、 change BootVer reg to holding reg 133~136;	Zhenyuan.li
13	V1.12	2018.11.29	1、 add Holding 305 for Q load speed 2、 add Holding 306 for Parallel Anti-Backflow enable 3、 add Input 229 for Fan Fault Bit 4、 add holding 307 for Anti-Backflow Failure Response Time 5、 add holding 310 for GPRS status 6、 add Input 230-231 for Output apparent power	Yimin.Yang
14	V1.13	2019.1.16	1、 change holding42 for Parallel Anti-Backflow Host NoResponse Flag 2、 add holding 308 for Parallel Anti Backflow Power Limit 3、 add holding 309 for ISO Check Cmd	Yimin.Yang

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1 Data format

Address	Function	Data	CRC check
8 bits	8 bits	N×8bits	16bits

Valid slave device addresses are in the range of 0 – 254 decimal.

The individual slave devices are assigned addresses in the range of 1 – 254.

0 is the broadcast address

It is 16bits (two bytes) unsigned integer for each holding and input register;

2 Command Format

Function 3 Read holding register

QUERY	
Field Name	Example (Hex)
Slave Address	11
Function	03
Starting Address Hi	00
Starting Address Lo	6B
No. of Points Hi	00
No. of Points Lo	03
Error Check (LRC or CRC)	—

RESPONSE	
Field Name	Example (Hex)
Slave Address	11
Function	03
Byte Count	06
Data Hi (Register 40108)	02
Data Lo (Register 40108)	2B
Data Hi (Register 40109)	00
Data Lo (Register 40109)	00
Data Hi (Register 40110)	00
Data Lo (Register 40110)	64
Error Check (LRC or CRC)	—

Response Error:

11 0x80|0x03 ErrornumCRC(Errornum as a byte)

Function 4 Read input register

QUERY	
Field Name	Example (Hex)
Slave Address	11
Function	04
Starting Address Hi	00
Starting Address Lo	08
No. of Points Hi	00
No. of Points Lo	01
Error Check (LRC or CRC)	—

RESPONSE	
Field Name	Example (Hex)
Slave Address	11
Function	04
Byte Count	02
Data Hi (Register 30009)	00
Data Lo (Register 30009)	0A
Error Check (LRC or CRC)	—

Response Error:

11 0x80|0x04 ErrornumCRC (Errornum as a byte)

Function 6 Preset single register

QUERY	
Field Name	Example (Hex)
Slave Address	11
Function	06
Register Address Hi	00
Register Address Lo	01
Preset Data Hi	00
Preset Data Lo	03
Error Check (LRC or CRC)	—

RESPONSE	
Field Name	Example (Hex)
Slave Address	11
Function	06
Register Address Hi	00
Register Address Lo	01
Preset Data Hi	00
Preset Data Lo	03
Error Check (LRC or CRC)	—

Response Error:

11 0x80|0x06 ErrornumCRC (Errornum as a byte)

Function 16 Preset multiple register

QUERY	
Field Name	Example (Hex)
Slave Address	11
Function	10
Starting Address Hi	00
Starting Address Lo	01
No. of Registers Hi	00
No. of Registers Lo	02
Byte Count	04
Data Hi	00
Data Lo	0A
Data Hi	01
Data Lo	02
Error Check (LRC or CRC)	—

RESPONSE	
Field Name	Example (Hex)
Slave Address	11
Function	10
Starting Address Hi	00
Starting Address Lo	01
No. of Registers Hi	00
No. of Registers Lo	02
Error Check (LRC or CRC)	—

Response Error:

11 0x80|0x10 ErrornumCRC (Errornum as a byte)

3 Device Message Transmission Mode / Framing

RTU Mode

When controllers are setup to communicate on a Modbus network using RTU (Remote Terminal Unit) mode, each 8-bit byte in a message contains two 4-bit hexadecimal characters. Each message must be transmitted in a continuous stream.

The format for each byte in RTU mode is:

- Coding System: 8-bit binary, hexadecimal 0–9, A–F
- Two hexadecimal characters contained in each 8-bit field of the message

Bits per Byte:

- 1 start bit
- 8 data bits, least significant bit sent first
- None parity
- 1 stop bit
- Error Check Field: Cyclical Redundancy Check (CRC)

The baud rate of the transmission is:

- Default Baud Rate: 9600 bps
- Can be set through hold register 22

Minimum CMD period (RS485 Time out): 850ms.

- Wait for minimum 850ms to send a new CMD after last CMD. Suggestion is 1s;

Maximum Data Length Define:

- Maximum read data length is **125 words** in read command;
- Maximum update data length is 125 words in preset command;

Note:

Except the CEIO-21 and VDE-AR-N 4105 power management registers, you should refer the manufactory's suggestion when writing other registers;

4 Register map

It is 16bits (two bytes) unsigned integer for each holding and input register;

4.1 Holding Reg

Register NO.	Variable Name	Description	Write or not	Value	Unit	Initial value	Note
First group							
00	OnOff	Remote On/Off . On (1); Off (0)	W	0or1		1	When PV restart, recover 1.
01	SaftyFuncEn	Bit0: SPI enable Bit1: AutoTestStart Bit2: LVFRT enable Bit3: FreqDeratingEnable Bit4: Softstart enable Bit5: DRMS enable Bit6:PowerVoltFunc En Bit7~15:reserved	W	0 : disable 1: enable			SPI: system protection interface Bit0~3:for CEIO-21 Bit4~6:for SAA
02	PF CMD memory state	Set Holding register3,4,5,99 CMD will be memory or not(1/0), if not, these settings are the initial value.	W	0or1		0	Means these settings will be acting or not when next power on
03	Active Rate	Inverter Max output active power percent	W	0-100 or 255	%	255	255: power is not be limited
04	Reactive Rate	Inverter max output reactive power percent	W	0-100 or 255	%	255	255: power is not be limited
05	Power factor	Inverter output power factor's 10000 times	W	0-20000, 0-10000 is underexcited, other is overexcited		0	
06	Pmax H	Normal power (high)			0.1VA		

07	Pmax L	Normal power (low)			0.1VA		
08	Vnormal	Normal work PV voltage			0.1V		
09	Fw version H	Firmware version (high)			ASCII		
10	Fw version M	Firmware version (middle)					
11	Fw version L	Firmware version (low)					
12	Fw version2 H	Control Firmware version (high)			ASCII		
13	Fw version2 M	Control Firmware version (middle)			ASCII		
14	Fw version2 L	Control Firmware version (low)			digital		
15	LCD language	LCD language	W	0-5			0: Italian; 1: English; 2: German; 3: Spanish; 4: French; 5: Chinese;
16	CountrySelected	Country Selected or not	W	0: need to select; 1: have selected			
17	Vpv start	Input start voltage	W		0.1V		
18	Time start	Start time	W		1s		
19	RestartDelay Time	Restart Delay Time after fault back;	W		1s		
20	wPowerStart Slope	Power start slope	W	1-1000	0.1%		
21	wPowerRestartSlopeEE	Power restart slope	W	1-1000	0.1%		
22	wSelectBaudrate	Select communicationbaudrate 0: 9600bps 1:38400bps	W	0-1		0	
23	Serial NO. 5	Serial number 5			ASCII		
24	Serial No. 4	Serial number 4					
25	Serial No. 3	Serial number 3					
26	Serial No. 2	Serial number 2					
27	Serial No. 1	Serial number 1					

28	Module H	Inverter Module (high)		&*5			
29	Module L	Inverter Module (low)		&*5			
30	Com Address	Communicate address	W	1-254		1	
31	FlashStart	Update firmware	W	1			
32	Reset User Info	Reset User Information	W	0x0001			
33	Reset to factory	Reset to factory	W	0x0001			
34	Manufacturer Info 8	Manufacturer information (high)				ASCII	
35	Manufacturer Info 7	Manufacturer information (middle)					
36	Manufacturer Info 6	Manufacturer information (low)					
37	Manufacturer Info 5	Manufacturer information (high)					
38	Manufacturer Info 4	Manufacturer information (middle)					
39	Manufacturer Info 3	Manufacturer information (low)					
40	Manufacturer Info 2	Manufacturer information (low)					
41	Manufacturer Info 1	Manufacturer information (high)					
42	Parallel Anti-Backflow Host NoResponse Flag	Parallel Anti-Backflow Host NoResponse Flag	W	0 : Response OK 1 : NoResponse			Parallel Anti-Backflow Host NoResponse Flag
43	DTC	Device Type Code		&*6			
44	TP	Input tracker num and output phase num		Eg:0x0203 is two MPPT and 3ph output			
45	Sys Year	System time-year	W	Year offset is 0			Local time
46	Sys Month	System time- Month	W				
47	Sys Day	System time- Day	W				
48	Sys Hour	System time- Hour	W				

49	Sys Min	System time- Min	W				
50	Sys Sec	System time- Second	W				
51	Sys Weekly	System Weekly	W	0-6			
52	Vac low	Grid voltage low limit protect	W		0.1V		
53	Vac high	Grid voltage high limit protect	W		0.1V		
54	Fac low	Grid frequency low limit protect	W		0.01 Hz		
55	Fac high	Grid high frequency limit protect	W		0.01 Hz		
56	Vac low 2	Grid voltage low limit protect 2	W		0.1V		
57	Vac high 2	Grid voltage high limit protect 2	W		0.1V		
58	Fac low 2	Grid frequency low limit protect 2	W		0.01 Hz		
59	Fac high 2	Grid high frequency limit protect 2	W		0.01 Hz		
60	Vac low 3	Grid voltage low limit protect 3	W		0.1V		
61	Vac high 3	Grid voltage high limit protect 3	W		0.1V		
62	Fac low 3	Grid frequency low limit protect 3	W		0.01Hz		
63	Fac high 3	Grid frequency high limit protect 3	W		0.01Hz		
64	Vac low C	Grid low voltage limit connect to Grid	W		0.1V		
65	Vac high C	Grid high voltage limit connect to Grid	W		0.1V		
66	Fac low C	Grid low frequency limit connect to Grid	W		0.01 Hz		
67	Fac high C	Grid high frequency limit connect to Grid	W		0.01 Hz		
68	Vac low1 time	Grid voltage low limit protect time 1	W		Cycle		
69	Vac high1 time	Grid voltage high limit protect time 1	W		Cycle		
70	Vac low2 time	Grid voltage low limit protect time 2	W		Cycle		
71	Vac high2 time	Grid voltage high limit protect time 2	W		Cycle		

	time	protect time 2					
72	Fac low1 time	Grid frequency low limit protect time 1	W		Cycle		
73	Fac high1 time	Grid frequency high limit protect time 1	W		Cycle		
74	Fac low2 time	Grid frequency low limit protect time 2	W		Cycle		
75	Fac high2 time	Grid frequency high limit protect time 2	W		Cycle		
76	Vac low3 time	Grid voltage low limit protect time 3	W		Cycle		
77	Vac high3 time	Grid voltage high limit protect time 3	W		Cycle		
78	Fac low3 time	Grid frequency low limit protect time 3	W		Cycle		
79	Fac high3 time	Grid frequency high limit protect time 3	W		Cycle		
80	U10min	Volt protection for 10 min	W		0.1V	1.1Vn	
81	PV Voltage High Fault	PV Voltage High Fault	W		0.1V		
82	FW Build No. 5	FW Build version			ASCII		
83	FW Build No. 4	FW Build version			ASCII		
84	FW Build No. 3	DSP1 FW Build No.			ASCII		
85	FW Build No. 2	DSP2 FW Build No.			ASCII		
86	FW Build No. 1	M3 FW Build No.			ASCII		
87	FW Build No. 0	CPLD FW Build No.			ASCII		
88	ModbusVers ion	Modbus Version		Eg: 207 is V2.07	Int(16 bits)		
89	PFModel	Set PF function Model 0: PF=1 1: PF by set 2: default PF line 3: User PF line 4: UnderExcited (Inda) Reactive Power	W				

		5: OverExcited(Capa) Reactive Power 6: Q(v)model					
90	GPRS IP Flag	read:1;Set GPRS IP Succeeded Write:2;Read GPRS IP Succeeded	W	about GPRS IP SET			
91	FreqDerateStart	Frequency derating start point	W		0.01HZ		
92	FLrate	Frequency – load limit rate	W	0-100	10times		
93	V1S	CEI021 V1S Q(v)	W	V1S<V2S	0.1V		
94	V2S	CEI021 V2S Q(v)	W		0.1V		
95	V1L	CEI021 V1L Q(v)	W	V1L<V1S	0.1V		
96	V2L	CEI021 V2L Q(v)	W	V2L<V1L	0.1V		
97	Qlockinpower	Q(v) lock in active power of CEI021	W	0-100	Percent		
98	QlockOutpower	Q(v) lock Out active power of CEI021	W	0-100	Percent		
99	LIGridV	Lock in gird volt of CEI021 PF line	W	nVn	0.1V		
100	LOGridV	Lock out gird volt of CEI021 PF line	W	nVn	0.1V		
101	PFAdj1	PF adjust value 1		4096 is 1			
102	PFAdj2	PF adjust value 2		4096 is 1			
103	PFAdj3	PF adjust value 3		4096 is 1			
104	PFAdj4	PF adjust value 4		4096 is 1			
105	PFAdj5	PF adjust value 5		4096 is 1			
106	PFAdj6	PF adjust value 6		4096 is 1			
107	QVRPDelayTimeEE	QV Reactive Power delaytime	W	0-30	1S	3S	
108	OverFDeratDelayTimeEE	Overfrequency derati ngdelaytime	W	0-20	50ms	0	
109	QpercentMax	Qmax for Q(V) curve	W	0-1000	0.1%		
110	PFLineP1_LP	PF limit line point 1 load percent	W	0-255	percent		255 means no this point
111	PFLineP1_PF	PF limit line point 1 power factor	W	0-20000			
112	PFLineP2_LP	PF limit line point 2 load percent	W	0-255	percent		255 means no this point

113	PFLineP2_PF	PF limit line point 2 power factor	W	0-20000			
114	PFLineP3_LP	PF limit line point 3 load percent	W	0-255	percent		255 means no this point
115	PFLineP3_PF	PF limit line point 3 power factor	W	0-20000			
116	PFLineP4_LP	PF limit line point 4 load percent	W	0-255	percent		255 means no this point
117	PFLineP4_PF	PF limit line point 4 power factor	W	0-20000			
118	Module 4	Inverter Module (4)		&*11			SxxBxx
119	Module 3	Inverter Module (3)		&*11			DxxTxx
120	Module 2	Inverter Module (2)		&*11			PxxUxx
121	Module 1	Inverter Module (1)		&*11			Mxxxx Power
122	uwLocalAntiBackflowEnable	Local Anti Backflow Enable	R/W	1/0 0: disable Not zero: enable			Local Anti-backflow enable, 0: Disable exportLimit; 1: Enable meter1 exportLimit;(default) 2: Enable meter2 exportLimit; 3: Enable CT exportLimit;
123	wLocalAntiBackflowMeterPowerLimitEE	wLocalAntiBackflowMeterPowerLimitEE	R/W	-1000~+1000	0.1%		Local Anti-backflow power limit percentage
124	TrakerModel	2 Traker Model	W	0,1,2	0:Independent 1:DC Source 2:Parallel		
Second group							
125	INV Type-1	Inverter type-1	R		ASCII		Reserved
126	INV Type-2	Inverter type-2	R		ASCII		
127	INV Type-3	Inverter type-3	R		ASCII		
128	INV Type-4	Inverter type-4	R		ASCII		
129	INV Type-5	Inverter type-5	R		ASCII		
130	INV Type-6	Inverter type-06	R		ASCII		
131	INV Type-7	Inverter type-7	R		ASCII		
132	INV Type-8	Inverter type-8	R		ASCII		
133	BLVersion1	Boot loader version1	R				Reserved

134	BLVersion2	Boot loader version2	R				Reserved
135	BLVersion3	Boot loader version3	R				Reserved
136	BLVersion4	Boot loader version4	R				Reserved
.....							Reserved
200	/	/	/	/	/	/	Reserved
201	PID Working Model	PID Working Model	W	0:Automatic 1:Continual 2:Overnight			
202	PID On/Off Ctrl	PID On/Off Control	W	0:On 1:Off			
203	PID Volt Option	PID Output Voltage Option	W	300~1000 V			
.....							Reserved
209	Serial NO. New 15	新序列号 15			ASCII		
210	Serial NO. New 14	新序列号 14			ASCII		
211	Serial NO. New 13	新序列号 13			ASCII		
212	Serial NO. New 12	新序列号 12			ASCII		
213	Serial NO. New 11	新序列号 11			ASCII		
214	Serial NO. New 10	新序列号 10			ASCII		
215	Serial NO. New 9	新序列号 9			ASCII		
216	Serial NO. New 8	新序列号 8			ASCII		
217	Serial NO. New 7	新序列号 7			ASCII		
218	Serial NO. New 6	新序列号 6			ASCII		
219	Serial NO. New 5	新序列号 5			ASCII		
220	Serial NO. New 4	新序列号 4			ASCII		
221	Serial NO. New 3	新序列号 3			ASCII		

222	Serial NO New. 2	新序列号 2			ASCII		
223	Serial NO New. 1	新序列号 1			ASCII		
.....							Reserved
230~249 for growatt debug setting							
230	IslandDisable	Island Disable or not. 1:disable 0:Enable	W	0,1		0	
231	FanCheck	Start Fan Check	W	1			
232	EnableNLine	Enable N Line of grid	W	1		0	
233	wCheckHardware	wCheckHardware Bit0: GFCIBreak; Bit1:SPSDamage Bit8:EepromReadWarning Bit9:EEWriteWarning					
234	wCheckHardware2						reserved
235	ubNtoGNDdetect	Dis/enable N to GND detect function	W	1:enable 0:disable		1	
236	NonStdVacEnable	Enable/Disable Nonstandard Grid voltage range	W	0-1;		0	0:Disable; 1:Enable;
237	uwEnableSpecSet	Disablse/enable appointed spec setting	W	1:enable 0:disable	Binary	0x000 0	Bit 0: Hungary
238	Fast MPPT enable	About Fast mppt		0,1,2		0	Reserved
239	/	/	/	/		/	Reserved
240	Check Step		W				
241	INV-Lng	Inverter Longitude	W				Longitude
242	INV-Lat	Inverter Latitude	W				Latitude
.....							Reserved
249							Reserved
250	Curve analysis	Enable a curve analysis of a road	W	0~1		0	
251	FaultrecorderWave1	Preset Record Waveform Number	W	1001~1999	1001		
252	FaultrecorderWave2	Preset Record Waveform Number	W	1001~1999	1002		
253	Faultrecorde	Preset Record	W	1001~199	1003		

	rWave3	Waveform Number		9			
254	FaultrecorderWave4	Preset Record Waveform Number	W	1001~1999	1004		
255	FaultrecorderWave5	Preset Record Waveform Number	W	1~999	1		
256	FaultrecorderWave6	Preset Record Waveform Number	W	1~999	2		
257	FaultrecorderWave7	Preset Record Waveform Number	W	1~999	3		
258	FaultrecorderWave8	Preset Record Waveform Number	W	1~999	4		
259	FaultRecorderEnable	FaultRecorderEnable	W	1~100	0		
260	recorderWave1	Preset Record Waveform Number	W	1~1999	1		
261	recorderWave2	Preset Record Waveform Number	W	1~1999	2		
262	recorderWave3	Preset Record Waveform Number	W	1~1999	3		
263	recorderWave4	Preset Record Waveform Number	W	1~1999	4		
264	WaveRecorderEnable	Real-time waveform recording	W	0~1	0		
265	Harmonic Check Enable	Harmonic Check Enable	W	0~1	0		
266	Impedance Enable	Impedance Enable	W	0~1	0		
267	067 Debug 1_H	067 Debug 1_H					
268	067 Debug1_L	067 Debug1_L					
269	067 Debug2_H	067 Debug2_H					
270	067 Debug2_L	067 Debug2_L					
271	067 Debug3_H	067 Debug3_H					
272	067 Debug3_L	067 Debug3_L					
273	067	067 Debug4_H					

	Debug4_H						
274	067 Debug4_L	067 Debug4_L					
275	067 Debug5_H	067 Debug5_H					
276	067 Debug5_L	067 Debug5_L					
277	067 Debug6_H	067 Debug6_H					
278	067 Debug6_L	067 Debug6_L					
279	067 Debug7_H	067 Debug7_H					
280	067 Debug7_L	067 Debug7_L					
281	067 Debug8_H	067 Debug8_H					
282	067 Debug8_L	067 Debug8_L					
283	075 Debug 1 _H	075 Debug 1_H					
284	075 Debug1_L	075 Debug1_L					
285	075 Debug2_H	075 Debug2_H					
286	075 Debug2_L	075 Debug2_L					
287	075 Debug3_H	075 Debug3_H					
288	075 Debug3_L	075 Debug3_L					
289	075 Debug4_H	075 Debug4_H					
290	075 Debug4_L	075 Debug4_L					
291	075 Debug5_H	075 Debug5_H					
292	075 Debug5_L	075 Debug5_L					
293	075 Debug6_H	075 Debug6_H					
294	075	075 Debug6_L					

	Debug6_L						
295	075 Debug7_H	075 Debug7_H					
296	075 Debug7_L	075 Debug7_L					
297	075 Debug8_H	075 Debug8_H					
298	075 Debug8_L	075 Debug8_L					
299	bActiveOverl oadEnable	ActiveOverloadEnable					
300	bSvgApfMod e	SvgApfMode		Low 4bit: 0:SVG/AP F, 1:APF/SV G, 2:SVG, 3:APF High 4bit: 0:one day mode, 1:Night node,			
301	bBdewLvrtKF actor	BDEW LVRT KFactor		0-7			
302	bBdewZeroC urrentMode En	BDEW ZeroCurrentMode Enable		0-1			
303	bSVGAPFEqu alRatio	SVG/APFEqualRatio		0-32			
304	uwAntiBackf lowFailPowe rLimitEE	Anti-Backflow Failed PowerRate	R/W	0-1000	0.1%		Anti-Backflow failure default setting power percentage
305	Qloadspeed	Q load speed	R/W	0-100	1%		Reactive power adjustment speed setting item, n%Pn/s, 0 means that the loading speed is not enabled, that is, directly loaded to the setting value
306	bParallelAnti BackflowEna ble	Parallel Anti-Backflow enable	R/W	0-1			Parallel Anti-Backflow enable 1:Enable 0:Disable
307	uwAntiBackf	Anti-Backflow	R/W	1-5000	1s		Anti-backflow failure response

	lowFailureResponseTime	FailureResponseTime					time
308	uwParallelAntiBackflowPowerLimitEE	Parallel Anti Backflow Power Limit	R/W	0-1000	0.1%		Parallel Anti Backflow Power Limit
309	bISOCheckCmd	ISO Check Cmd	R/W	0-1	1		ISO Check Cmd
310	bGRPRSStatus	GPRS status 1: Module does not work 2: No SIM 3: No network 4: TCP is connecting to the server 5: TCP connection succeeded	R/W	0-255	1		GPRS status
Pending part							
360	232T485Enable	232T485Enable	W	0: Disable; 1: Enable			
361	Decrease Power H	Decrease output watt	W				
362	Decrease Power L	Decrease output watt	W		0.1W		
363	Increase Power H	Increase output watt	W				
364	Increase Power L	Increase output watt	W		0.1W		
365	Factory	The ODM Info code					
366	Vac start by pf	Vac start adjust by pf	W		0.1V		
367	PF of vac limit	Max pf of adjust Vac	W			10000	
368	LCMDTest	Local command test	W	1 to test			
369	ReactiveRate	Reactive Rate in LVFRT	W	0-100		2	
370	LVFRT_LV1	LVFRT low fault value 1	W		0.1V		
371	LVFRT_LT1	LVFRT low fault time 1	W		1ms		
372	LVFRT_LV2	LVFRT low fault value 2	W		0.1V		
373	LVFRT_LT2	LVFRT low fault time 2	W		1ms		
374	LVFRT_LV3	LVFRT low fault value 3	W		0.1V		
375	LVFRT_LT3	LVFRT low fault time 3	W		1ms		
376	LVFRT_LV4	LVFRT low fault value 4	W		0.1V		

377	LVFRT_LT4	LVFRT low fault time 4	W		1ms		
378	LVFRT_HV1	LVFRT high fault value 1	W		0.1V		
379	LVFRT_HT1	LVFRT high fault time 1	W		1ms		
380	wLoadDerateStartVoltage	Load derate start ac voltage			1.05Vn~1.2Vn	0.1V	
381	SpecPasswordType	Unlock or set Specpassword	W	0:unlock , auto lock in 5 minute; 1:change pw (should unlock first), 2: lock, &*7		2	
382	SpecPassword3	SpecPassword3	W	For the spec setting change	ASCII	XX	
383	SpecPassword2	SpecPassword2	W	..	ASCII	XX	
384	SpecPassword1	SpecPassword1	W	..	ASCII	XX	
385	DCIshift	DCI offset		Center is 30000			Reserved
386	DCIAdj	DCI adjust		Center is 2000			Reserved
387	IniEEPROM	IniEEPROM	W	0xFF			Reserved
388	Balance 1	Phaseflag ErrorCode	W				Reserved
389	Balance 2	Power H	W				Reserved
390	Balance 3	Power L	W				Reserved
391	bHighACVDerateSlope	High ac voltage load derating slope	W	20	0-100		
392	BlanceModel	BlanceModel	W	1-3			
393	BalancePhase	BalancePhase	W	1-3			
394	DCIshift2	DCI offset 2	W	Center is 30000			Reserved
395	DCIshift3	DCI offset 3	W	Center is 30000			Reserved

396	EnergyLimitEnable	Output Energy Limit Enable	R	1 is enable			Reserved
397	EnergyRemain H	Output Energy Limit value High	W	0.1kWh			Reserved
398	EnergyRemain L	Output Energy Limit value low	W	0.1kWh			Reserved
399	TrakerModel	2 Traker Model PV model check	W	0,1,2			SPH
400	PMcheck	Growatt Resaved	W				Reserved
401	INVWorkMode	INV work mode set	W	0:default 1:CV Mode 2:CC Mode 3:CP Mode		0	
402	PV1VoltSet	pv1 voltage set when CV Mode was chosed	W	StartPVV olt-HighP VVolt			
403	PV2VoltSet	Pv2 voltage set when CV Mode was chosed	W	StartPVV olt-HighP VVolt			
404	BT1CurrRefSet	BT1 current set when CC Mode was chosed	W	0-MaxBT Current			
405	BT2CurrRefSet	BT2current set when CC Mode was chosed	W	0-MaxBT Current			
406	WattACVRecoverDelayTime	Delay time for power recovering when ac voltage getting normal	W	3-90S			
407	TxDatInterval	TxDatInterval	W	1~600	0.1 mins	50	5mins
408	ChkCode NO.1	Datalogger Check Code 1	R		ASCII		
409	ChkCode NO.2	Datalogger Check Code 2	R		ASCII		
500	ChkCode NO.3	Datalogger Check Code 3	R		ASCII		
501	bISLDShiftDeltaEE	Growatt Resaved	W				Reserved
502	bLowPointer	Growatt Resaved	W				Reserved
505	GPRSIP Addr	GPRSIP Addr No.1	W	0~65536	ASCII		
506	GPRSIP Addr	GPRSIP Addr No.2	W	0~65536	ASCII		

507	GPRSIP Addr	GPRSIP Addr No.3	W	0~65536	ASCII		
508	GPRSIP Addr	GPRSIP Addr No.4	W	0~65536	ASCII		
509	GPRSIP Addr	GPRSIP Addr No.5	W	0~65536	ASCII		
510	GPRSIP Addr	GPRSIP Addr No.6	W	0~65536	ASCII		
511	GPRSIP Addr	GPRSIP Addr No.7	W	0~65536	ASCII		
512	GPRSIP Addr	GPRSIP Addr No.8	W	0~65536	ASCII		
513	GPRSIP Addr	GPRSIP Addr No.9	W	0~65536	ASCII		
514	GPRSIP Addr	GPRSIP Addr No.10	W	0~65536	ASCII		
515	GPRSIP Addr	GPRSIP Addr No.11	W	0~65536	ASCII		
516	GPRSIP Addr	GPRSIP Addr No.12	W	0~65536	ASCII		
517	GPRSIP Addr	GPRSIP Addr No.13	W	0~65536	ASCII		
518	GPRSIP Addr	GPRSIP Addr No.14	W	0~65536	ASCII		
519	GPRSIP Addr	GPRSIP Addr No.15	W	0~65536	ASCII		
520	GPRSIP Addr	GPRSIP Addr No.16	W	0~65536	ASCII		
521	GPRSIP Addr	GPRSIP Addr No.17	W	0~65536	ASCII		
522	GPRSIP Addr	GPRSIP Addr No.18	W	0~65536	ASCII		
523	GPRSIP Addr	GPRSIP Addr No.19	W	0~65536	ASCII		
524	GPRSIP Addr	GPRSIP Addr No.20	W	0~65536	ASCII		
525	GPRSIP Addr	GPRSIP Addr No.21	W	0~65536	ASCII		
526	GPRSIP Addr	GPRSIP Addr No.22	W	0~65536	ASCII		
527	GPRSIP Addr	GPRSIP Addr No.23	W	0~65536	ASCII		
528	GPRSIP Addr	GPRSIP Addr No.24	W	0~65536	ASCII		
529	GPRSIP Addr	GPRSIP Addr No.25	W	0~65536	ASCII		

Six group for Storage Power

Register NO.	Variable Name	Description	Write or not	Value	Unit	Initial value	Note
1000.	Float charge current limit	When charge current battery need is lower than this value, enter into float charge	W		0.1A	600	CC current
1001.	PF CMD memory state	Set the following 19-22 CMD will be memory or not(1/0), if not, these settings are the initial value.	W	0or1,		0	Means these settings will be acting or not when next power on(02 repeat)
1002.	VbatStartF orDischarge	LV Vbat	R/W		0.1V		Lead-acid battery LV voltage
1003.	VbatlowWarnClr	LoadPercent(only lead-Acid):	W		0.1V		Clear battery low voltage error voltage point

		45.5V <20% 48.0V 20%~50% 49.0V >50					
1004.	Vbatstopfordischarge	Should stop discharge when lower than this voltage(only lead-Acid): 46.0V <20% 44.8V 20%~50% 44.2V >50%	W		0.01V		
1005.	Vbat stop for charge	Should stop charge when higher than this voltage	W		0.01V	5800	
1006.	Vbat start for discharge	Should not discharge when lower than this voltage	W		0.01V	4800	
1007.	Vbat constant charge	can charge when lower than this voltage	W		0.01V	5800	CV voltage (acid)
1008.	EESysInfo.SysSetEn	Bit0: Resved; Bit1: Resved; Bit2: Resved; Bit3: Resved; Bit4: Resved; Bit5: bDischargeEn; Bit6: ForceDischrEn; Bit7: ChargeEn; Bit8: bForceChrEn; Bit9: bBackUpEn; Bit10: bInvLimitLoadE; Bit11: bSpLimitLoadEn; Bit12: bACChargeEn; Bit13: bPVLloadLimitEn; Bit14,15:UnUsed;	W				System Enable
1009.	Battemp lower limit	Battery temperature lower limit for discharge	W	0-200:0-20°C 1000-140	0.1°C	1170	

				0: -40-0℃			
1010.	Bat temp upper limit d	Battery temperature upper limit for discharged	W	200-1000	0.1℃	420	
1011.	Bat temp lower limit c	Battery temperature lower limit for charging	W	0-200:0-20℃ 1000-1400: -40-0℃	0.1℃	30	Lower temperature limit
1012.	Bat temp upper limit c	Battery temperature upper limit for charging	W	200-1000	0.1℃	370	Upper temperature limit
1013.	uwUnderFreDischargeDelyTime	Under Fre Delay Time	s	0-20	50ms		Under Fre Delay Time
1014.	BatMdlSerialNum	Battery serial number	W	00:00			SPH4-11K used
1015.	BatMdlParallelNum	Battery parallel section	W	00:00			SPH4-11K used
1016.	/	/	/	/	/	/	Reserve
1017.	/	/	/	/	/	/	Reserve
1018.	/	/	/	/	/	/	Reserve
1019.	/	/	/	/	/	/	Reserve
1020.	/	/	/	/	/	/	Reserve
1021.	/	/	/	/	/	/	Reserve
1022.	/	/	/	/	/	/	Reserve
1023.	/	/	/	/	/	/	Reserve
1024.	/	/	/	/	/	/	Reserve
1025.	/	/	/	/	/	/	Reserve

1026.	/	/	/	/	/	/	Reserve
1027.	/	/	/	/	/	/	Reserve
1028.	/	/	/	/	/	/	Reserve
1029.	/	/	/	/	/	/	Reserve
1030.	/	/	/	/	/	/	Reserve
1031.	/	/	/	/	/	/	Reserve
1032.	/	/	/	/	/	/	Reserve
1033.	/	/	/	/	/	/	Reserve
1034.	/	/	/	/	/	/	Reserve
1035.	/	/	/	/	/	/	Reserve
1036.	/	/	/	/	/	/	Reserve
1037.	bCTMode	Use the CTMode to Choose RFCT \ Cable CT\METER	W	2:METER 1:cWirelessCT 0:cWiredCT		0	
1038.	CTAdjust	CTAdjust enable	W	0:disable 1:enable		0	
1039.	/	/	/	/	/	/	Reserve
1040.	/	/	/	/	/	/	Reserve
1041.	/	/	/	/	/	/	Reserve
1042.	/	/	/	/	/	/	Reserve
1043.	/	/	/	/	/	/	Reserve

1044.	Priority	ForceChrEn/ForceDischrEn Load first/bat first /grid first	R	0:Load(default)/1.Battery/2.Grid			bForceChrEn/disbForceDischrEn/dis
1045.	/	/	/	/	/	/	Reserve
1046.	/	/	/	/	/	/	Reserve
1047.	AgingTestStep Cmd	Command for aging test		0: default 1: charge 2: discharge			Cmd for aging test
1048.	BatteryType	Battery type choose of buck-boost input		0:Lithium 1:Lead-acid 2:other		0	Battery type
1049.	/	/	/	/	/		Reserve
1050.	/	/	/	/	/	/	Reserve
1051.	/	/	/	/	/		Reserve
1052.	/	/	/	/	/		Reserve
1053.	/	/	/	/	/		Reserve
1054.	/	/	/	/	/	/	Reserve
Ups information							
1060.	BuckUpsFunction	Ups function enable or disable		0:disable 1:enable			
1061.	BuckUPSVoltage	UPS output voltage		0:230 1:208 2:240		230V	
1062.	UPSFreqSet	UPS output frequency		0:50Hz 1:60Hz		50Hz	
...	/	/	/	/	/	/	reverse
Priority set							

1070.	GridFirstDischargePowerRate	Discharge Power Rate when Grid First	W	0-100	1%	Discharge Power Rate when Grid First	
1071.	GridFirstStopSOC	Stop Discharge soc when Grid First	W	0-100	1%	Stop Discharge soc when Grid First	
1072... 1079	/	/	/	/	/	/	reverse
1080.	Grid First Start Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			
1081.	Grid First Stop Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			
1082.	Grid First Stop Switch 1	Enable :1 Disable:0		0 or 1		Grid First enable	
1083.	Grid First Start Time 2	High eight bit: hour Low eight bit: minute		0-23 0-59			
1084.	Grid First Stop Time 2	High eight bit: hour Low eight bit: minute		0-23 0-59			
1085.	Grid First Stop Switch 2	ForceDischarge.bSwitch&LCD_SET_FORCE_TRUE_2)=LCD_SET_FORCE_TRUE_2		0 or 1		Grid First enable	ForceDischarge; LCD_SET_FORCE_TRUE_2
1086.	Grid First Start Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			
1087.	Grid First Stop Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			
1088.	Grid First Stop Switch 3	Enable :1 Disable:0		0 or 1		Grid First enable	
1089.	/	/	/	/	/	/	reserve
1090.	BatFirstPowerRate	Charge Power Rate when Bat First	W	0-100	1%	Charge Power Rate when Bat First	
1091.	wBatFirst stop SOC	Stop Charge soc when Bat First	W	0-100	1%	Stop Charge soc when Bat First	

1092.	AC charge Switch	When Bat First Enable:1 Disable:0		Enable:1 Disable:0		AC 充电使 能位	
1093... 1099							
1100.	Bat First Start Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			
1101.	Bat First Stop Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			
1102.	BatFirst on/off Switch 1	Enable :1 Disable:0		0 or 1		Bat First Enable1	
1103.	Bat First Start Time 2	High eight bit: hour Low eight bit: minute		0-23 0-59			
1104.	Bat First Stop Time 2	High eight bit: hour Low eight bit: minute		0-23 0-59			
1105.	BatFirston/off Switch 2	Enable :1 Disable:0		0 or 1		Bat First Enable2	
1106.	Bat First Start Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			
1107.	Bat First Stop Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			
1108.	BatFirston/off Switch 3	Enable :1 Disable:0		0 or 1		Bat First Enable3	
1109.	/	/	/	/	/	/	reserve
1110.	Load First Start Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1111.	Load First Stop Time 1	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1112.	Load First Switch 1	Enable :1 Disable:0		0 or 1		Load First Enable	SPA/ reserve
1113.	Load First Start Time2	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1114.	Load First Stop Time 2	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1115.	Load First Switch 2	Enable :1 Disable:0		0 or 1		Load First Enable	SPA/ reserve

1116.	Load First Start Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1117.	Load First Stop Time 3	High eight bit: hour Low eight bit: minute		0-23 0-59			SPA/ reserve
1118.	Load First Switch 3	Enable :1 Disable:0		0 or 1		Load First Enable	SPA/ reserve
1119.	/	/	/	/	/	/	reserve
.....	1120~1124	/	/	/	/	/	reserve
Use for TL-X and TL-XH							
3000	ExportLimitFailedPowerRate	The power rate when exportLimit failed	R/W		0.1%		The power rate when exportLimit failed
3001	Serial NO New. 15	Serial number New 15	R/W		ASCII		新机型使用以下寄存器记录序列号； 表示方式与原来一样：一个寄存器保存两个字符，新序列号为 30 个字符。
3002	Serial NO New. 14	Serial number New 14	R/W		ASCII		
3003	Serial NO New. 13	Serial number New 13	R/W		ASCII		
3004	Serial NO New. 12	Serial number New 12	R/W		ASCII		
3005	Serial NO New. 11	Serial number New 11	R/W		ASCII		
3006	Serial NO New. 10	Serial number New 10	R/W		ASCII		
3007	Serial NO New. 9	Serial number New 9	R/W		ASCII		
3008	Serial NO New. 8	Serial number New 8	R/W		ASCII		
3009	Serial NO New. 7	Serial number New 7	R/W		ASCII		
3010	Serial NO New. 6	Serial number New 6	R/W		ASCII		
3011	Serial NO New. 5	Serial number New 5	R/W		ASCII		
3012	Serial NO New. 4	Serial number New 4	R/W		ASCII		

3013	Serial NO New. 3	Serial number New 3	R/W		ASCII		
3014	Serial NO New. 2	Serial number New 2	R/W		ASCII		
3015	Serial NO New. 1	Serial number New 1	R/W		ASCII		
3016	DryContactFuncEn	DryContact function enable	R/W	0:Disable 1: Enable			DryContact function enable
3017	DryContactOnRate	The power rate of drycontact turn on	R/W	0~1000	0.1%		The power rate of drycontact turn on
3018	Reserved						
3019	Reserved						
3020	Reserved						
3021	Reserved						
3022	Reserved						
3023	Reserved						
3024	Float charge current limit	When charge current battery need is lower than this value, enter into float charge	R/W		0.1A	600	CC current
3025	VbatWarning	"Battery-low" warning setup voltage	R/W		0.1V	4800	Lead acid battery LV voltage
3026	VbatlowWarnClr	"Battery-low" warning clear voltage	R/W		0.1V		Clear battery low voltage error voltage point LoadPercent(only lead-Acid): 45.5V(Load < 20%); 48.0V(20%<=Load <=50%); 49.0V(Load > 50%);
3027	Vbatstopfordischarge	Battery cut off voltage	R/W		0.1V		Should stop discharge when lower than this voltage(only lead-Acid):

							46.0V(Load < 20%); 44.8V(20%≤Load ≤50%); 44.2V(Load > 50%);
3028	Vbat stop for charge	Battery over charge voltage	R/W		0.01V	5800	Should stop charge when higher than this voltage
3029	Vbat start for discharge	Battery start discharge voltage	R/W		0.01V	4800	Should not discharge when lower than this voltage
3030	Vbat constant charge	Battery constant charge voltage	R/W		0.01V	5800	CV voltage (acid) can charge when lower than this voltage
3031	Battemp lower limit d	Battery temperature lower limit for discharge	R/W		0.1℃	1170	0-200:0-20℃ 1000-1400: -40-0℃
3032	Bat temp upper limit d	Battery temperature upper limit for discharge	R/W		0.1℃	420	
3033	Bat temp lower limit c	Battery temperature lower limit for charge	R/W		0.1℃	30	Battery temperature lower limit 0-200:0-20℃ 1000-1400: -40-0℃
3034	Bat temp upper limit c	Battery temperature upper limit for charge	R/W		0.1℃	370	Battery temperature upper limit
3035	uwUnderFreDischargeDelayTime	Under Fre Delay Time	R/W		50ms		Under Fre Delay Time
3036	GridFirstDischargePowerRate	Discharge Power Rate when Grid First					
3037	GridFirstStopSOC	Stop Discharge soc when Grid First					
3038	Grid First Start Time 1	Grid First Start Time 1					High eight bit : hour,0-23

							Low eight bit : minute,0-59
3039	Grid First Stop Time 1	Grid First Stop Time 1					High eight bit : hour,0-23 Low eight bit : minute,0-59
3040	Grid First Stop Switch 1	Grid first time-1 enable					Enable :1 Disable:0
3041	Grid First Start Time 2	Grid First Start Time 2					High eight bit : hour,0-23 Low eight bit : minute,0-59
3042	Grid First Stop Time 2	Grid First Stop Time 2					High eight bit : hour,0-23 Low eight bit : minute,0-59
3043	Grid First Stop Switch 2	ForceDischarge.bSwitch&LCD_SET_FORCE_TRUE_2)!=LCD_SET_FORCE_TRUE_2					ForceDischarge; LCD_SET_FORCE_TRUE_2
3044	Grid First Start Time 3	Grid First Start Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3045	Grid First Stop Time 3	Grid First Stop Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3046	Grid First Stop Switch 3	Grid first time-3 enable					Enable :1 Disable:0
3047	BatFirstPower Rate	Charge Power Rate when Bat First					
3048	wBatFirst stop SOC	Stop Charge soc when Bat First					
3049	AC charge Switch	When Bat First Enable :1 Disable:0					Enable :1 Disable:0
3050	Bat First Start Time 1	Bat First Start Time 1					High eight bit : hour,0-23 Low eight bit : minute,0-59

3051	Bat First Stop Time 1	Bat First Stop Time 1					High eight bit : hour,0-23 Low eight bit : minute,0-59
3052	BatFirst on/off Switch 1	Battery first time-1 enable					Enable :1 Disable:0
3053	Bat First Start Time 2	Bat First Start Time 2					High eight bit : hour,0-23 Low eight bit : minute,0-59
3054	Bat First Stop Time 2	Bat First Stop Time 2					High eight bit : hour,0-23 Low eight bit : minute,0-59
3055	BatFirston/off Switch 2	Battery first time-2 enable					Enable :1 Disable:0
3056	Bat First Start Time 3	Bat First Start Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3057	Bat First Stop Time 3	Bat First Stop Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3058	BatFirston/off Switch 3	Battery first time-3 enable					Enable :1 Disable:0
3059	Load First Start Time 1	Load First Start Time 1					High eight bit : hour,0-23 Low eight bit : minute,0-59
3060	Load First Stop Time 1	Load First Stop Time 1					High eight bit : hour,0-23 Low eight bit : minute,0-59
3061	Load First Switch 1	Enable :1 Disable:0					Enable :1 Disable:0
3062	Load First Start Time2	Load First Start Time2					High eight bit : hour,0-23 Low eight bit : minute,0-59

3063	Load First Stop Time 2	Load First Stop Time 2					High eight bit : hour,0-23 Low eight bit : minute,0-59
3064	Load First Switch 2	Enable :1 Disable:0					Enable :1 Disable:0
3065	Load First Start Time 3	Load First Start Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3066	Load First Stop Time 3	Load First Stop Time 3					High eight bit : hour,0-23 Low eight bit : minute,0-59
3067	Load First Switch 3	Enable :1 Disable:0					Enable :1 Disable:0
3068	bCTMode	Use the CTMode to Choose RFCT \ Cable CT\METER	R/W				CTMode 0: CT selfAdjust; 1:cWiredCT 2:cWirelessCT 3:METER
3069	Priority	ForceChrEn/ForceDischrEn Load first/bat first /grid first	R/W				ForceChrEn/ForceDischrEn Load first/bat first /grid first 0.Load(default)/1. Battery/2.Grid
3070	BatteryType	Battery type choose of buck-boost input	R/W				Battery type 0:Lithium 1:Lead-acid 2:other
3071	BatMdlSeria/ParalNum	BatMdlSeria/ParalNum	R/W				BatMdlSeria/ParalNum; SPH4-11K used The upper 8 bits indicate the number of series segments; The lower 8 bits indicate the number of parallel

							sections;
3072	Reserved						
3073	Reserved						
3074	Reserved						
3075	Reserved						
3076	Reserved						
3077	Reserved						
3078	Reserved						
3079	UpsFunEn	Ups function enable or disable	R/W			0	0:disable 1:enable
3080	UPSVoltSet	UPS output voltage	R/W			0	0:230V 1:208V 2:240V
3081	UPSFreqSet	UPS output frequency	R/W			0	0:50Hz 1:60Hz
3082	Reserved						
3083	Reserved						
3084	Reserved						
3085	Com Address	Communication addr	R/W			1	1 : Communication addr=1 1 ~ 254 : Communication addr=1~254
3086	BaudRate	Communication BaudRate	R/W			0	0: 9600 bps 1: 38400 bps
3087	Serial NO. 5	Serial Number 5	R/W		ASCII		
3088	Serial No. 4	Serial Number 4	R/W		ASCII		
3089	Serial No. 3	Serial Number 3	R/W		ASCII		
3090	Serial No. 2	Serial Number 2	R/W		ASCII		
3091	Serial No. 1	Serial Number 1	R/W		ASCII		
3092	Model H	Model H	R/W				
3093	Model L	Model L	R/W				
3094	Pdischr max H	Max Discharge Power	R			0.1W	
3095	Pdischr max L						
3096	Pchr max H	Max Charge Power	R			0.1W	
3097	Pchr max L						
3098	DTC	DTC	R				
3099	FW Code1	FW Code1	R		ASCII		
3100	FW Code2	FW Code2	R		ASCII		

3101	Processor1 FW Vision	Processor1 FW Vision	R		ASCII		
3102	Reset User Info	Reset User Info	W				
3103	Reset to factory	Reset to factory	W				
3104 ~ 3124	Reserved						

说明：1.Load First 设置 SPA 使用；

4.2 Input Reg

(Some of inputRegisters can be wrote by Manufacturer, write address offset is 0x1000, start at 0x1000.can notbe wrote by customer.)

NO.	Variable Name	Description	Value	Unit	Note
First group					
0.	Inverter Status	Inverter run state	0:waiting, 1:normal, 3:fault		
1.	Ppv H	Input power (high)		0.1W	
2.	Ppv L	Input power (low)		0.1W	
3.	Vpv1	PV1 voltage		0.1V	
4.	PV1Curr	PV1 input current		0.1A	
5.	Ppv1 H	PV1 input power(high)		0.1W	
6.	Ppv1 L	PV1 input power(low)		0.1W	
7.	Vpv2	PV2 voltage		0.1V	
8.	PV2Curr	PV2 input current		0.1A	
9.	Ppv2 H	PV2 input power (high)		0.1W	
10.	Ppv2 L	PV2 input power (low)		0.1W	
11.	Vpv3	PV3 voltage		0.1V	
12.	PV3Curr	PV3 input current		0.1A	
13.	Ppv3 H	PV3 input power (high)		0.1W	
14.	Ppv3 L	PV3 input power (low)		0.1W	
15.	Vpv4	PV4 voltage		0.1V	
16.	PV4Curr	PV4 input current		0.1A	
17.	Ppv4 H	PV4 input power (high)		0.1W	
18.	Ppv4 L	PV4 input power (low)		0.1W	
19.	Vpv5	PV5 voltage		0.1V	

20.	PV5Curr	PV5 input current		0.1A	
21.	Ppv5H	PV5 input power(high)		0.1W	
22.	Ppv5 L	PV5 input power(low)		0.1W	
23.	Vpv6	PV6 voltage		0.1V	
24.	PV6Curr	PV6 input current		0.1A	
25.	Ppv6 H	PV6 input power (high)		0.1W	
26.	Ppv6 L	PV6 input power (low)		0.1W	
27.	Vpv7	PV7 voltage		0.1V	
28.	PV7Curr	PV7 input current		0.1A	
29.	Ppv7 H	PV7 input power (high)		0.1W	
30.	Ppv7 L	PV7 input power (low)		0.1W	
31.	Vpv8	PV8 voltage		0.1V	
32.	PV8Curr	PV8 input current		0.1A	
33.	Ppv8 H	PV8 input power (high)		0.1W	
34.	Ppv8 L	PV8 input power (low)		0.1W	
35.	Pac H	Output power (high)		0.1W	
36.	Pac L	Output power (low)		0.1W	
37.	Fac	Grid frequency		0.01Hz	
38.	Vac1	Three/single phase grid voltage		0.1V	
39.	Iac1	Three/single phase grid output current		0.1A	
40.	Pac1 H	Three/single phase grid output watt VA (high)		0.1VA	
41.	Pac1 L	Three/single phase grid output watt VA(low)		0.1VA	
42.	Vac2	Three phase grid voltage		0.1V	
43.	Iac2	Three phase grid output current		0.1A	
44.	Pac2 H	Three phase grid output power (high)		0.1VA	
45.	Pac2 L	Three phase grid output power (low)		0.1VA	
46.	Vac3	Three phase grid voltage		0.1V	
47.	Iac3	Three phase grid output current		0.1A	
48.	Pac3 H	Three phase grid output power (high)		0.1VA	
49.	Pac3 L	Three phase grid output power (low)		0.1VA	
50.	Vac_RS	Three phase grid voltage		0.1V	Line voltage
51.	Vac_ST	Three phase grid voltage		0.1V	Line voltage
52.	Vac_TR	Three phase grid voltage		0.1V	Line voltage
53.	Eactoday H	Today generate energy (high)		0.1kWH	
54.	Eac today L	Today generate energy (low)		0.1kWH	
55.	Eac total H	Total generate energy (high)		0.1kWH	
56.	Eac total L	Total generate energy (low)		0.1kWH	
57.	Time total H	Work time total (high)		0.5s	
58.	Time total L	Work time total (low)		0.5s	

59.	Epv1_today H	PV1Energy today(high)		0.1kWh	
60.	Epv1_today L	PV1Energy today (low)		0.1kWh	
61.	Epv1_total H	PV1Energy total(high)		0.1kWh	
62.	Epv1_total L	PV1Energy total (low)		0.1kWh	
63.	Epv2_today H	PV2Energy today(high)		0.1kWh	
64.	Epv2_today L	PV2Energy today (low)		0.1kWh	
65.	Epv2_total H	PV2Energy total(high)		0.1kWh	
66.	Epv2_total L	PV2Energy total (low)		0.1kWh	
67.	Epv3_today H	PV3 Energy today(high)		0.1kWh	
68.	Epv3_today L	PV3 Energy today (low)		0.1kWh	
69.	Epv3_total H	PV3 Energy total(high)		0.1kWh	
70.	Epv3_total L	PV3 Energy total (low)		0.1kWh	
71.	Epv4_today H	PV4Energy today(high)		0.1kWh	
72.	Epv4_today L	PV4Energy today (low)		0.1kWh	
73.	Epv4_total H	PV4Energy total(high)		0.1kWh	
74.	Epv4_total L	PV4Energy total (low)		0.1kWh	
75.	Epv5_today H	PV5Energy today(high)		0.1kWh	
76.	Epv5_today L	PV5Energy today (low)		0.1kWh	
77.	Epv5_total H	PV5Energy total(high)		0.1kWh	
78.	Epv5_total L	PV5Energy total (low)		0.1kWh	
79.	Epv6_today H	PV6Energy today(high)		0.1kWh	
80.	Epv6_today L	PV6Energy today (low)		0.1kWh	
81.	Epv6_total H	PV6Energy total(high)		0.1kWh	
82.	Epv6_total L	PV6Energy total (low)		0.1kWh	
83.	Epv7_today H	PV7Energy today(high)		0.1kWh	
84.	Epv7_today L	PV7Energy today (low)		0.1kWh	
85.	Epv7_total H	PV7 Energy total(high)		0.1kWh	
86.	Epv7_total L	PV7Energy total (low)		0.1kWh	
87.	Epv8_today H	PV8Energy today(high)		0.1kWh	
88.	Epv8_today L	PV8Energy today (low)		0.1kWh	
89.	Epv8_total H	PV8Energy total(high)		0.1kWh	
90.	Epv8_total L	PV8Energy total (low)		0.1kWh	
91.	Epv_total H	PV Energy total(high)		0.1kWh	
92.	Epv_total L	PV Energy total (low)		0.1kWh	
93.	Temp1	Inverter temperature		0.1C	
94.	Temp2	The inside IPM in inverter Temperature		0.1C	
95.	Temp3	Boost temperature		0.1C	
96.	Temp4				reserved

97.	uwBatVolt_DSP	BatVolt_DSP		0.1V	BatVolt(DSP)
98.	P Bus Voltage	P Bus inside Voltage		0.1V	
99.	N Bus Voltage	N Bus inside Voltage		0.1V	
100.	IPF	Inverter output PF now	0-20000		
101.	RealOPPercent	Real Output power Percent		1%	
102.	OPFullwatt H	Output Maxpower Limited high			
103.	OPFullwatt L	Output Maxpower Limited low		0.1W	
104.	DeratingMode	DeratingMode	0:no derate; 1:PV; 2:*; 3:Vac; 4:Fac; 5:Tboost; 6:Tinv; 7:Control; 8:*; 9:*OverBack ByTime;		“*”is Reserved
105.	Fault code	Inverter fault code	&*1		
106.	Fault Bitcode H	Inverter fault code high	&*8		
107.	Fault Bitcode L	Inverter fault code low			
108.	RemoteCtrlEn	/	0.Load First	/	StoragePower (SPA)
109.	RemoteCtrlPower	/	1.BatFirst 2.Grid	/	StoragePower (SPA)
110.	Warning bit H	Warning bit H	&*8		
111.	Warning bit L	Warning bit L			
112.	bINVWarnCode	bINVWarnCode			MAX
	EACCharge_Today_H	ACCharge energy today		0.1kwh	Storage Power
113.	real Power Percent	real Power Percent	0-100	%	MAX
	EACCharge_Today_L	ACCharge energy today		0.1kwh	Storage Power
114.	inv start delay time	inv start delay time			MAX
	EACCharge_Total_H	ACCharge energy total		0.1kwh	Storage Power
115.	bINVAllFaultCode	bINVAllFaultCode			MAX
	EACCharge_Total	ACCharge energy total		0.1kwh	Storage

	_L				Power
116.	AC charge Power_H	Grid power to local load		0.1kwh	Storage Power
117.	AC charge Power_L	Grid power to local load		0.1kwh	Storage Power
118.	Priority	0:Load First 1:Battery First 2:Grid First			Storage Power
119.	Battery Type	0: Lead-acid 1: Lithium battery			Storage Power
120.	AutoProofreadC MD	Aging mode 自动校准命令			Storage Power
...	reserved				reserved
124.	reserved				reserved
Second group					
125.	PID PV1+ Voltage	PID PV1PE Volt	0~1000V	0.1V	
126.	PID PV1+ Current	PID PV1PE Curr	-10~10mA	0.1mA	
127.	PID PV2+ Voltage	PID PV2PE Volt	0~1000V	0.1V	
128.	PID PV2+ Current	PID PV2PE Curr	-10~10mA	0.1mA	
129.	PID PV3+ Voltage	PID PV3PE Volt	0~1000V	0.1V	
130.	PID PV3+ Current	PID PV3PE Curr	-10~10mA	0.1mA	
131.	PID PV4+ Voltage	PID PV4PE Volt	0~1000V	0.1V	
132.	PID PV4+ Current	PID PV4PE Curr	-10~10mA	0.1mA	
133.	PID PV5+ Voltage	PID PV5PE Volt	0~1000V	0.1V	
134.	PID PV5+ Current	PID PV5PE Curr	-10~10mA	0.1mA	
135.	PID PV6+ Voltage	PID PV6PE Volt	0~1000V	0.1V	
136.	PID PV6+ Current	PID PV6PE Curr	-10~10mA	0.1mA	
137.	PID PV7+ Voltage	PID PV7PE Volt	0~1000V	0.1V	
138.	PID PV7+ Current	PID PV7PE Curr	-10~10mA	0.1mA	
139.	PID PV8+ Voltage	PID PV8PE Volt	0~1000V	0.1V	
140.	PID PV8+ Current	PID PV8PE Curr	-10~10mA	0.1mA	
141.	PID Status	Bit0~7:PID Working Status 1:Wait Status 2:Normal Status 3:Fault Status Bit8~15:Reversed	0~3		
142.	V_String1	PV String1 voltage		0.1V	
143.	Curr_String1	PV String1 current	-15~15A	0.1A	
144.	V_String2	PV String2 voltage		0.1V	
145.	Curr_String2	PV String2 current	-15~15A	0.1A	

146.	V_String3	PV String3 voltage		0.1V	
147.	Curr_String3	PV String3 current	-15~15A	0.1A	
148.	V_String4	PV String4 voltage		0.1V	
149.	Curr_String4	PV String4 current	-15~15A	0.1A	
150.	V_String5	PV String5 voltage		0.1V	
151.	Curr_String5	PV String5 current	-15~15A	0.1A	
152.	V_String6	PV String6 voltage		0.1V	
153.	Curr_String6	PV String6 current	-15~15A	0.1A	
154.	V_String7	PV String7 voltage		0.1V	
155.	Curr_String7	PV String7 current	-15~15A	0.1A	
156.	V_String8	PV String8 voltage		0.1V	
157.	Curr_String8	PV String8 current	-15A~15A	0.1A	
158.	V_String9	PV String9 voltage		0.1V	
159.	Curr_String9	PV String9 current	-15A~15A	0.1A	
160.	V_String10	PV String10 voltage		0.1V	
161.	Curr_String10	PV String10 current	-15~15A	0.1A	
162.	V_String11	PV String11 voltage		0.1V	
163.	Curr_String11	PV String11 current	-15~15A	0.1A	
164.	V_String12	PV String12 voltage		0.1V	
165.	Curr_String12	PV String12 current	-15~15A	0.1A	
166.	V_String13	PV String13 voltage		0.1V	
167.	Curr_String13	PV String13 current	-15A~15A	0.1A	
168.	V_String14	PV String14 voltage		0.1V	
169.	Curr_String14	PV String14 current	-15~15A	0.1A	
170.	V_String15	PV String15 voltage		0.1V	
171.	Curr_String15	PV String15 current	-15~15A	0.1A	
172.	V_String16	PV String16 voltage		0.1V	
173.	Curr_String16	PV String16 current	-15~15A	0.1A	
174.	StrUnmatch	Bit0~15: String1~16 unmatch			suggestive
175.	StrCurrentUnbalance	Bit0~15: String1~16 current unbalance			suggestive
176.	StrDisconnect	Bit0~15: String1~16 disconnect			suggestive
177.	PIDFaultCode	Bit0: Output over voltage Bit1: ISO fault Bit2: BUS voltage abnormal Bit3~15: reserved			
178.	String Prompt	String Prompt Bit0: String Unmatch Bit1: StrDisconnect Bit2: StrCurrentUnbalance Bit3~15: reserved			

179	PV Warning Value	PV Warning Value			
180	DSP075 Warning Value	DSP075 Warning Value			
181	DSP075 Fault Value	DSP075 Fault Value			
182	DSP067 Debug Data1	DSP067 Debug Data1			
183	DSP067 Debug Data2	DSP067 Debug Data2			
184	DSP067 Debug Data3	DSP067 Debug Data3			
185	DSP067 Debug Data4	DSP067 Debug Data4			
186	DSP067 Debug Data5	DSP067 Debug Data5			
187	DSP067 Debug Data6	DSP067 Debug Data6			
188	DSP067 Debug Data7	DSP067 Debug Data7			
189	DSP067 Debug Data8	DSP067 Debug Data8			
190	DSP075 Debug Data1	DSP075 Debug Data1			
191	DSP075 Debug Data2	DSP075 Debug Data2			
192	DSP075 Debug Data3	DSP075 Debug Data3			
193	DSP075 Debug Data4	DSP075 Debug Data4			
194	DSP075 Debug Data5	DSP075 Debug Data5			
195	DSP075 Debug Data6	DSP075 Debug Data6			
196	DSP075 Debug Data7	DSP075 Debug Data7			
197	DSP075 Debug Data8	DSP075 Debug Data8			
198	bUSBAgingTestOk Flag	USBAgingTestOkFlag	0-1		
199	bFlashEraseAging OkFlag	FlashEraseAgingOkFlag	0-1		
200	PVISO	PVISOValue		K Ω	

201	R_DCI	R DCI Curr		0.1mA	
202	S_DCI	S DCI Curr		0.1mA	
203	T_DCI	T DCI Curr		0.1mA	
204	PID_Bus	PIDBusVolt		0.1V	
205	GFCI	GFCI Curr		mA	
206	SVG/APF Status+SVGAPFEq ualRatio	SVG/APF Status+SVGAPFEqualRatio	High 8bit : SVGAPFEqua lRatio Low 8bit : SVG/APF Status 0:None 1:SVG Run 2:APF Run 3:SVG/APF Run		
207	CT_I_R	R phase load side current for SVG		0.1A	
208	CT_I_S	S phase load side current for SVG		0.1A	
209	CT_I_T	T phase load side current for SVG		0.1A	
210	CT_Q_R H	R phase load side output reactive power for SVG(High)		0.1Var	
211	CT_Q_R L	R phase load side output reactive power for SVG(low)		0.1Var	
212	CT_Q_S H	S phase load side output reactive power for SVG(High)		0.1Var	
213	CT_Q_S L	S phase load side output reactive power for SVG(low)		0.1Var	
214	CT_Q_T H	T phase load side output reactive power for SVG(High)		0.1Var	
215	CT_Q_T L	T phase load side output reactive power for SVG(low)		0.1Var	
216	CT HAR_I_R	R phase load side harmonic		0.1A	
217	CT HAR_I_S	S phase load side harmonic		0.1A	
218	CT HAR_I_T	T phase load side harmonic		0.1A	
219	COMP_Q_R H	R phase compensate reactive power for SVG(High)		0.1Var	
220	COMP_Q_R L	R phase compensate reactive power for SVG(low)		0.1Var	
221	COMP_Q_S H	S phase compensate reactive power for SVG(High)		0.1Var	
222	COMP_Q_S L	S phase compensate reactive power for SVG(low)		0.1Var	

223	COMP_Q_T H	T phase compensate reactive power for SVG(High)		0.1Var	
224	COMP_Q_T L	T phase compensate reactive power for SVG(low)		0.1Var	
225	COMP HAR_I_R	R phase compensate harmonic for SVG		0.1A	
226	COMP HAR_I_S	S phase compensate harmonic for SVG		0.1A	
227	COMP HAR_I_T	T phase compensate harmonic for SVG		0.1A	
228	bRS232AgingTestOkFlag	RS232AgingTestOkFlag	0-1		
229	bFanFaultBit	Bit0: Fan1 Fault Bit Bit1: Fan2 Fault Bit Bit2: Fan3 Fault Bit Bit3: Fan4 Fault Bit Bit4-7: reserved			
230	Sac H	Output apparent power (high)		0.1W	
231	Sac L	Output apparent power (low)		0.1W	
...	232~249				reserved
Third group					
250.	Grid Fault record 1 – code	Grid Fault record 1 – code			
251.	Grid Fault record 1 – year month	Grid Fault record 1 – year month	Year offset is 2000		
252.	Grid Fault record 1 – day hour	Grid Fault record 1 – day hour			
253.	Grid Fault record 1 – min sec	Grid Fault record 1 – min sec			
254.	Grid Fault record 1-value	Grid Fault record 1-value	&*2		
255.	Grid Fault record 2 – code	Grid Fault record 2 – code			
256.	Grid Fault record 2 – year month	Grid Fault record 2 – year month	Year offset is 2000		
257.	Grid Fault record 2 – day hour	Grid Fault record 2 – day hour			
258.	Grid Fault record 2 – min sec	Grid Fault record 2 – min sec			
259.	Grid Fault record 2-value	Grid Fault record 2-value			
260.	Grid Fault record 3	Grid Fault record 3 – code			

	- code				
261.	Grid Fault record 3 - year month	Grid Fault record 3 - year month	Year offset is 2000		
262.	Grid Fault record 3 - day hour	Grid Fault record 3 - day hour			
263.	Grid Fault record 3 - min sec	Grid Fault record 3 - min sec			
264.	Grid Fault record 3-value	Grid Fault record 3-value			
265.	Grid Fault record 4 - code	Grid Fault record 4 - code			
266.	Grid Fault record 4 - year month	Grid Fault record 4 - year month	Year offset is 2000		
267.	Grid Fault record 4 - day hour	Grid Fault record 4 - day hour			
268.	Grid Fault record 4 - min sec	Grid Fault record 4 - min sec			
269.	Grid Fault record 4-value	Grid Fault record 4-value			
270.	Grid Fault record 5 - code	Grid Fault record 5 - code			
271.	Grid Fault record 5 - year month	Grid Fault record 5 - year month	Year offset is 2000		
272.	Grid Fault record 5 - day hour	Grid Fault record 5 - day hour			
273.	Grid Fault record 5 - min sec	Grid Fault record 5 - min sec			
274.	Grid Fault record 5-value	Grid Fault record 5-value			
275.	bTestProcess<<8 bAutoTestStep	Auto test process or auto test step	&*3		
276.	wAutoTestResult	Auto test result	&*4		
277.	cTestStepStop	Auto test stop step	&*4		
278.	Value Limit	Safety voltage/frequency limit value		0.1V	
279.	Time Limit	Safety time limit value		1ms	
280.	Real value	Real voltage/frequency value		0.1V	
281.	Test value	Auto testing voltage/frequency value		0.1V	
282.	Test treat value	Auto test voltage/frequency treat value		0.1V	
283.	Test treat time	Auto test treat time		1ms	
284.	E_hour0 H	Energy hourly of this day			

285.	E_hour0 L	Energy hourly of this day			
286.	E_hour1 H	Energy hourly of this day			
287.	E_hour1 L	Energy hourly of this day			
...	E_hour	...			
...	E_hour	...			
330.	E_hour23 H	Energy hourly of this day			
331.	E_hour23 L	Energy hourly of this day			
332.	E_day0 H	Energy of latest day			
333.	E_day0 L	Energy of latest day			
334.	E_day1 H	Energy of latest 1st day			
335.	E_day1 L	Energy of latest 1st day			
...	E_day	...			
...	E_day	...			
344.	E_day 6 H	Energy of latest 6th day			
345.	E_day 6L	Energy of latest 6th day			
346.	E_month0 H	Energy of latest month			
347.	E_month0 L	Energy of latest month			
	E_month1 H	Energy of latest 1st month			
	E_month1 L	Energy of latest 1st month			
...	E_month	...			
...	E_month	...			
368.	E_month11 H	Energy of latest 11th month			
369.	E_month11L	Energy of latest 11th month			
...					reserved
374.					reserved
Fouth group					
375.	E_year0 H	Energy of latest year			
376.	E_year 0 L	Energy of latest year			
377.	E_year 1 H	Energy of latest 1st year			
378.	E_year 1 L	Energy of latest 1st year			
...	E_year	...			
...	E_year	...			
413.	E_year 18 H	Energy of latest 18th year			
414.	E_year18 L	Energy of latest 18th year			
...					
499.					reserved
Fifth group and sixth					
500.	Inverter Error record 1 – code	Inverter Error record 1 – code			
501.	Inverter Error record 1 – year	Inverter Error record 1 – year month	Year offset is 2000		

	month				
502.	Inverter Error record 1 – day hour	Inverter Error record 1 – day hour			
503.	Inverter Error record 1 – min sec	Inverter Error record 1 – min sec			
504.	Inverter Error record 1-value	Inverter Error record 1-value			
505.	Inverter Error record 2 – code	Inverter Error record 2 – code			
506.	Inverter Error record 2 – year month	Inverter Error record 2 – year month	Year offset is 2000		
507.	Inverter Error record 2 – day hour	Inverter Error record 2 – day hour			
508.	Inverter Error record 2 – min sec	Inverter Error record 2 – min sec			
509.	Inverter Error record 2-value	Inverter Error record 2-value			
510.	Inverter Error record 2 – code	Inverter Error record 2 – code			
...	Inverter Error record.....	Inverter Error record.....			
740.	Inverter Error record49 – code	Inverter Error record 49- code			
741.	Inverter Error record49 – year month	Inverter Error record49 – year month	Year offset is 2000		
742.	Inverter Error record49 – day hour	Inverter Error record49 – day hour			
743.	Inverter Error record49 – min sec	Inverter Error record49 – min sec			
744.	Inverter Error record49-value	Inverter Error record49-value			
745.	Inverter Error record50 – code	Inverter Error record 50- code			
746.	Inverter Error	Inverter Error record50 – year month	Year offset is		

	record50 – year month		2000		
747.	Inverter Error record50 – day hour	Inverter Error record50 – day hour			
748.	Inverter Error record50 – min sec	Inverter Error record50 – min sec			
749.	Inverter Error record50-value	Inverter Error record50-value			
Seventh group for debug					
750.	ISO fault Value	ISO Fault value		0.1V	
751.	GFCI fault Value	GFCI fault Value		1mA	
752.	DCI fault Value	DCI fault Value		0.01A	
753.	Vpv fault Value	PV voltage fault value		0.1V	
754.	Vac fault Value	AC voltage fault value		0.1V	
755.	Fac fault Value	AC frequency fault value		0.01 Hz	
756.	Temperature fault Value	Temperature fault value		0.1C	
757.	WarningValue1	Warning Value1 of slave CPU	&*9		
758.	WarningValue2	Warning Value2 of slave CPU	&*9		
759.	WarningValue3	Warning Value3 of main CPU or STM32	&*9		
760.	FaultValue	Inverter fault value	&*10		
...					
799.					
800.	Debug Reserved	Debug Reserved			Reserved
.....					
874.	Debug Reserved	Debug Reserved			Reserved
Eighth group for reserved					
.....					
999.	SystemCmd	M3 to DSP System Cmd			System cmd
Ninth group for Storage power					
1000.	uwSysWorkMode	System work mode	0x00:waiting module 0x01: Self-test mode, optional 0x02 : Reserved 0x03 : SysFault module 0x04: Flash		监控层给客户显示的工作模式为: 0x00: waiting module 0x01: Self-test mode, 0x03: fault module 0x04: flash

			module 0x05 : PVBATOnline module, 0x06 : BatOnline module, 0x07 : PVOfflineMod e module, 0x08 : BatOfflineMo de module,		module 0x05 0x06 0x07 0 x08:normal module
1001.	Systemfault word0	System fault word0			详见一体机故障 说明
1002.	Systemfault word1	System fault word1			
1003.	Systemfault word2	System fault word2			
1004.	Systemfault word3	System fault word3			
1005.	Systemfault word4	System fault word4			
1006.	Systemfault word5	System fault word5			
1007.	Systemfault word6	System fault word6			
1008.	Systemfault word7	System fault word7			
1009.	Pdischarge1 H	Discharge power(high)		0.1W	
1010.	Pdischarge1 L	Discharge power (low)		0.1W	
1011.	Pcharge1 H	Charge power(high)		0.1W	
1012.	Pcharge1 L	Charge power (low)		0.1W	
1013.	Vbat	Battery voltage		0.1V	
1014.	SOC	State of charge Capacity	0-100	1%	lith/leadacid
1015.	Pactouser R H	AC power to user H		0.1w	
1016.	Pactouser R L	AC power to user L		0.1w	
1017.	Pactouser S H	Pactouser S H		0.1w	
1018.	Pactouser S L	Pactouser S L		0.1w	
1019.	Pactouser T H	Pactouser T H		0.1w	
1020.	Pactouser T L	Pactouser T H		0.1w	
1021.	PactouserTotal H	AC power to user total H		0.1w	
1022.	PactouserTotal L	AC power to user total L		0.1w	
1023.	Pac to grid R H	AC power to grid H		0.1w	Ac output
1024.	Pac to grid R L	AC power to grid L		0.1w	
1025.	Pactogrid S H			0.1w	
1026.	Pactogrid S L			0.1w	
1027.	Pactogrid T H			0.1w	

1028.	Pactogrid T L			0.1w	
1029.	Pactogrid total H	AC power to grid total H		0.1w	
1030.	Pactogrid total L	AC power to grid total L		0.1w	
1031.	PLocalLoad R H	INV power to local load H		0.1w	
1032.	PLocalLoad R L	INV power to local load L		0.1w	
1033.	PLocalLoad S H			0.1w	
1034.	PLocalLoad S L			0.1w	
1035.	PLocalLoadT H			0.1w	
1036.	PLocalLoadT L			0.1w	
1037.	PLocalLoad total H	INV power to local load total H		0.1w	
1038.	PLocalLoad total L	INV power to local load total L		0.1w	
1039.	IPM Temperature	REC Temperature		0.1 °C	No use
1040.	Battery Temperature	Battery Temperature		0.1 °C	Lead acid/lithium battery temp
1041.	SP DSP Status	SP state			CHG/DisCHG
1042.	SP Bus Volt	SP BUS2 Volt		0.1V	
1043.	/	/	/	/	reserved
发电量数据					
1044.	Etouser_today H	Energy to user today high		0.1kWh	
1045.	Etouser_today L	Energy to user today low		0.1kWh	
1046.	Etouser_total H	Energy to user total high		0.1kWh	
1047.	Etouser_total L	Energy to user total high		0.1kWh	
1048.	Etogrid_today H	Energy to grid today high		0.1kWh	
1049.	Etogrid_today L	Energy to grid today low		0.1kWh	
1050.	Etogrid_total H	Energy to grid total high		0.1kWh	
1051.	Etogrid_total L	Energy to grid total high		0.1kWh	
1052.	Edischarge1_today H	Discharge energy1 today		0.1kWh	
1053.	Edischarge1_today L	Discharge energy1 today		0.1kWh	
1054.	Edischarge1_total H	Total discharge energy1 (high)		0.1kWh	
1055.	Edischarge1_total L	Total discharge energy1 (low)		0.1kWh	
1056.	Echarge1_today H	Charge1 energy today		0.1kWh	
1057.	Echarge1_today L	Charge1 energy today		0.1kWh	
1058.	Echarge1_total H	Charge1 energy total		0.1kWh	
1059.	Echarge1_total L	Charge1 energy total		0.1kWh	
1060.	ELocalLoad_Today	Local load energy today		0.1kWh	

	H				
1061.	ELocalLoad_Today L	Local load energy today		0.1kWh	
1062.	ELocalLoad_Total H	Local load energy total		0.1kWh	
1063.	ELocalLoad_Total L	Local load energy total		0.1kWh	
1064.	dwExportLimitAp parentPower	ExportLimitApparentPower H		0.1kWh	ApparentPower
1065.	dwExportLimitAp parentPower	ExportLimitApparentPower L		0.1kWh	ApparentPower
1066.	/	/	/	/	reserved
Ups information (offline)					
1067.	EPS Fac	UPSfrequency	5000/6000	0.01Hz	
1068.	EPS Vac1	UPS phase R output voltage	2300	0.1V	
1069.	EPS Iac1	UPS phase R output current		0.1A	
1070.	EPS Pac1 H	UPS phase R output power (H)		0.1VA	
1071.	EPS Pac1 L	UPS phase R output power (L)		0.1VA	
1072.	EPS Vac2	UPS phase S output voltage		0.1V	
1073.	EPS Iac2	UPS phase S output current		0.1A	No use
1074.	EPS Pac2 H	UPS phase S output power (H)		0.1VA	
1075.	EPS Pac2 L	UPS phase S output power (L)		0.1VA	
1076.	EPS Vac3	UPS phase T output voltage		0.1V	
1077.	EPS Iac3	UPS phase T output current		0.1A	No use
1078.	EPS Pac3 H	UPS phase T output power (H)		0.1VA	
1079.	EPS Pac3 L	UPS phase T output power (L)		0.1VA	
1080.	Loadpercent	Load percent of UPS ouput	0-100	1%	
1081.	PF	Power factor	0-2	0.1	Primary Value+1
BMS 类信息					
1082.	BMS_StatusOld	StatusOld from BMS	Detail information, refer to document:GrowattxxSxx P ESS Protocol;		
1083.	BMS_Status	Status from BMS			W/R
1084.	BMS_ErrorOld	Error info Old from BMS			
1085.	BMS_Error	Errorinfomation from BMS			
1086.	BMS_SOC	SOC from BMS			R SPH6K
1087.	BMS_BatteryVol t	Battery voltage from BMS			R SPH6K
1088.	BMS_BatteryCur r	Battery current from BMS			
1089.	BMS_BatteryTem p	Battery temperature from BMS			
1090.	BMS_MaxCurr	Max. charge/discharge current			

		from BMS (pylon)		
1091.	BMS_GaugeRM	Gauge RM from BMS		
1092.	BMS_GaugeFCC	Gauge FCC from BMS		
1093.	BMS_FW			
1094.	BMS_DeltaVolt	Delta V from BMS		
1095.	BMS_CycleCnt	Cycle Count from BMS		
1096.	BMS_SOH	SOH from BMS		
1097.	BMS_ConstantV olt	CV voltage from BMS		
1098.	BMS_WarnInfoO ld	Warning info old from BMS		
1099.	BMS_WarnInfo	Warning info from BMS		
1100.	BMS_GaugeICCu rr	Gauge IC current from BMS		
1101.	BMS_MCUVersi on	MCU Software version from BMS		
1102.	BMS_GaugeVers ion	Gauge Version from BMS		
1103.	BMS_wGaugeFR Version_L	Gauge FR Version L16 from BMS		
1104.	BMS_wGaugeFR Version_H	Gauge FR Version H16 from BMS		
1105.	BMS_BMSInfo	BMSInformation from BMS		
1106.	BMS_PackInfo	Pack Information from BMS		
1107.	BMS_UsingCap	Using Cap from BMS		
1108.	BMS_Cell1_Volt	Cell1_Voltage from BMS		
1109.	BMS_Cell2_Volt	Cell_Voltage from BMS		
...				
1123	BMS_ Cell16_Volt	Cell16_Voltage from BMS		
1124	AC Charge Energy Today H	AC Charge Energy today	kwh	Energy today
Ninth group reserved for storage power				
1125.	ACCharge Energy TodayL	AC Charge Energy today	kwh	
1126.	AC Charge Energy Total H			Energy total
1127.	ACCharge Energy Total L			
1128.	AC Charge Power H	AC Charge Power	W	

1129.	AC Charge Power L	AC Charge Power	w		
1130.	70% INV Power adjust	uwGridPower_70_AdjEE_SP	W		
1131.	Extra AC Power to grid_H	Extra invert AC Power to grid High	For SPA connect inverter		SPA used
1132.	Extra AC Power to grid_L	Extrainvert AC Power to grid Low			SPA used
1133.	Eextra_today H	Extra inverter PowerTOUser_Extra today (high)	R	0.1kWh	SPA used
1134.	Eextra_today L	Extra inverter PowerTOUser_Extra today (low)	R	0.1kWh	SPA used
1135.	Eextra_total H	Extra inverter PowerTOUser_Extra total(high)		0.1kWh	SPA used
1136.	Eextra_total L	Extra inverter PowerTOUser_Extra total(low)		0.1kWh	SPA used
1137.	Esystem_today H	System electric energy today H		0.1kWh	SPA used System electric energy today H
1138.	Esystem_ today L	System electric energy today L		0.1kWh	SPA used System electric energy today L
1139.	Esystem_total H	System electric energy total H		0.1kWh	SPA used System electric energy total H
1140.	Esystem_total L	System electric energy total L		0.1kWh	SPA used System electric energy total L
.....	/	/	/	/	reversed
1249.	/	/	/	/	reversed
Tenth group for Storage power(历史信息查询, 存在本地 EEPROM 中) no use					
1250.	Ec_ day0 H	Energy Charge of latest day		0.1kwh	No use
1251.	Ec_ day0 L	Energy Charge of latest day		0.1kwh	No use
1252.	Ec_ day1 H	Energy Charge of latest 1st day		0.1kwh	
1253.	Ec_ day1 L	Energy Charge of latest 1st day		0.1kwh	
...	Ec_ day	...		0.1kwh	
...	Ec_ day	...		0.1kwh	
....	Ec_ day 6 H	Energy Charge of latest 6th day		0.1kwh	
1261.	Ec_ day 6L	Energy Charge of latest 6th day		0.1kwh	
1262.	Ec_ month0 H	Energy Charge of latest month		0.1kwh	

1263.	Ec_month0 L	Energy Charge of latest month		0.1kwh	
1264.	Ec_month1 H	Energy Charge of latest 1st month		0.1kwh	
1265.	Ec_month1 L	Energy Charge of latest 1st month		0.1kwh	
...	Ec_month	...		0.1kwh	No use
...	Ec_month	...		0.1kwh	No use
1284.	Ec_month11 H	Energy Charge of latest 11th month		0.1kwh	
1285.	Ec_month11L	Energy Charge of latest 11th month		0.1kwh	
1286.	Ec_year0 H	Energy Charge of latest year		0.1kwh	
1287.	Ec_year 0 L	Energy Charge of latest year		0.1kwh	
1288.	Ed_day0 H	Energy Discharge of latest day		0.1kwh	
1289.	Ed_day0 L	Energy Discharge of latest day		0.1kwh	
1290.	Ed_day1 H	Energy Discharge of latest 1st day		0.1kwh	
1291.	Ed_day1 L	Energy Discharge of latest 1st day		0.1kwh	
...	Ed_day	...		0.1kwh	No use
...	Ed_day	...		0.1kwh	No use
1298.	Ed_day 6 H	Energy Discharge of latest 6th day		0.1kwh	No use
1299.	Ed_day 6L	Energy Discharge of latest 6th day		0.1kwh	No use
1300.	Ed_month0 H	Energy Discharge of latest month		0.1kwh	No use
1301.	Ed_month0 L	Energy Discharge of latest month		0.1kwh	No use
1302.	Ed_month1 H	Energy Discharge of latest 1st month		0.1kwh	No use
1303.	Ed_month1 L	Energy Discharge of latest 1st month		0.1kwh	No use
...	Ed_month	...		0.1kwh	
...	Ed_month	...		0.1kwh	
1322.	Ed_month11 H	Energy Discharge of latest 11th month		0.1kwh	
1323.	Ed_month11L	Energy Discharge of latest 11th month		0.1kwh	
1324.	Ed_year0 H	Energy Discharge of latest year		0.1kwh	
1325.	Ed_year 0 L	Energy Discharge of latest year		0.1kwh	
1326.	Eg_day0 H	Energy to grid of latest day		0.1kwh	
1327.	Eg_day0 L	Energy to grid of latest day		0.1kwh	
1328.	Eg_day1 H	Energy to grid of latest 1st day		0.1kwh	
1329.	Eg_day1 L	Energy to grid of latest 1st day		0.1kwh	
...	Eg_day	...		0.1kwh	
...	Eg_day	...		0.1kwh	
1337.	Eg_day 6 H	Energy to grid of latest 6th day		0.1kwh	
1338.	Eg_day 6L	Energy to grid of latest 6th day		0.1kwh	

1339.	Eg_month0 H	Energy to grid of latest month		0.1kwh	
1340.	Eg_month0 L	Energy to grid of latest month		0.1kwh	
1341.	Eg_month1 H	Energy to grid of latest 1st month		0.1kwh	
1342.	Eg_month1 L	Energy to grid of latest 1st month		0.1kwh	
...	Eg_month	...		0.1kwh	
...	Eg_month	...		0.1kwh	
1361.	Eg_month11 H	Energy to grid of latest 11th month		0.1kwh	
1362.	Eg_month11L	Energy to grid of latest 11th month		0.1kwh	
1363.	Eg_year0 H	Energy to grid of latest year		0.1kwh	
1364.	Eg_year 0 L	Energy to grid of latest year		0.1kwh	
1365.	Eu_day0 H	Energy to user of latest day		0.1kwh	
1366.	Eu_day0 L	Energy to user of latest day		0.1kwh	No use
1367.	Eu_day1 H	Energy to user of latest 1st day		0.1kwh	No use
1368.	Eu_day1 L	Energy to user of latest 1st day		0.1kwh	No use
...	Eu_day	...		0.1kwh	No use
...	Eu_day	...		0.1kwh	No use
Eleventh group for Storage power no use					
1375.	Eu_day 6 H	Energy to user of latest 6th day		0.1kwh	No use
1376.	Eu_day 6L	Energy to user of latest 6th day		0.1kwh	
1377.	Eu_month0 H	Energy to user of latest month		0.1kwh	
1378.	Eu_month0 L	Energy to user of latest month		0.1kwh	
1379.	Eu_month1 H	Energy to user of latest 1st month		0.1kwh	
1380.	Eu_month1 L	Energy to user of latest 1st month		0.1kwh	
...	Eu_month	...		0.1kwh	
...	Eu_month	...		0.1kwh	
1399.	Eu_month11 H	Energy to user of latest 11th month		0.1kwh	
1400.	Eu_month11L	Energy to user of latest 11th month		0.1kwh	
1401.	Eu_year0 H	Energy to user of latest year		0.1kwh	
1402.	Eu_year 0 L	Energy to user of latest year		0.1kwh	
Twelfth group for buck-boost debug no use					
1500.	CurrentRecord_0x 22	OCD Date & Time(L) R	0-5:Second 6-11:minute 12-16:hour 17-21:day 22-25:month 26-31:year		No use

1501.	CurrentRecord_0x 23	OCD Date & Time(H)	R			
1502.	CurrentRecord_0x 24	Current SCD Protection Counts in Discharge	R	0-65534		
1503.	CurrentRecord_0x 25	SCD Date & Time(L)	R	0-5:Second 6-11:minute 12-16:hour 17-21:day 22-25:month 26-31:year		
1504.	CurrentRecord_0x 26	SCD Date & Time(H)	R			
1505.	CurrentRecordUp date		R	0: unrefreshed 1: refreshed		
1506.	CurrentRecord_0x 28		R	reversed		No use
1507.	CurrentRecord_0x 29		R	reversed		
1508.	CurrentRecord_0x 2A		R	reversed		
1509.	CurrentRecord_0x 2B		R	reversed		
1510.	CurrentRecord_0x 2C		R	reversed		
1511.	CurrentRecord_0x 2D		R	reversed		
1512.	CurrentRecord_0x 2E		R	reversed		
1513.	CurrentRecord_0x 2F		R	reversed		
1514.	VoltageRecord_0x 31	High Voltage Protection Counts in Charge	R			No use
1515.	VoltageRecord_0x 32	High Voltage Protection Counts in Discharge	R			
1516.	VoltageRecord_0x 33	OVC Date & Time(L)	R			
1517.	VoltageRecord_0x 34	OVC Date & Time(H)	R			
1518.	VoltageRecord_0x	OVD Date & Time(L)				

	35					
1519.	VoltageRecord_0x36	OVD Date & Time(H)				
1520.	VoltageRecord_0x37	Low Voltage Protection Counts in Charge				
1521.	VoltageRecord_0x38	Low Voltage Protection Counts in Discharge				
1522.	VoltageRecord_0x39	UVC Date & Time(L)				
1523.	VoltageRecord_0x3A	UVC Date & Time(H)				
1524.	VoltageRecord_0x3B	UVD Date & Time(L)				
1525.	VoltageRecord_0x3C	UVD Date & Time(H)				
1526.	VoltageRecordUpdate			0: unrefreshed 1: refreshed		
1527.	VoltageRecord_0x3E			reversed		
1528.	VoltageRecord_0x3F			reversed		
1529.	TemperatureRecord_0x41	High Temperature Protection Counts in Charge				
1530.	TemperatureRecord_0x42	High Temperature Protection Counts in Discharge				
1531.	TemperatureRecord_0x43	OTC Date & Time(L)				
1532.	TemperatureRecord_0x44	OTC Date & Time(H)				No use
1533.	TemperatureRecord_0x45	OTD Date & Time(L)				
1534.	TemperatureRecord_0x46	OTD Date & Time(H)				
1535.	TemperatureRecord_0x47	Low Temperature Protection Counts in Charge				
1536.	TemperatureRecord_0x48	Low Temperature Protection Counts in Discharge				

1537.	TemperatureRecord_0x49	UTC Date & Time(L)				
1538.	TemperatureRecord_0x4A	UTC Date & Time(H)				
1539.	TemperatureRecord_0x4B	UTD Date & Time(L)				
1540.	TemperatureRecord_0x4C	UTD Date & Time(H)				
1541.	TemperatureRecordUpdate			reversed	0: unrefreshed 1: refreshed	
1542.	TemperatureRecord_0x4E			reversed		No use
1543.	TemperatureRecord_0x4F			reversed		
1544.	ChargeRecordUpdate		W/R	0: unrefreshed 1: refreshed	default:0	
1545.	ChargeRecord_0x51	Charge Counts (more than 60s)		0~65534		
1546.	ChargeRecord_0x52	Last charge Date & Time(L)				
1547.	ChargeRecord_0x53	Last charge Date & Time(H)				
1548.	ChargeRecord_0x54	Full Charge Counts		0~65534		
1549.	ChargeRecord_0x55	Last full charge Date & Time(L)				No use
1550.	ChargeRecord_0x56	Last full charge Date & Time(H)				
1551.	ChargeRecord_0x57	2nd Protection Active Date & Time(L)				
1552.	ChargeRecord_0x58	2nd Protection Active Date & Time(H)				
1553.	ChargeRecord_0x59			reversed		
1554.	ChargeRecord_0x5A			reversed		
1555.	StatusInfo_0x11	Date&Time(L)				

1556.	StatusInfo_0x12	Date&Time(H)				
1557.	StatusInfo_0x13	status		bit0-1:00-pre-charge; 01-standby; 10-charging; 11-discharging bit2: 0-no error; 1-error bit3: 0-unbalanc; 1-balance bit4: 0-wake; 1-sleep bit5: 0-mosfet off; 1-mosfet on bit6-8:reversed		
1558.	StatusInfo_0x14	Error code		bit0: OCD bit1: SCD bit2: OV bit3: UV bit4: OTD bit5: OTC bit6: UTD bit7: UTC		
1559.	StatusInfo_0x15	SOC		0-100	%	No use
1560.	StatusInfo_0x16	Voltage			10mV	
1561.	StatusInfo_0x17	Current			10mA	
1562.	StatusInfo_0x18	Temperature		-127~127	°C	
1563.	StatusInfo_0x19	Max. charge current			10mA	
1564.	BMSCompany	BMS company from BMS		0:Darfon 1:Pace	FF	
1565.	Discharge power limit	power limit for discharge(only Read)	W	0-100	percentage	

					100	
1566.	Charge power limit	power limit for charge(only read)	W	0-100	percentage 100	
1567.	Bat temp limit Hysteresis			0-110:0-11 °C	0.1 °C	
1568.	DischargeToStandbyReason	Reason of state change from discharge to standby		1:Due to flash 2:Due to fault 3:PV and AC voltage both too low to support SPS 4:PV voltage high for discharge 5:Battery voltage low for discharge 6:Power to user low for discharge 7: AC State change 8: turn off order 9: Bat temp out of range 10: MPPT Trouble 11: forbid by BMS		
1569.	ChargeToStandbyReason	Reason of state change from charge to standby		1:Due to flash 2:Due to fault 3:PV and AC voltage both too low to support SPS 4:PV voltage low for charge 5:Battery voltage high for charge 6:PV power low for charge 7: AC State change 8: turn off order 9: Bat temp out of range 10: MPPT Trouble 11: forbid by BMS 12: PV volt high for charge		DEBUG

			13: Over current detected 14: BUS voltage high 15: bus2 voltage softstart fail.		
1570.					
1571.					
.....	1572~1999				

thirteen group for Storage power's SPA					
2000.	Inverter Status	Inverter run state	0:waiting, 1:normal, 3:fault		SPA
2001.	Ppv-H	Input power (high)		0.1W	
2002.	Ppv-L	Input power (low)		0.1W	
2003.	Vpv1	PV1 voltage		0.1V	
2004.	PV1Curr	PV1 input current		0.1A	
2005.	Ppv1-H	PV1 input power (high)		0.1W	
2006.	Ppv1-L	PV1 input power (low)		0.1W	
2007.	Vpv2	PV2 voltage		0.1V	
2008.	PV2Curr	PV2 input current		0.1A	
2009.	Ppv2-H	PV2 input power (high)		0.1W	
2010.	Ppv2-L	PV2 input power (low)		0.1W	
2011.	Vpv3	PV3 voltage		0.1V	
2012.	PV3Curr	PV3 input current		0.1A	
2013.	Ppv3-H	PV3 input power (high)		0.1W	
2014.	Ppv3-L	PV3 input power (low)		0.1W	
2015.	Vpv4	PV4 voltage		0.1V	
2016.	PV4Curr	PV4 input current		0.1A	
2017.	Ppv4-H	PV4 input power (high)		0.1W	
2018.	Ppv4-L	PV4 input power (low)		0.1W	
2019.	Vpv5	PV5 voltage		0.1V	
2020.	PV5Curr	PV5 input current		0.1A	
2021.	Ppv5-H	PV5 input power (high)		0.1W	
2022.	Ppv5-L	PV5 input power (low)		0.1W	
2023.	Vpv6	PV6 voltage		0.1V	
2024.	PV6Curr	PV6 input current		0.1A	
2025.	Ppv6-H	PV6 input power (high)		0.1W	
2026.	Ppv6-L	PV6 input power (low)		0.1W	
2027.	Vpv7	PV7 voltage		0.1V	

2028.	PV7Curr	PV7 input current		0.1A	
2029.	Ppv7-H	PV7 input power (high)		0.1W	
2030.	Ppv7-L	PV7 input power (low)		0.1W	
2031.	Vpv8	PV8 voltage		0.1V	
2032.	PV8Curr	PV8 input current		0.1A	
2033.	Ppv8-H	PV8 input power (high)		0.1W	
2034.	Ppv8-L	PV8 input power (low)		0.1W	
2035.	Pac H	Output power (high)		0.1W	SPA
2036.	Pac L	Output power (low)		0.1W	SPA
2037.	Fac	Grid frequency		0.01Hz	SPA
2038.	Vac1	Three/single phase grid voltage		0.1V	SPA
2039.	Iac1	Three/single phase grid output current		0.1A	SPA
2040.	Pac1 H	Three/single phase grid output watt VA (high)		0.1VA	SPA
2041.	Pac1 L	Three/single phase grid output watt VA(low)		0.1VA	SPA
2042.	Vac2	Three-phase grid voltage		0.1V	
2043.	Iac2	Three-phase grid output current		0.1A	
2044.	Pac2-H	Three-phase grid output power (high)		0.1VA	
2045.	Pac2-L	Three-phase grid output power (low)		0.1VA	
2046.	Vac3	Three-phase grid voltage		0.1V	
2047.	Iac3	Three-phase grid output current		0.1A	
2048.	Pac3-H	Three-phase grid output power (high)		0.1VA	
2049.	Pac3-L	Three-phase grid output power (low)		0.1VA	
2050.	Vac_RS	Three-phase grid voltage		0.1V	Line-voltage
2051.	Vac_ST	Three-phase grid voltage		0.1V	Line-voltage
2052.	Vac_TR	Three-phase grid voltage		0.1V	Line-voltage
2053.	Eac today H	Today generate energy (high)		0.1kWH	SPA
2054.	Eac today L	Today generate energy (low)		0.1kWH	SPA
2055.	Eac total H	Total generate energy (high)		0.1kWH	SPA
2056.	Eac total L	Total generate energy (low)		0.1kWH	SPA
2057.	Time total H	Work time total (high)		0.5s	SPA
2058.	Time total L	Work time total (low)		0.5s	SPA
2059.	Epv1_today-H	PV1 Energy today (high)		0.1kWh	
2060.	Epv1_today-L	PV1 Energy today (low)		0.1kWh	
2061.	Epv1_total-H	PV1 Energy total (high)		0.1kWh	
2062.	Epv1_total-L	PV1 Energy total (low)		0.1kWh	
2063.	Epv2_today-H	PV2 Energy today (high)		0.1kWh	
2064.	Epv2_today-L	PV2 Energy today (low)		0.1kWh	
2065.	Epv2_total-H	PV2 Energy total (high)		0.1kWh	

2066.	Epv2_total L	PV2 Energy total (low)		0.1kWh	
2067.	Epv3_today H	PV3 Energy today (high)		0.1kWh	
2068.	Epv3_today L	PV3 Energy today (low)		0.1kWh	
2069.	Epv3_total H	PV3 Energy total (high)		0.1kWh	
2070.	Epv3_total L	PV3 Energy total (low)		0.1kWh	
2071.	Epv4_today H	PV4 Energy today (high)		0.1kWh	
2072.	Epv4_today L	PV4 Energy today (low)		0.1kWh	
2073.	Epv4_total H	PV4 Energy total (high)		0.1kWh	
2074.	Epv4_total L	PV4 Energy total (low)		0.1kWh	
2075.	Epv5_today H	PV5 Energy today (high)		0.1kWh	
2076.	Epv5_today L	PV5 Energy today (low)		0.1kWh	
2077.	Epv5_total H	PV5 Energy total (high)		0.1kWh	
2078.	Epv5_total L	PV5 Energy total (low)		0.1kWh	
2079.	Epv6_today H	PV6 Energy today (high)		0.1kWh	
2080.	Epv6_today L	PV6 Energy today (low)		0.1kWh	
2081.	Epv6_total H	PV6 Energy total (high)		0.1kWh	
2082.	Epv6_total L	PV6 Energy total (low)		0.1kWh	
2083.	Epv7_today H	PV7 Energy today (high)		0.1kWh	
2084.	Epv7_today L	PV7 Energy today (low)		0.1kWh	
2085.	Epv7_total H	PV7 Energy total (high)		0.1kWh	
2086.	Epv7_total L	PV7 Energy total (low)		0.1kWh	
2087.	Epv8_today H	PV8 Energy today (high)		0.1kWh	
2088.	Epv8_today L	PV8 Energy today (low)		0.1kWh	
2089.	Epv8_total H	PV8 Energy total (high)		0.1kWh	
2090.	Epv8_total L	PV8 Energy total (low)		0.1kWh	
2091.	Epv_total H	PV Energy total (high)		0.1kWh	
2092.	Epv_total L	PV Energy total (low)		0.1kWh	
2093.	Temp1	Inverter temperature		0.1C	SPA
2094.	Temp2	The inside IPM in inverter Temperature		0.1C	SPA
2095.	Temp3	Boost temperature		0.1C	SPA
2096.	Temp4				reserved
2097.	uwBatVolt_DSP	BatVolt_DSP		0.1V	BatVolt(DSP)
2098.	P Bus Voltage	P Bus inside Voltage		0.1V	SPA
2099.	N Bus Voltage	N Bus inside Voltage		0.1V	SPA
2100.	RemoteCtrlEn	/	0.Load First 1.BatFirst	/	Remote setup enable
2101.	RemoteCtrlPower	/	2.Grid	/	Remotely set power

2102.	Extra AC Power to grid_H	Extra inverte AC Power to grid High	For SPA connect inverter		SPA used
2103.	Extra AC Power to grid_L	Extrainverte AC Power to grid Low			SPA used
2104.	Eextra_today H	Extra inverter PowerTOUser_Extra today (high)	R	0.1kWh	SPA used
2105.	Eextra_today L	Extra inverter PowerTOUser_Extra today (low)	R	0.1kWh	SPA used
2106.	Eextra_total H	Extra inverter PowerTOUser_Extratotal(high)		0.1kWh	SPA used
2107.	Eextra_total L	Extra inverter PowerTOUser_Extra total(low)		0.1kWh	SPA used
2108.	Esystem_today H	System electric energy today H		0.1kWh	SPA used System electric energy today H
2109.	Esystem_ today L	System electric energy today L		0.1kWh	SPA used System electric energy today L
2110.	Esystem_total H	System electric energy total H		0.1kWh	SPA used System electric energy total H
2111.	Esystem_total L	System electric energy total L		0.1kWh	SPA used System electric energy total L
2112.	EACCharge_Today_H	ACCharge energy today		0.1kwh	Storage Power
2113.	EACCharge_Today_L	ACCharge energy today		0.1kwh	Storage Power
2114.	EACCharge_Total_H	ACCharge energy total		0.1kwh	Storage Power
2115.	EACCharge_Total_L	ACCharge energy total		0.1kwh	Storage Power
2116.	AC charge	Grid power to local load		0.1kwh	Storage

	Power_H				Power
2117.	AC charge Power_L	Grid power to local load		0.1kwh	Storage Power
2118.	Priority	0:Load First 1:Battery First 2:Grid First			Storage Power
2119.	Battery Type	0: Lead-acid 1: Lithium battery			Storage Power
2120.	AutoProofreadC MD	Aging mode			Storage Power
...	reserved				reserved
2124.	reserved				reserved
Use for TL-X and TL-XH					
3000	Inverter Status	Inverter run state High 8 bits mode (specific mode) 0: Waiting module 1: 自检模式, 可选 2: Reserved 3: SysFault module 4: Flash module 5: PVBATOnline module: 6: BatOnline module 7: PVOOfflineMode 8: BatOfflineMode 低 8 位表示机器状态 (网页显示) 0: StandbyStatus; 1: NormalStatus; 3: FaultStatus 4: FlashStatus;			
3001	Ppv H	PV total power		0.1W	
3002	Ppv L				
3003	Vpv1	PV1 voltage		0.1V	
3004	Ipv1	PV1 input current		0.1A	
3005	Ppv1 H	PV1 power		0.1W	
3006	Ppv1 L				
3007	Vpv2	PV2 voltage		0.1V	
3008	Ipv2	PV2 input current		0.1A	
3009	Ppv2 H	PV2 power		0.1W	

3010	Ppv2 L				
3011	Vpv3	PV3 voltage		0.1V	
3012	Ipv3	PV3 input current		0.1A	
3013	Ppv3 H	PV3 power		0.1W	
3014	Ppv3 L				
3015	Reserved				
3016	Reserved				
3017	Reserved				
3018	Reserved				
3019	Reserved				
3020	Reserved				
3021	Reserved				
3022	Reserved				
3023	Pac H	Output power		0.1W	Output power
3024	Pac L				
3025	Fac	Grid frequency		0.01Hz	Grid frequency
3026	Vac1	Three/single phase grid voltage		0.1V	Three/single phase grid voltage
3027	Iac1	Three/single phase grid output current		0.1A	Three/single phase grid output current
3028	Pac1 H	Three/single phase grid output watt VA		0.1VA	Three/single phase grid output watt VA
3029	Pac1 L				
3030	Vac2	Three phase grid voltage		0.1V	Three phase grid voltage
3031	Iac2	Three phase grid output current		0.1A	Three phase grid output current
3032	Pac2 H	Three phase grid output power		0.1VA	Three phase grid output power
3033	Pac2 L				
3034	Vac3	Three phase grid voltage		0.1V	Three phase grid voltage
3035	Iac3	Three phase grid output current		0.1A	Three phase grid output current
3036	Pac3 H	Three phase grid output power		0.1VA	Three phase

3037	Pac3 L				grid output power
3038	Vac_RS	Three phase grid voltage		0.1V	
3039	Vac_ST	Three phase grid voltage		0.1V	
3040	Vac_TR	Three phase grid voltage		0.1V	
3041	Ptouser total H	Total forward power		0.1W	Total forward power
3042	Ptouser total L				
3043	Ptogrid total H	Total reverse power		0.1W	Total reverse power
3044	Ptogrid total L				
3045	Ptoload total H	Total load power		0.1W	Total load power
3046	Ptoload total L				
3047	Time total H	Work time total		0.5s	
3048	Time total L				
3049	Eac today H	Today generate energy		0.1kWh	Today generate energy
3050	Eac today L				
3051	Eac total H	Total generate energy		0.1kWh	Total generate energy
3052	Eac total L				
3053	Epv_total H	PV energy total		0.1kWh	PV energy total
3054	Epv_total L				
3055	Epv1_today H	PV1 energy today		0.1kWh	
3056	Epv1_today L				
3057	Epv1_total H	PV1 energy total		0.1kWh	
3058	Epv1_total L				
3059	Epv2_today H	PV2 energy today		0.1kWh	
3060	Epv2_today L				
3061	Epv2_total H	PV2 energy total		0.1kWh	
3062	Epv2_total L				
3063	Epv3_today H	PV3 energy today		0.1kWh	
3064	Epv3_today L				
3065	Epv3_total H	PV3 energy total		0.1kWh	
3066	Epv3_total L				
3067	Etouser_today H	Today energy to user		0.1kWh	Today energy to user
3068	Etouser_today L				

3069	Etouser_total H	Total energy to user		0.1kWh	Total energy to user
3070	Etouser_total L				
3071	Etogrid_today H	Today energy to grid		0.1kWh	Today energy to grid
3072	Etogrid_today L				
3073	Etogrid_total H	Total energy to grid		0.1kWh	Total energy to grid
3074	Etogrid_total L				
3075	Eload_today H	Today energy of user load		0.1kWh	Today energy of user load
3076	Eload_today L				
3077	Eload_total H	Total energy of user load		0.1kWh	Total energy of user load
3078	Eload_total L				
3079	Reserved				
3080	Reserved				
3081	Reserved				
3082	Reserved				
3083	Reserved				
3084	Reserved				
3085	Reserved				
3086	Reserved				
3087	ISO	PV ISO value		1KΩ	
3088	DCI_R	R DCI Curr		0.1mA	
3089	DCI_S	S DCI Curr		0.1mA	
3090	DCI_T	T DCI Curr		0.1mA	
3091	GFCI	GFCI Curr		1mA	
3092	Reserved				
3093	Temp1	Inverter temperature		0.1℃	
3094	Temp2	The inside IPM in inverter temperature		0.1℃	
3095	Temp3	Boost temperature		0.1℃	
3096	Temp4	Reserved		0.1℃	
3097	Temp5	Communication board temperature		0.1℃	
3098	P Bus Voltage	P Bus inside Voltage		0.1V	
3099	N Bus Voltage	N Bus inside Voltage		0.1V	
3100	IPF	Inverter output PF now			0-20000
3101	RealOPPercent	Real Output power Percent		1%	1~100
3102	OPFullwatt H	Output Maxpower Limited		0.1W	Output Maxpower Limited
3103	OPFullwatt L				
3104	DeratingMode	DeratingMode			0:no derate; 1:PV;

					2:(Reserved) ; 3:Vac; 4:Fac; 5:Tboost; 6:Tinv; 7:Control; 8:(Reserved) ; 9:OverBackB yTime;
3105	Fault code	Inverter fault code			
3106	Warning code	Inverter Warning code			
3107	Systemfault word0	System fault word0		bitfield	
3108	Systemfault word1	System fault word1		bitfield	
3109	Systemfault word2	System fault word2		bitfield	
3110	Systemfault word3	System fault word3		bitfield	
3111	Systemfault word4	System fault word4		bitfield	
3112	Systemfault word5	System fault word5		bitfield	
3113	Systemfault word6	System fault word6		bitfield	
3114	Systemfault word7	System fault word7		bitfield	
3115	inv start delay time	inv start delay time		1S	inv start delay time
3116	Reserved				
3117	Reserved				
3118	BDC_OnOffState	BDC connect state			BDC connect state 0: not detected BDC; 1: BDC detected;
3119	DryContactState	Current status of DryContact			Current status of

					DryContact 0: turn off; 1: turn on;
3120	Reserved				
3121	Reserved				
3122	Reserved				
3123	Reserved				
3124	Reserved				
3125	Edischr_today H	Today discharge energy		0.1kWh	Today discharge energy
3126	Edischr_today L				
3127	Edischr_total H	Total discharge energy		0.1kWh	Total discharge energy
3128	Edischr_total L				
3129	Echr_today H	Charge energy today		0.1kWh	Charge energy today
3130	Echr_today L				
3131	Echr_total H	Charge energy total		0.1kWh	Charge energy total
3132	Echr_total L				
3133	Eacchr_today H	Today energy of AC charge		0.1kWh	Today energy of AC charge
3134	Eacchr_today L				
3135	Eacchr_total H	Total energy of AC charge		0.1kWh	Total energy of AC charge
3136	Eacchr_total L				
3137	Reserved				
3138	Reserved				
3139	Reserved				
3140	Reserved				
3141	Reserved				
3142	Reserved				
3143	Reserved				
3144	Reserved				
3145	EPS Fac	UPS frequency		0.01Hz	
3146	EPS Vac1	UPS phase R output voltage		0.1V	
3147	EPS Iac1	UPS phase R output current		0.1A	
3148	EPS Pac1 H	UPS phase R output power		0.1VA	
3149	EPS Pac1 L				
3150	EPS Vac2	UPS phase S output voltage		0.1V	
3151	EPS Iac2	UPS phase S output current		0.1A	
3152	EPS Pac2 H	UPS phase S output power		0.1VA	
3153	EPS Pac2 L				

3154	EPS Vac3	UPS phase T output voltage		0.1V	
3155	EPS Iac3	UPS phase T output current		0.1A	
3156	EPS Pac3 H	UPS phase T output power		0.1VA	
3157	EPS Pac3 L				
3158	EPS Pac H	UPS output power		0.1VA	
3159	EPS Pac L				
3160	Loadpercent	Load percent of UPS ouput		0.10%	
3161	PF	Power factor		0.1	
3162	DCV	DC voltage		1mV	
3163	Reserved				
3164	Reserved				
3165	Reserved				
3166	SysState_Mode	System work State and mode 高 8 位表示模式; 0: No charge and discharge; 1: charge; 2: Discharge; 低 8 位表示状态; 0: StandbyStatus; 1: NormalStatus; 3: FaultStatus 4: FlashStatus;			BDC1
3167	FaultCode	Storage device fault code			
3168	WarnCode	Storage device warning code			
3169	Vbat	Battery voltage		0.01V	
3170	Ibat	Battery current		0.1A	
3171	SOC	State of charge Capacity		1%	
3172	Vbus1	BUS1 voltage		0.1V	
3173	Vbus2	BUS2 voltage		0.1V	
3174	Ibb	BUCK-BOOST Current		0.1A	
3175	Illc	LLC Current		0.1A	
3176	TempA	Temperture A		0.1°C	
3177	TempB	Temperture B		0.1°C	
3178	Pdischr H	Discharge power		0.1W	
3179	Pdischr L				
3180	Pchr H	Charge power		0.1W	
3181	Pchr L				
3182	Edischr_total H	Discharge total energy of storage device		0.1kWh	
3183	Edischr_total L				
3184	Echr_total H	Charge total energy of storage device		0.1kWh	

3185	Echr_total L				
3186	AutoProofreadCMD	ATE mode adjust cmd			
3187	Reserved				
3188	Reserved				
3189	SysState_Mode	System work State and mode 高 8 位表示模式; 0: No charge and discharge; 1: charge; 2: Discharge; 低 8 位表示状态; 0: StandbyStatus; 1: NormalStatus; 3: FaultStatus 4: FlashStatus;			
3190	FaultCode	Storage device fault code			BDC2
3191	WarnCode	Storage device warning code			
3192	Vbat	Battery voltage		0.01V	
3193	Ibat	Battery current		0.1A	
3194	SOC	State of charge Capacity		1%	
3195	Vbus1	BUS1 voltage		0.1V	
3196	Vbus2	BUS2 voltage		0.1V	
3197	Ibb	BUCK-BOOST Current		0.1A	
3198	Illc	LLC Current		0.1A	
3199	TempA	Temperature A		0.1°C	
3200	TempB	Temperature B		0.1°C	
3201	Pdischr H	Discharge power		0.1W	
3202	Pdischr L				
3203	Pchr H	Charge power		0.1W	
3204	Pchr L				
3205	Edischr_total H	Discharge total energy of storage device		0.1kWh	
3206	Edischr_total L				
3207	Echr_total H	Charge total energy of storage device		0.1kWh	
3208	Echr_total L				
3209	AutoProofreadCMD	ATE mode adjust cmd			
3210	Reserved				
3211	Reserved				
3212	BMS_Status	Status from BMS			
3213	BMS_Error	Error information from BMS			

3214	BMS_WarnInfo	Warning information from BMS			
3215	BMS_SOC	SOC from BMS			
3216	BMS_BatteryVoltage	Battery voltage from BMS			
3217	BMS_BatteryCurrent	Battery current from BMS			
3218	BMS_BatteryTemp	Battery temperature from BMS			
3219	BMS_MaxCurr	Max. charge/discharge current from BMS (pylon)			
3220	BMS_DeltaVolt	Delta V from BMS			
3221	BMS_CycleCnt	Cycle Count from BMS			
3222	BMS_SOH	SOH from BMS			
3223	BMS_ConstantVoltage	CV voltage from BMS			
3224	BMS_BMSInfo	BMSInformation from BMS			
3225	BMS_PackInfo	Pack Information from BMS			
3226	BMS_UsingCap	Using Cap from BMS			
3227	BMS_FW				
3228	BMS_MCUVersion	MCU Software version from BMS			
3229	BMSCommType	BMS Communication Type			BMS Communication Type 0: RS485; 1: CAN;
3230 ~ 3249	Reserved				

&*1: Inverter fault code Bit:

Fault type value	Means(The message showed on the inverter when the inverter has fault)
1~23	" Error: 99+x ",
24	"Auto Test Failed",
25	"No AC Connection",
26	"PV Isolation Low",
27	" Residual I High",
28	" Output High DCI",
29	" PV Voltage High",
30	" AC V Outrange ",

31	" AC F Outrange ",
32	" Module Hot "

&*2: The value is 0.1V when the fault is the voltage, is 0.01Hz when the fault is the frequency;

&*3:

High byte value	Means	low byte value	Means
0	Auto test stop	0	No test
1	Auto test starting	1	Testing grid volt high pro
2	Auto testing	2	Testing grid volt low pro
		3	Testing grid frequency high pro
		4	Testing grid frequency low pro

&*4: The variable "wAutoTestResult" and "cTestStepStop": wAutoTestResult is the step test time counter, when it reach cTestStepStop, this step test will stop and fail.

&*5: Inverter Model: A , could be show: "A1 B0 D0 T0 PF U1 M5 S1" or "1000F151"

Ax=(A&0XF0000000)>>28

Bx=(A&0XF0000000)>>24

Dx=(A&0XF000000)>>20

Tx=(A&0XF00000)>>16

Px=(A&0x00F000)>>12

Ux=(A&0x000F00)>>8

Mx=(A&0x0000F0)>>4

Sx=(A&0x00000F)

&*6: DTC(Device type code)

Code No.	Device type	Note
001xx	Inverter	1 tracker and 1phase Grid connect PV inverter TL
002xx	Inverter	2 tracker and 1phase Grid connect PV inverter TL
003xx	Inverter	1 tracker and 1phase Grid connect PV inverter HF
004xx	Inverter	2 tracker and 1phase Grid connect PV inverter HF
005xx	Inverter	1 tracker and 1phase Grid connect PV inverter LF
006xx	Inverter	2 tracker and 1phase Grid connect PV inverter LF
007xx	Inverter	1 tracker and 3phase Grid connect PV inverter TL
008xx	Inverter	2 tracker and 3phase Grid connect PV inverter TL
009xx	Inverter	1 tracker and 3phase Grid connect PV inverter LF
010xx	Inverter	2 tracker and 3phase Grid connect PV inverter LF

.....		
10001	Data logger	RF-ShineVersion
10002	Data logger	Web-ShinePano
10003	Data logger	Web-ShineWebBox
10004	Data logger	WL-WIFI Module
.....		
11001	Confluence box	Confluence box 1
.....		

&*7: Grid network power control command password:

Inverter is in lock state after power on; change the power control by network command should unlock inverter first; default pw is XXXXXX;

Unlock: send 0 to 3-135, then send password to 3-136~138; inverter will auto lock in 5min after unlocked;

Change PW: unlock first, then send 1 to 3-135, then send new password to 3-136~138;

Lock: send 0 or 2 to 3-135;

&*8: Inverter fault code and warning code

Fault code		Warning code	
0x00000001	\	0x0001	Fan warning
0x00000002	Communication error	0x0002	String communication abnormal
0x00000004	\	0x0004	StrPIDconfig Warning
0x00000008	StrReverse or StrShort fault	0x0008	\
0x00000010	Model Init fault	0x0010	DSP and COM firmware unmatched
0x00000020	Grid Volt Sample different	0x0020	\
0x00000040	ISO Sample different	0x0040	SPD abnormal
0x00000080	GFCI Sample different	0x0080	GND and N connect abnormal
0x00000100	\	0x0100	PV1 or PV2 circuit short
0x00000200	\	0x0200	PV1 or PV2 boost driver broken
0x00000400	\	0x0400	\
0x00000800	\	0x0800	\
0x00001000	AFCI Fault	0x1000	\
0x00002000	\	0x2000	\
0x00004000	AFCI Module fault	0x4000	\
0x00008000	\	0x8000	\
0x00010000	\		
0x00020000	Relay check fault		
0x00040000	\		
0x00080000	\		
0x00100000	\		
0x00200000	Communication error		

0x00400000	Bus Voltage error		
0x00800000	AutoTest fail		
0x01000000	No Utility		
0x02000000	PV Isolation Low		
0x04000000	Residual I High		
0x08000000	Output High DCI		
0x10000000	PV Voltage high		
0x20000000	AC V Outrange		
0x40000000	AC F Outrange		
0x80000000	TempratureHigh		

&*9 Warning Value

	Warning Value 1	Warning Value 2	Warning Value 3
0x0001	String1abnormal	PV1ShortCircuit	AC SPD abnormal
0x0002	String2abnormal	PV2ShortCircuit	DC SPD abnormal
0x0004	String3abnormal	PV3ShortCircuit	
0x0008	String4abnormal	PV4ShortCircuit	
0x0010	String5abnormal	PV5ShortCircuit	
0x0020	String6abnormal	PV6ShortCircuit	
0x0040	String7abnormal	PV7ShortCircuit	
0x0080	String8abnormal	PV8ShortCircuit	
0x0100	String9abnormal	BT1DriverFault	
0x0200	String10abnormal	BT2DriverFault	
0x0400	String11abnormal	BT3DriverFault	
0x0800	String12abnormal	BT4DriverFault	
0x1000	String13abnormal	BT5DriverFault	
0x2000	String14abnormal	BT6DriverFault	
0x4000	String15abnormal	BT7DriverFault	
0x8000	String16abnormal	BT8DriverFault	

&*11: Inverter Model: A , could be show: "S0A D01 B01 T06 P0F U01 M03E8" or "0A0101060F0103E8"

Sx=(A&0XFF00000000000000)>>56
 Dx=(A&0X00FF000000000000)>>48
 Bx=(A&0X0000FF0000000000)>>40
 Tx=(A&0X000000FF00000000)>>32
 Px=(A&0x00000000FF000000)>>24
 Ux=(A&0x0000000000FF0000)>>16
 Mx=(A&0x00000000000000FFFF)

HybridAbnoram/Fault/warning bit definition

(Abnormal:record event for debug,continueworking;fault:record event and show for

debug,stopworking;Warning:record event and show,continue working)

Word definition		Bit definition		comment
System fault word0	Byte0	MasterForceINVFault	0.	M3 on/off control
		MasterForceSPFault	1.	
		BusVoltHigh_TZ	2.	restart PWM
		BusVoltHigh_ISR	3.	restartPWM
		reserved	4.	
		reserved	5.	
		reserved	6.	
		reserved	7.	
	Byte1	GridZClossFault	8.	Grid side abnormal
		reserved	9.	
		reserved	10.	
		GFCIHigh	11.	
		GridR_VFault	12.	
		GridS_VFault	13.	
		GridT_VFault	14.	
GridFFault		15.		
System fault word1	Byte2	RelayFault	0.	Grid side abnormal
		GFCIDamage	1.	
		GridR_VLowFault	2.	
		GridR_VHighFault	3.	
		GridS_VLowFault	4.	
		GridS_VHighFault	5.	
		GridT_VLowFault	6.	
		GridT_VHighFault	7.	
	Byte3	INVCurrOCP_ISR	8.	Grid side abnormal
		INVCurrOCP_TZ	9.	
		DCIHigh	10.	
		reserved	11.	
		INVR_CurrOCP_Rms	12.	
		INVS_CurrOCP_Rms	13.	
		INVT_CurrOCP_Rms	14.	
NoUtility		15.		
System fault word2	Byte4	GridFlowFault	0.	Grid side abnormal
		GridFHighFault	1.	
		GridVolt_Unbalance_Fault	2.	
		AC_PLL_Fault	3.	
		OverLoadFault	4.	
		reserved	5.	
		reserved	6.	

		reserved	7.	EPS side abnormal
	Byte5	EPS_LineVoltR_Loss	8.	
		EPS_LineVoltS_Loss	9.	
		EPS_LineVoltT_Loss	10.	
		reserved	11.	
		reserved	12.	
		reserved	13.	
		reserved	14.	
		reserved	15.	
System fault word3	Byte6	BatTerminalReversed	0.	BAT Side abnormal
		BatTerminalOpen	1.	
		BMS Battery Open		
		BatteryVoltageLow	2.	
		BatteryVoltageHigh	3.	
		reserved	4.	
		reserved	5.	
		reserved	6.	
	reserved	7.		
	Byte7	reserved	8.	BAT Side abnormal
		reserved	9.	
		reserved	10.	
		reserved	11.	
		reserved	12.	
		reserved	13.	
reserved		14.		
reserved	15.			
System fault word4	Byte8	reserved	0.	PV Side Abnormal
		reserved	1.	
		reserved	2.	
		reserved	3.	
		reserved	4.	
		PV1_VoltLowWarn	5.	
		PV2-VoltLowWarn	6.	
		reserved	7.	
	Byte9		8.	PV Side Abnormal
			9.	
			10.	
		reserved	11.	
		reserved	12.	
		reserved	13.	
reserved	14.			

		reserved	15.	
System fault word5	Byte10	NEDetectFault	0.	Sytem fault
		PVISOFault	1.	
		reserved	2.	
		BusVoltHighFault_ISR	3.	
		BusSampleFault	4.	
		UHCTFault	5.	
		AComFault	6.	
		BComFault	7.	
	Byte11	BusVoltHighFault_TZ	8.	Sytem fault
		AuotTestFault	9.	
		DCHigh	10.	
		NTCOpenFault	11.	
		reserved	12.	
		BBHeatsink_TempOver	13.	
		BBOCP_FaultISR	14.	
BBOCP_FaultTZ		15.		
System fault word6	Byte12	PV1_VoltHighFault	0.	Sytem fault
		PV2_VoltHighFault	1.	
		BHeatsink_Overtemp	2.	
		INVHeatsink_Overtemp	3.	
		reserved	4.	
		reserved	5.	
		reserved	6.	
		reserved	7.	
	Byte13	BoostDriver1Warn	8.	System warning
		BoostDriver2Warn	9.	
		WARN104	10.	
		PV1_ShortFault	11.	
		PV2_ShortFault	12.	
		Meter Comm Loss	13.	
		PairingTimeOut	14.	
CT LN Reversed		15.		
System fault word6	Byte14	BMS COM Fault	0.	
		BMS Error: xxx	1.	
		Battery reversed	2.	
		BAT NTC Open	3.	
		SS Timeout	4.	
		Bat voltage low	5.	
		Bat T Outrange	6.	
		BATOutput_Overload	7.	

	Byte15	reserved	8.	
		reserved	9.	
		reserved	10.	
		reserved	11.	
		reserved	12.	
		reserved	13.	
		reserved	14.	
		reserved	15.	
System fault word7		reserved		

5 Set address

Refer to the Inverter user manual. Always is :

Knock the pv inverter to let the lcd display to the “COM Addr: xxx”, then double knock, if displays “Move”, you should another double knock, until it displays a address number, then you can give a single knock to change the address, this address will be remembered when the lcd backlight off.

6 Notice

- 1) It can drive mostly 32 pv inverters for one rs485 comport.
- 2) There are only read input and hold registers commands even the newest version.
- 3) App user could only care the input register.
- 4) App user could not care the holding registers.
- 5) Except the CEI0-21 and VDE-AR-N 4105 power management registers, you should refer the manufactory’s suggestion when writing the other registers;