Growatt Inverter Modbus RTU Protocol

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Instruction: Register range for various types of inverter

TL-X/TL-XH/TL-XH US (MIN Type): 03 register range: 0~124, 3000~3124, 3125~3249(TL-XHUS); 04 register range: 3000~3124, 3125~3249, 3250~3374 (TL-XH)

TL3-X(MAX、MID、MAC Type): 03 register range: 0~124, 125~249; 04 register range: 0~124, 125~249

MAX 1500V、MAX-X LV: 03 register range: 0~124, 125~249; 04 register range: 0~124, 125~249, 875~999

MOD TL3-XH: 03 register range:0~124, 3000~3124; 04 register range: 3000~3124, 3125~3249

Storage(MIX Type): 03 register range: 0~124, 1000~1124; 04 register range: 0~124, 1000~1124

Storage(SPA Type): 03 register range: 0~124, 1000~1124; 04 register range: 1000~1124, 2000~2124, 1125~1249

Storage(SPH Type): 03 register range: 0~124, 1000~1124; 04 register range: 0~124, 1000~1124, 1125~1249

catalog

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 minimum850ms 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 CEI0-21 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）Inverter On （3）; Off （2） BDC	W	0、1、2、3		1	The inverter can be switched on and off, and the BDC can be switched on and off for the batt ready function.
01	SaftyFuncEn	Bit0: SPI enable Bit1: AutoTestStart Bit2: LVFRT enable Bit3:FreqDerating Enable Bit4: Softstart enable Bit5: DRMS enable Bit6:PowerVoltFunc Enable Bit7: HVFRT enable Bit8:ROCOF enable Bit9: Recover FreqDeratingMode Enable Bit10：Split phase enable Bit10~15:预留	W	0 : disable 1: enable			SPI: system protection interface Bit0~3:for CEI0-21 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 P Rate	Inverter Max output active power percent	W	0-100 or 255	%	255	255: power is not be limited

04	Reactive P Rate	Inverter max output reactive power percent	W	-100-100 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)					
14	Fw version2 L	Control Firmware version (low)					
15	LCD language	LCD language	W	0-5			0: Italian; 1: English; 2: German; 3: Spanish; 4: French; 5: Chinese; 6：Polish 7：Portugues 8：Hungary
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	wPowerStartSlope	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	Serial number 1-2			ASCII		
24	Serial NO	Serial number 3-4					
25	Serial NO	Serial number 5-6					
26	Serial NO	Serial number 7-8					
27	Serial NO	Serial number 9-10					
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 Info3	Manufacturer information (low)					
40	Manufacturer Info 2	Manufacturer information (low)					
41	Manufacturer Info 1	Manufacturer information (high)					
42	bfailsafeEn;	G100 fail safe	W	Enable:1 Disable:0			English G100 fail safe set
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 frequencylimit 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	W		0.01		

		limit connect to Grid			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		
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	Model letter version number (TJ)			ASCII		
83	FW Build No. 4	Model letter version number (AA)			ASCII		
84	FW Build No. 3	DSP1 FW Build No.			ASCII		
85	FW Build No. 2	DSP2/M0 FW Build No.			ASCII		
86	FW Build No. 1	CPLD/AFCI FW Build No.			ASCII		
87	FW Build No.	M3 FW Build No.			ASCII		

	0						
88	ModbusVersion	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 5: OverExcited(Capa) Reactive Power 6： Q(v)model 7：Direct Control mode 8. Static capacitive QV mode 9. Static inductive QV mode	W				
90	GPRS IP Flag	Bit0-3:read:1;Set GPRS IP Successed Write:2;Read GPRS IP Successed Bit4-7:GPRS status	W	Bit0-3:about GPRS IP SET Bit4-7:about GRPRS Status			
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 deratingdelaytime	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 2power 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	ExportLimit_En/dis	ExportLimit_En/dis	R/W	1/0			ExportLimit enable, 0: Disable exportLimit; 1: Enable 485 exportLimit; 2: Enable 232 exportLimit; 3: Enable CT exportLimit;
123	ExportLimitPowerRate	ExportLimitPowerRate	R/W	-1000~+1000	0.1%		ExportLimit PowerRate
124	TrakerModel	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-6	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
137	Reactive P ValueH	Reactive PowerH	R/W		0.1var		
138	Reactive P ValueL	Reactive PowerL	R/W		0.1var		
139	ReactiveOutputPriorityEnable	ReactiveOutput Priority Enable	R/W		0/1		0：disable 1：enable
140	Reactive P Value(Ratio)	Reactive Power Ratio	R/W		0.1		
……							
141	SvgFunction Enable	Svg enable on night	R/W		0/1		0：disable 1：enable
142	uwUnderFUploadPoint	UnderF Upload Point	R/W		0.01HZ		
143	uwOFDerateRecoverPoint	OFDerate RecoverPoint	R/W		0.01HZ		
144	uwOFDerateRecoverDelayTime	OFDerate RecoverDelayTime	R/W	0-30000	50ms		
145	ZeroCurrent Enable	ZeroCurrent Enable	R/W	0-1			
146	uwZeroCurrentStaticlowVolt	ZeroCurrent StaticlowVolt	R/W	46-230V	0.1V	115V	
147	uwZeroCurrentStaticHighVolt	ZeroCurrent StaticHighVolt	R/W	230-276V	0.1V	276V	
148	uwHVoltDer	HVoltDerate HighPoint	R/W	0-1000V	0.1V		

	ateHighPoint						
149	uwHVoltDerateLowPoint	HVoltDerate LowPoint	R/W	0-1000V	0.1V		
150	uwQVPowerStableTime	QVPower Stable Time	R/W	0-60S	0.1S		
151	uwUnderFUploadStopPoint	UnderF Upload StopPoint	R/W		0.01HZ		
152	fUnderFreqPoint	Underfrequency load start point	R/W	46.00-50.00	0.01Hz	49.80	CEI
153	fUnderFreqEndPoint	Underfrequency down load end point	R/W	46.00-50.00	0.01Hz	49.10	CEI
154	fOverFreqPoint	Over frequency loading start point	R/W	50.00-52.00	0.01Hz	50.20	CEI
155	fOverFreqEndPoint	Over frequency loading end point	R/W	50.00-52.00	0.01Hz	51.50	CEI
156	fUnderVoltPoint	Undervoltage load shedding start point	R/W	160-300	0.1V	220.0	CEI
157	fUnderVoltEndPoint	Undervoltage derating end point	R/W	160-300	0.1V	207.0	CEI
158	fOverVoltPoint	Overvoltage loading start point	R/W	160-300	0.1V	230.0	CEI
159	fOverVoltEndPoint	Overvoltage loading end point	R/W	160-300	0.1V	245.0	CEI
160	uwNominalGridVolt	NominalGridVolt Select	R/W	0~3			UL
161	uwGridWattDelay	GridWatt DelayTime	R/W	0~3000	20ms		UL
162	uwReconnectStartSlope	Reconnect StartSlope	R/W	1~1000	0.1		UL
163	uwLFRTEE	LFRT1 Freq	R/W	5500~6500	0.01Hz		UL
164	uwLFRTTimeEE	LFRT1 Time	R/W		20ms		UL
165	uwLFRT2EE	LFRT2 Freq	R/W	5500~6500	0.01Hz		UL
166	uwLFRTTime2EE	LFRT2 Time	R/W		20ms		UL
167	uwHFRTEE	HFRT1 Freq	R/W	5500~6500	0.01Hz		UL
168	uwHFRTTimeEE	HFRT1 Time	R/W		20ms		UL

169	uwHFRT2EE	HFRT2 Freq	R/W	5500~6500	0.01Hz		UL
170	uwHFRTTime2EE	HFRT2 Time	R/W		20ms		UL
171	uwHVRTEE	HVRT1 Volt	R/W		0.001 Un		UL
172	uwHVRTTimeEE	HVRT1 Time	R/W		20ms		UL
173	uwHVRT2EE	HVRT2 Volt	R/W		0.001 Un		UL
174	uwHVRTTime2EE	HVRT2 Time	R/W		0.001 Un		UL
175	uwUnderFUploadDelayTime	UnderF UploadDelayTime	R/W	0-2s	50ms	0s	50549
176	uwUnderFUploadRateEE	UnderF UploadRate	R/W				50549
177	uwGridRestart_H_Freq	GridRestart HighFreq	R/W		0.01Hz		50549
178	OverFDeratResponseTime	OverFDerat ResponseTime	W/R	0-500			
179	UnderFUploadResponseTime	UnderFUpload ResponseTime	W/R	0-500			
Intelligent control reads relevant data, used to identify the logo 180-200							
180	MeterLink	Whether to elect the meter	R/W				0: Missed, 1: Received
181	OPT Number	Number of connection optimizers	R/W	0-64			The total number of optimizers connected to the inverter
182	OPT ConfigOK Flag	Optimizer configuration completion flag	R/W				0x00:Not configured success 0x01:Configuration is complete
183	PvStrScan	String Num	R/W	0、8、16、32			0： Not support Other： PvString Num
184	BDCLinkNum	BDC parallel Num	R/W				The number of BDCs connected to the current machine Default is 0

185	PackNum	Number of battery modules	R				Total number of battery modules currently associated with all BDCs
186	Reserved						
187	VPP function enable status	VPP function enable status	R				0：Disable 1：Enable
188	dataLog Connect Server status	dataLog Connect Server status					0：connection succeeded 1：Connection failed
……							
200	Reserved						Reserved
201	PID Working Model	PID Operating mode	W	0: automatic 1: continuous 2: All night			
202	PID On/Off Ctrl	PID Break control	W	0:On 1:Off			
203	PID Volt Option	PID Output voltage option	W	300~1000	V		
……							Reserved
209	New Serial NO	Serial number 1-2			ASCII		
210	New Serial NO	Serial number 3-4			ASCII		
211	New Serial NO	Serial number 5-6			ASCII		
212	New Serial NO	Serial number 7-8			ASCII		
213	New Serial NO	Serial number 9-10			ASCII		
214	New Serial NO	Serial number 11-12			ASCII		
215	New Serial NO	Serial number 13-14			ASCII		

216	New Serial NO	Serial number 15-16			ASCII		
217	New Serial NO	Serial number 17-18			ASCII		
218	New Serial NO	Serial number 19-20			ASCII		
219	New Serial NO	Serial number 21-22			ASCII		
220	New Serial NO	Serial number 23-24			ASCII		
221	New Serial NO	Serial number 25-26			ASCII		
222	New Serial NO	Serial number 27-28			ASCII		
223	New Serial NO	Serial number 29-30			ASCII		
……							Reserved
229	EnergyAdjust	Power generation incremental calibration coefficient	W/R		0.1%		1-1000,(Percent ratio)
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	0-2		0	0:Disable; 1:Enable Voltgrade1 2:Enable Voltgrade2
237	uwEnableSpecSet	Disablse/enable appointed spec setting	W	1:enable 0:disable	Binary	0x0000	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
303							Reserved
304	uwAntiBackflowFailPowerLimitEE	Anti-backflow failure power percentage	R/W	0-1000	0.1%		Anti-backflow failure default setting power percentage
305	Qloadspeed	Reactive loading 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, it is directly loaded to the set value
306	bParallelAntiBackflowEnable	ParallelAnti-Backflow Enable	R/W	0-1			Parallel anti-Backflow open enable bit 1: enable 0:disable
307	uwAntiBackflowFailureResponseTime	AntiBackflowFailure ResponseTime	R/W	1-5000	1s		AntiBackflow Failure Response Time
308	uwParallelAntiBackflowPowerLimitEE	ParallelAntiBackflowPower	R/W	0-1000	0.1%		Parallel AntiBackflow Power limit value setting
309	bISOCheckCmd	ISO detection command	R/W	0-1	1		ISO detection command
310	bGPRSStatus	GPRS Status 1: module not working 2: no sim card 3: No internet 4. TCP not connecting to server 5. TCP connection succeeded	R/W	0-255	1		
311	uwQmax_Inductive	The inductive Qmax of the Q(V) curve	R/W	0-1000	0.1%		
312	uwQmax_Ca	The Capactive Qmax of	R/W	0-1000	0.1%		

	pactive	the Q(V) curve					
313	uwReactivePowerAdjustFailureResponseTime	ReactivePowerAdjust Failur ResponseTime	R/W	0-5000	S		
314	bSuperAntiBackflowEnable	SuperAntiBackflow Enable	R/W				0：disable，1：enable
315	uwReactivePowerStableTime	ReactivePowerStableTime	R/W	0-200	S		
316	uwQpStableTime	QpStableTime	R/W	0-200	S		
317	uwPuDerateTime	PuDerateTime	R/W	0-200	S		
318	uwQVModelQ2Point	QV mode Q2 set point reactive power percentage	R/W	0-2000	0.1%		Capacitive 30% （The corresponding setting is 700)； Inductive 30% (The corresponding setting is 1300)； used for IEE1547
319	uwQVModelQ3Point	QV mode Q3 set point reactive power percentage	R/W	0-2000	0.1%		
320	bVrefModelEnable	VrefModelEnable	R/W	0：Vref mode for QV curve is not active 1：Vref mode for QV curve is active			When the Vref mode is not activated, the V1~V4 and Q1~Q4 upper computer of the QV curve can be adjusted; When Vref mode is activated, V1~V4 of the QV curve are determined with Vref and cannot be changed, and Q1~Q4 can be modified by the host computer .used for IEE1547
321	uwVrefModelFilterTime	VrefModelFilterTime	R/W	0-5000	S		Activate Vref mode, the output filter value is equal to Vref with in the set time .used for IEE1547
322	uwUserQPModeP1Krate	Active power P1 set point percentage for QP mode	R/W	0-1000	0.1%		used for IEE1547

323	uwUserQPModeP2Krate	Active power P2 set point percentage for QP mode	R/W	0-1000	0.1%		used for IEE1547
324	uwUserQPModeP3Krate	Active power P3 set point percentage for QP mode	R/W	0-1000	0.1%		used for IEE1547
325	uwUserQPModeQ1Krate	Reactive power Q1 set point percentage for QP mode	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
326	uwUserQPModeQ2Krate	Reactive power Q2 set point percentage for QP mode	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
327	uwUserQPModeQ3Krate	Reactive power Q3 set point percentage for QP mode	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
328	uwAcVoltHighDeratPowerLimit	AcVoltHighDeratPowerLimit	R/W	0-1000	0.1%		
329	BackflowSingleCtrl	BackflowSingleCtrl	R/W	0: disable 1: enable			
330	bAntiBackflowProtectMode	AntiBackflowProtectMode	R/W	0-3			Used for Australian
331	uwUnderFUploadZeroPowerPoint	UnderfreqUploadZeroPowerPoint	W		0.01HZ		
332	FreqDerateZeroPowerPoint	FreqDerateZeroPowerPoint	W		0.01HZ		
333	bFreqDeratingStopModeEnable	FreqDeratingStopModeEnable	R/W	0-1			
334	bFreqIncreasingEnable	FreqIncreasingEnable	R/W	0-1			
335	uwFreqIncreasingRecoverTime	FreqIncreasingRecoverTime	R/W		50ms		
336	uwFreqIncreasingEndLow	FreqIncreasingEndLowPoint	R/W		0.01HZ		

	Point						
337	bFreqIncreasingStopModeEnable	FreqIncreasingStopModeEnable	R/W	0-1			
338	uwUserQpChrP1Krate	User QP function, charge P1 set point percentage	R/W	0-1000	0.1%		
339	uwUserQpChrP2Krate	User QP function, charge P2 set point percentage	R/W	0-1000	0.1%		
340	uwUserQpChrP3Krate	User QP function, charge P3 set point percentage	R/W	0-1000	0.1%		
341	wUserQpChrQ1Krate	User QP function, charge Q1 set point percentage	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
342	wUserQpChrQ2Krate	User QP function, charge Q2 set point percentage	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
343	wUserQpChrQ3Krate	User QP function, charge Q3 set point percentage	R/W	-1000-1000	0.1%		-1000~1000：Inductive（100%）~ Capacitive（100%）
344	uwFreqDeratingRecoverLowPoint	FreqDeratingRecoverLowPoint	R/W		0.01HZ		
345	uwFreqIncreasingRecoverHighPoint	FreqIncreasingRecoverHighPoint	R/W		0.01HZ		
.....							
532	TurnOffUnloadSpeed	TurnOffUnloadSpeed	W/R	0-1000		0.1%	0 means not enabled, that is, the function is not enabled; 1-1000 means n%Pn/min
533	LimitDevice	Anti-backflow equipment selection	W/R	0-3			1：Meter 3:CT other meaningless
534	PowerSetOnDCSourceMode	Power settings in dc source mode	W/R	0-90000			The unit is W
535	OUFreqGrade1En	Over-under-frequency Grade1Enable, currently only used by	W/R	0-1			0:disable 1:enable

		CEI0-21					
536	Country Set	Country settings under the same safety regulations	W/R	0-200			For mobile APP use only
538	InterlockEnable	Three-machine communication Interlock function mode	W/R	0-2			0：disable 1: Slave Enable 2. host enable
539	OvTemperDeratePoint	Over temperature derate point	W/R				
540	SafetySetPassword	Switch between different safety regulations to set the password	W/R				
541	AFCI Onoff	AFCI Onoff	W/R	0xA0/0xA5			0xA0：AFCI off 0xA5：AFCI on
542	AfciSelfCheck	AfciSelfCheck	W/R				0：No self check 1: self check
543	AfciReset	AfciReset	W/R				0：Not Reset 1: Reset
544	AFCIValue1	AFCIThresholdValue（low）	W/R	0-65000			
545	AFCIValue2	AFCIThresholdValue（middle）	W/R	0-65000			
546	AFCIValue3	AFCIThresholdValue（High）	W/R	0-65000			
547	OverThresholdValueMaxCnt	OverThresholdValueMaxCnt	W/R	0-255			
548	AFCIScanTypeEnable	AFCI curve scan type	W/R	1~4			1：A road strength 2：A road FFT value 3：B road strength 4：B road FFT value
549	PowerVoltStopModeEn	PowerVoltStopModeEn	W/R	0、1			0：disable 1:enable The power is restored when the voltage is less than the recovery point
550	VoltWattRecoverTime	Voltage active power recovery time	W/R	0-15000	20ms		
551	HVoltDerate	Voltage active cut-off	W/R	-5000-11			

	StopPower	power		400			
552	QVTimeExponent	QVTimeExponent	WR	1-255			Q varies exponentially with time
553	Volt-Watt Watt1	Voltage active V1 point, corresponding active power	WR	0-11400			
554	Volt-Watt Watt2	Voltage active V2 point, corresponding active power	WR	0-11400			
……							
600	Volt-Var Var1	Voltage reactive V1 point, Corresponding reactive power percentage(Capacitive Qmax)	WR	0-1000			0%~100.0%,US latest safety regulations
601	Volt-Var Var2	Voltage reactive V2 point, Corresponding reactive power percentage	WR	0-1000			0%~100.0%,US latest safety regulations
602	Volt-Var Var3	Voltage reactive V3 point, Corresponding reactive power percentage	WR	0-1000			0%~100.0%,US latest safety regulations
603	Volt-Var Var4	Voltage reactive V4 point, Corresponding reactive power percentage(Inductive Qmax)	WR	0-1000			0%~100.0%,US latest safety regulations
604							
605	OPModEnergize	Allowed inverter output power	R/W	0/1			0: output power not allowed 1: allowable output power For US models
608	OneKeySetBDCMode	One key to set battery mode function	R/W				0: self-use 1: battery priority 2: Grid priority 255：Disable Currently used for US models
609	PowerOutputEnable	Zero Power Output Enable					0：Zero Power Output 1：Unlimited output power (default is 1)

610	DealDebugParaFlag	Flag bit for clearing debug variables					Currently only bit0 and bit1 are used bit0 is used to manually clear the Debug data uploaded to the server bit1 is used to manually clear the fault codes that need to be powered off to clear
612	bAcCoupleEn	AcCoupleEn	R/W	0-1			0：disable 1：enable
.....							
660	ReloadCmd	M3 remote command					0xA0: Initialize safety defaults 0xAA: Reboot M3 remotely

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 ornot(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.	VbatStartForDischarge	LV Vbat	R/W		0.1V		Lead-acid battery LV voltage
1003.	VbatlowWarnClr	LoadPercent(only lead-Acid): 45.5V <20% 48.0V 20%~50% 49.0V >50	W		0.1V		Clear battery low voltage error voltage point
1004.	Vbatstopfordischarge	Should stop discharge when lower than this	W		0.01V		

		voltage(only lead-Acid): 46.0V <20% 44.8V 20%~50% 44.2V >50%					
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：bPVLoadLimitEn; Bit14,15:UnUsed;	W				System Enable
1009.	Battemp lower limitd	Battery temperature lower limit for discharge	W	0-200:0-20℃ 1000-1400：-40-0℃	0.1℃	1170	
1010.	Bat temp upper limitd	Battery temperature upper limit for discharge	W	200-1000	0.1℃	420	
1011.	Bat temp lower limitc	Battery temperature lower limit for charge	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 charge	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.	BatMdlParallNum	Battery parallel section	W	00:00			SPH4-11K used
1016.	DRMS_EN	/	/	/	/	/	0：**disable** 1：enable
1017.	Bat First Start Time 4	High eight:hours Low eight: minutes		0-23 0-59			
1018.	Bat First Stop Time 4	High eight:hours Low eight: minutes		0-23 0-59			
1019.	BatFirst on/off Switch 4	Enable:1 Disable:0		0 or 1			Battery priority enable 1
1020.	Bat First Start Time 5	High eight:hours Low eight: minutes		0-23 0-59			
1021.	Bat First Stop Time 5	High eight:hours Low eight: minutes		0-23 0-59			
1022.	BatFirst on/off Switch 5	Enable:1 Disable:0		0 or 1			Battery priority enable 1
1023.	Bat First Start Time 6	High eight:hours Low eight: minutes		0-23 0-59			
1024.	Bat First Stop Time 6	High eight:hours Low eight: minutes		0-23 0-59			
1025.	BatFirst on/off Switch 6	Enable:1 Disable:0		0 or 1			Battery priority enable 1
1026.	Grid First Start Time	High eight:hours Low eight: minutes		0-23 0-59			

	4						
1027.	Grid First Stop Time 4	High eight:hours Low eight: minutes		0-23 0-59			
1028.	Grid First Stop Switch 4	Enable:1 Disable:0		0 or 1			Grid priority enable
1029.	Grid First Start Time 5	High eight:hours Low eight: minutes		0-23 0-59			
1030.	Grid First Stop Time 5	High eight:hours Low eight: minutes		0-23 0-59			
1031.	Grid First Stop Switch 5	Enable:1 Disable:0		0 or 1			Grid priority enable
1032.	Grid First Start Time 6	High eight:hours Low eight: minutes		0-23 0-59			
1033.	Grid First Stop Time 6	High eight:hours Low eight: minutes		0-23 0-59			
1034.	Grid First Stop Switch 6	Enable:1 Disable:0		0 or 1			Grid priority enable
1035.	Bat First Start Time 4	High eight:hours Low eight: minutes		0-23 0-59			
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
1060.	BuckUpsFunEn	Ups function enable or disable		0:disable 1:enable			

1061.	BuckUPSVoltSet	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.	BatFirstPower Rate	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 Charge Enable	
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.	NewEPowerCalcFlag	/	/	/	/	/	0：The old formula 1 ： The new formula
1120.	BackUpEn	BackUp Enable					MIX US
1121.	SGIPEn	SGIP Enable					MIX US
……	1122~1124	/	/	/	/	/	reserve
1125	BatSerialNO.8	Product serial number of the first PACK of energy storage batteries	/	/	ASCII		
1126	BatSerialNO.7		/	/	ASCII		
1127	BatSerialNO.6		/	/	ASCII		
1128	BatSerialNO.5		/	/	ASCII		
1129	BatSerialNO.4		/	/	ASCII		
1130	BatSerialNO.3		/	/	ASCII		
1131	BatSerialNO.2		/	/	ASCII		
1132	BatSerialNO.1		/	/	ASCII		
1132~1204	BatSerialNO.8~ BatSerialNO.1	The serial number of the second to tenth packs of the energy storage battery consists of nine packs, and	/	/	ASCII		

		the format of the serial number of each PACK is 1125 to 1132					
……							
1244	Com version NameH	Name of the battery main control firmware version			ASCII		
1245	Com version NameL	Name of the battery main control firmware version			ASCII		
1246	Com version No	Version of the battery main control firmware			digital		
1247	Com version NameH	Name of battery monitoring firmware version			ASCII		
1248	Com version NameL	Name of battery monitoring firmware version			ASCII		
1249	Com version No	Battery monitoring firmware version			digital		
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	New Serial NO	Serial number 1-2	R/W		ASCII		The new model uses the following registers to record the serial number; The representation is the same as the original: one register holds two characters and the new serial number is 30 characters.
3002	New Serial NO	Serial number 3-4	R/W		ASCII		
3003	New Serial NO	Serial number 5-6	R/W		ASCII		
3004	New Serial NO	Serial number 7-8	R/W		ASCII		
3005	New Serial NO	Serial number 9-10	R/W		ASCII		
3006	New Serial NO	Serial number 11-12	R/W		ASCII		
3007	New Serial NO	Serial number 13-14	R/W		ASCII		
3008	New Serial NO	Serial number 15-16	R/W		ASCII		

3009	New Serial NO	Serial number 17-18	R/W		ASCII		
3010	New Serial NO	Serial number 19-20	R/W		ASCII		
3011	New Serial NO	Serial number 21-22	R/W		ASCII		
3012	New Serial NO	Serial number 23-24	R/W		ASCII		
3013	New Serial NO	Serial number 25-26	R/W		ASCII		
3014	New Serial NO	Serial number 27-28	R/W		ASCII		
3015	New Serial NO	Serial number 29-30	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	bWorkMode	WorkMode----0:default,1: System Retrofit 2: Multi-Parallel	R/W	0、1、2			MIN2.5~6KTL-XH/ XA Double CT special
3019	DryContactOffRate	DryContactOffRate	Dry contact closure power	R/W	0~1000	0.1%	Dry contact closure power percentage
3020	BoxCtrlInvOrder	BoxCtrlInvOrder	Off-net box control instruction	R/W			
3021	ExterCommOffGridEn	External communication setting manual off-network enable	R/W				0x00: Disable;（default） 0x01: Enable;
3022	uwBdcStopWorkOfBusVolt	BdcStopWorkOfBusVolt	R				
3023	bGridType	GridType---0:SinglePhase 1:ThreePhase 2:SplitPhase	R/W	0、1、2			MIN2.5~6KTL-XH/ XA Double CT special
3024	Float charge current limit	When charge current battery need is lower than	R/W		0.1A	600	CC current

		this value, enter into float charge					
3025	VbatWarning	"Battery-low" warning setup voltage	R/W		0.1V	4800	Lead acid battery LV voltage
3026	VbatlowWarn Clr	"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	uwUnderFreDischargeDelyTime	Under Fre Delay Time	R/W		50ms		Under Fre Delay Time
3036	GridFirstDischargePowerRate	Discharge Power Rate when Grid First				1-255	
3037	GridFirstStopSOC	Stop Discharge soc when Grid First				1-100	
3038	Time 1(xh)	Period 1: [Start Time ~ End Time], [Charge/Discharge], [Disable/Enable] 3038 enable, charge and discharge, start time, end time 3039	R/W				Bit0~7: minutes; Bit8~12: hour; Bit13~14, 0: load priority; 1: battery priority; 2: Grid priority; Bit15, 0: prohibited; 1: enabled;
3039			R/W				Bit0~7: minutes; Bit8~12: hour; Bit13~15: reserved
3040	Time 2(xh)	Time period 2: [start time ~ end time], [charge / discharge], [disable / enable] 3040 enable, charge and discharge, start time, 3041 end time	R/W				Bit0~7: minutes; Bit8~12: hour; Bit13~14, 0: load priority; 1: battery priority; 2: Grid priority; Bit15, 0: prohibited; 1:

							enabled;
3041			R/W				Bit0~7: minutes; Bit8~12: hour; Bit13~15: reserved
3042	Time 3(xh)	With Time1	R/W				With Time1
3043			R/W				With Time1
3044	Time 4(xh)	With Time1	R/W				With Time1
3045			R/W				With Time1
3046	预留						
3047	BatFirstPowerRate	Charge Power Rate when Bat First				1-100	
3048	wBatFirst stop SOC	Stop Charge soc when Bat First				1-100	
3049	AcChargeEnable	AcChargeEnable					Enable :1 Disable:0
3050	Time 5(xh)	With Time1	R/W				With Time1
3051			R/W				With Time1
3052	Time 6(xh)	With Time1	R/W				With Time1
3053			R/W				With Time1
3054	Time 7(xh)	With Time1	R/W				With Time1
3055			R/W				With Time1
3056	Time 8(xh)	With Time1	R/W				With Time1
3057			R/W				With Time1
3058	Time 9(xh)	With Time1	R/W				With Time1
3059			R/W				With Time1
3060~3069	Reserved						

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	bLoadFirstStopSocSet	StopSoc When LoadFirst	R/W			13-100	ratio
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. 1	Serial Number 1-2	R/W		ASCII		For battery

3088	Serial NO. 2	Serial Number 3-4	R/W		ASCII		
3089	Serial NO. 3	Serial Number 5-6	R/W		ASCII		
3090	Serial NO. 4	Serial Number 7-8	R/W		ASCII		
3091	Serial No. 5	Serial Number 9-10	R/W		ASCII		
3092	Serial No.6	Serial Number 11-12	R/W		ASCII		
3093	Serial No. 7	Serial Number 13-14	R/W		ASCII		
3094	Serial No. 8	Serial Number 15-16	R/W		ASCII		
3095	BdcResetCmd	BDC Reset command	R/W				0：Invalid data 1：Reset setting parameters 2：Reset correction parameter 3：Clear historical power
3096 3097	ARKM3 Code	BDCMonitoring software code	R		ASCII		ZEBA
3098	DTC	DTC	R				
3099 3100	FW Code	DSP software code	R		ASCII		
3101	Processor1 FW Vision	DSP Software Version	R		ASCII		
3102	BusVoltRef	Minimum BUS voltage for charging and discharging batteries	R				
3103	ARKM3Ver	BDC monitoring software version	R				
3104	BMS_MCUVersion	BMS hardware version information	R	1			
3105	BMS_FW	BMS software version information	R	1			
3106	BMS_Info	BMS ManufacturerName	R	1			
3107	BMSCommType	BMSCommType	R	1			BMSCommunication interface type： 0: RS485; 1: CAN;
3108	Module 4	BDCmodel (4)	R/W	&*11			SxxBxx
3109	Module 3	BDCmodel (3)	R/W	&*11			DxxTxx

3110	Module 2	BDCmodel (2)	R/W	&*11			PxxUxx
3111	Module 1	BDCmodel (1)	R/W	&*11			Mxxxx
3112	Reserved						
3113	unProtocolVer	BDCProtocolVer	R	1			Bit8-bit15 The major version number ranges from 0-256. In principle, it cannot be changed Bit0-bit7 Minor version number [0-256]. If the protocol is changed, you need to update this version No.
3114	uwCertificationVer	BDC CertificationVer	R	1			
3115 ~ 3124	Reserved						
US Machine type Time Set							
3125	Time Month1	Use with Time1-9（us），Add month time	R/W				bit0~3:month_L； bit4~7: month_H bit8, 0:disable 1：enable Bit9~15:reserve
3126	Time Month2	Use with Time10-18（us），Add month time	R/W				With Time Month1
3127	Time Month3	Use with Time19-27（us），Add month time	R/W				With Time Month1
3128	Time Month4	Use with Time28-36（us），Add month time	R/W				With Time Month1
3129	Time 1（us）	time1：[starttime~endtime]	R/W	[Charge/discharge/counter			bit0~6:min； bit7~11:hour； bit12~14, 0:loadfirst;

				current], [disable/ enable]			1:batfirst; 2:gridfirst; 3: anti-reflux bit15, 0:disable; 1:enable;
3130			R/W				bit0~6:min; bit7~11:hour; bit12-13, 0:Weekday 1:Weekend 2:WeeK bit14~15： reserve
3131-3132	Time 2（us）	Same as above	R/W				Same as Time 1（us）
3133-3134	Time 3（us）	Same as above	R/W				Same as Time 1（us）
3135-3136	Time 4（us）	Same as above	R/W				Same as Time 1（us）
3137-3138	Time 5（us）	Same as above	R/W				Same as Time 1（us）
3139-3140	Time 6（us）	Same as above	R/W				Same as Time 1（us）
3141-3142	Time 7（us）	Same as above	R/W				Same as Time 1（us）
3143-3144	Time 8（us）	Same as above	R/W				Same as Time 1（us）
3145-3146	Time9（us）	Same as above	R/W				Same as Time 1（us）
3147-3148	Time 10（us）	Same as above	R/W				Same as Time 1（us）
3149-3150	Time 11（us）	Same as above	R/W				Same as Time 1（us）
3151-3152	Time 12（us）	Same as above	R/W				Same as Time 1（us）
3153-3154	Time 13（us）	Same as above	R/W				Same as Time 1（us）
3155-3156	Time 14（us）	Same as above	R/W				Same as Time 1（us）
3157-3158	Time15（us）	Same as above	R/W				Same as Time 1（us）

3159-3160	Time 16（us）	Same as above	R/W				Same as Time 1（us）
3161-3162	Time 17（us）	Same as above	R/W				Same as Time 1（us）
3163-3164	Time 18（us）	Same as above	R/W				Same as Time 1（us）
3165-3166	Time 19（us）	Same as above	R/W				Same as Time 1（us）
3167-3168	Time 20（us）	Same as above	R/W				Same as Time 1（us）
3169-3170	Time 21（us）	Same as above	R/W				Same as Time 1（us）
3171-3172	Time 22（us）	Same as above	R/W				Same as Time 1（us）
3173-3174	Time 23（us）	Same as above	R/W				Same as Time 1（us）
3175-3176	Time 24（us）	Same as above	R/W				Same as Time 1（us）
3177-3178	Time 25（us）	Same as above	R/W				Same as Time 1（us）
3179-3180	Time 26（us）	Same as above	R/W				Same as Time 1（us）
3181-3182	Time 27（us）	Same as above	R/W				Same as Time 1（us）
3183-3184	Time 28（us）	Same as above	R/W				Same as Time 1（us）
3185-3186	Time 29（us）	Same as above	R/W				Same as Time 1（us）
3187-3188	Time 30（us）	Same as above	R/W				Same as Time 1（us）
3189-3190	Time 31（us）	Same as above	R/W				Same as Time 1（us）
3191-3192	Time 32（us）	Same as above	R/W				Same as Time 1（us）
3193-3194	Time 33（us）	Same as above	R/W				Same as Time 1（us）
3195-3196	Time 34（us）	Same as above	R/W				Same as Time 1（us）
3197-3198	Time 35（us）	Same as above	R/W				Same as Time 1（us）
3199-3200	Time 36（us）	Same as above	R/W				Same as Time 1（us）

3201	SpecialDay1	SpecialDay1（month，Day）	R/W				bit0~7:day； bit8~14:month bit15， 0： disable 1： enable
3202	SpecialDay1_ Time1	Start time	R/W				bit0~6:min； bit7~11:hour； bit12~14, 0:loadfirst; 1:batfirst； 2:gridfirst； 3: anti-reflux bit15, 0: disable; 1: enable;
3203		endtime	R/W				bit0~6:min； bit7~11:hour； bit12~15： reserve
3204-3205	SpecialDay1_ Time2	Same as above	R/W				Same as SpecialDay1_Time1
3206-3207	SpecialDay1_ Time3	Same as above	R/W				Same as SpecialDay1_Time1
3208-3209	SpecialDay1_ Time4	Same as above	R/W				Same as SpecialDay1_Time1
3210-3211	SpecialDay1_ Time5	Same as above	R/W				Same as SpecialDay1_Time1
3212-3213	SpecialDay1_ Time6	Same as above	R/W				Same as SpecialDay1_Time1
3214-3215	SpecialDay1_ Time7	Same as above	R/W				Same as SpecialDay1_Time1
3216-3217	SpecialDay1_ Time8	Same as above	R/W				Same as SpecialDay1_Time1
3218-3219	SpecialDay1_ Time9	Same as above	R/W				Same as SpecialDay1_Time1

3220	SpecialDay2	SpecialDay2（month，Day）	R/W				bit0~7:day； bit8~14:month bit15， 0： disable 1： enable
3221	SpecialDay2_ Time1	Start time	R/W				bit0~6: min； bit7~11: hour； bit12~14, 0: loadfirst; 1: batfirst； 2: gridfirst； 3: anti-reflux bit15, 0: disable; 1: enable;
3222		endtime	R/W				bit0~6: min； bit7~11: hour； bit12~15： reserve
3223-3224	SpecialDay2_ Time2	Same as above	R/W				Same as SpecialDay2_Time1
3225-3226	SpecialDay2_ Time3	Same as above	R/W				Same as SpecialDay2_Time1
3227-3228	SpecialDay2_ Time4	Same as above	R/W				Same as SpecialDay2_Time1
3229-3230	SpecialDay2_ Time5	Same as above	R/W				Same as SpecialDay2_Time1
3231-3232	SpecialDay2_ Time6	Same as above	R/W				Same as SpecialDay2_Time1
3233-3234	SpecialDay2_ Time7	Same as above	R/W				Same as SpecialDay2_Time1
3235-3236	SpecialDay2_ Time8	Same as above	R/W				Same as SpecialDay2_Time1
3237-3238	SpecialDay2_ Time9	Same as above	R/W				Same as SpecialDay2_Time1

3239–3249	Reserve	Reserve	R/W				
BDC information (support up to 10 parallel BDC)							
5000–5039		1			Reference 3085 to 3124 for a total of 40 registers Description		
5040–5079		2					
5000+(N–1)*40–––5039+(N–1)*40		N					

4.2 Input Reg

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;		
105.	Fault Maincode	Inverter fault maincode			
106.					
107.	Fault Subcode	Inverter fault subcode			
108.	RemoteCtrlEn	/	0.Load First 1.BatFirst 2.Grid	/	StoragePower (SPA)
109.	RemoteCtrlPower	/		/	StoragePower (SPA)
110.	Warning bit H	Warning bit H			
111.	Warn Subcode	Inverter warn subcode			
112.	Warn Maincode	Inverter warn maincode			
	EACharge_Today_H	ACCharge energy today		0.1kwh	Storage Power
113.	real Power Percent	real Power Percent	0-100	%	MAX
	EACharge_Today_L	ACCharge energy today		0.1kwh	Storage Power
114.	inv start delay time	inv start delay time			MAX
	EACharge_Total_H	ACCharge energy total		0.1kwh	Storage Power
115.	bINVAllFaultCode	bINVAllFaultCode			MAX
	EACharge_Total_L	ACCharge energy total		0.1kwh	Storage 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			Storage

		1:Battery First 2:Grid First			Power
119.	Battery Type	0：Lead-acid 1：Lithium battery			Storage Power
120.	AutoProofreadCMD	Aging mode Auto-calibration command			Storage Power
…	reserved				reserved
124.	reserved				reserved
Second group					
125.	PID PV1+ Voltage	PID PV1PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
126.	PID PV1+ Current	PID PV1PE Curr	-10~10mA	0.1mA	
127.	PID PV2+ Voltage	PID PV2PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
128.	PID PV2+ Current	PID PV2PE Curr	-10~10mA	0.1mA	
129.	PID PV3+ Voltage	PID PV3PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
130.	PID PV3+ Current	PID PV3PE Curr	-10~10mA	0.1mA	
131.	PID PV4+ Voltage	PID PV4PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
132.	PID PV4+ Current	PID PV4PE Curr	-10~10mA	0.1mA	
133.	PID PV5+ Voltage	PID PV5PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
134.	PID PV5+ Current	PID PV5PE Curr	-10~10mA	0.1mA	
135.	PID PV6+ Voltage	PID PV6PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
136.	PID PV6+ Current	PID PV6PE Curr	-10~10mA	0.1mA	
137.	PID PV7+ Voltage	PID PV7PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
138.	PID PV7+ Current	PID PV7PE Curr	-10~10mA	0.1mA	
139.	PID PV8+ Voltage	PID PV8PE Volt/ Flyspan voltage (MAX HV)	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.	StrCurrentUnblance	Bit0~15: String1~16 current unblance			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:StrCurrentUnblance			

		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 Data55	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		KΩ	
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+SVGAPFEqualRatio	SVG/APF Status+SVGAPFEqualRatio	High 8 bit : SVGAPFEqualRatio Low 8 bit : 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		0.1Var	

		for SVG(low)			
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	bRS232AgingTest OkFlag	RS232AgingTestOkFlag	0-1		
229	bFanFaultBit	Bit0: Fan 1 fault bit Bit1: Fan 2 fault bit Bit2: Fan 3 fault bit Bit3: Fan 4 fault bit Bit4-7: Reserved			
230	Sac H	Output apparent power H		0.1W	
231	Sac L	Output apparent power L		0.1W	
232	ReActPowerH	Real Output Reactive Power H	Int32	0.1W	
233	ReActPowerL	Real Output Reactive Power L			
234	ReActPowerMaxH	Nominal Output Reactive Power H		0.1var	
235	ReActPowerMaxL	Nominal Output Reactive Power L			
236	ReActPower_Total H	Reactive power generation		0.1kwh	
237	ReActPower_Total L	Reactive power generation			
238	bAfciStatus	0：Waiting 1：Self-check state 2：Detect pull arc state 3：Fault 4：Update			
239	uwPresentFFTValu e [CHANNEL_A]	PresentFFTValue [CHANNEL_A]			
240	uwPresentFFTValu e [CHANNEL_B]	PresentFFTValue [CHANNEL_B]			
241	DSP067 Debug Data1	DSP067 Debug Data1			
242	DSP067 Debug Data2	DSP067 Debug Data2			
243	DSP067 Debug	DSP067 Debug Data3			

	Data3				
244	DSP067 Debug Data4	DSP067 Debug Data4			
245	DSP067 Debug Data5	DSP067 Debug Data5			
246	DSP067 Debug Data6	DSP067 Debug Data6			
247	DSP067 Debug Data7	DSP067 Debug Data7			
248	DSP067 Debug Data8	DSP067 Debug Data8			
249					reserved
The eighth group for PV9-PV16 information					
875	Vpv9	PV9 voltage		0.1V	
876	PV9Curr	PV9 Input current		0.1A	
877	Ppv9 H	PV9 input power (High)		0.1W	
878	Ppv9 L	PV9 input power (Low)		0.1W	
879	Vpv10	PV10 voltage		0.1V	
880	PV10Curr	PV10 Input current		0.1A	
881	Ppv10 H	PV10 input power (High)		0.1W	
882	Ppv10 L	PV10 input power (Low)		0.1W	
883	Vpv11	PV11 voltage		0.1V	
884	PV11Curr	PV11 Input current		0.1A	
885	Ppv11 H	PV11 input power (High)		0.1W	
886	Ppv11 L	PV11 input power (Low)		0.1W	
887	Vpv12	PV12 voltage		0.1V	
888	PV12Curr	PV12 Input current		0.1A	
889	Ppv12 H	PV12 input power (High)		0.1W	
890	Ppv12 L	PV12 input power (Low)		0.1W	
891	Vpv13	PV13 voltage		0.1V	
892	PV13Curr	PV13 Input current		0.1A	
893	Ppv13H	PV13 input power (High)		0.1W	
894	Ppv13 L	PV13 input power (Low)		0.1W	
895	Vpv14	PV14 voltage		0.1V	
896	PV14Curr	PV14 Input current		0.1A	
897	Ppv14 H	PV14 input power (High)		0.1W	
898	Ppv14 L	PV14 input power (Low)		0.1W	
899	Vpv15	PV15 voltage		0.1V	
900	PV15Curr	PV15 Input current		0.1A	
901	Ppv15 H	PV15 input power (High)		0.1W	
902	Ppv15 L	PV15 input power (Low)		0.1W	

903	Vpv16	PV16 voltage		0.1V	
904	PV16Curr	PV16 Input current		0.1A	
905	Ppv16 H	PV16 input power (High)		0.1W	
906	Ppv16 L	PV16 input power (Low)		0.1W	
907	Epv9_today H	PV9 energy today (High)		0.1kWh	
908	Epv9_today L	PV9 energy today (Low)		0.1kWh	
909	Epv9_total H	PV9 energy total (High)		0.1kWh	
910	Epv9_total L	PV9 energy total (Low)		0.1kWh	
911	Epv10_today H	PV10 energy today (High)		0.1kWh	
912	Epv10_today L	PV10 energy today (Low)		0.1kWh	
913	Epv10_total H	PV10 energy total (High)		0.1kWh	
914	Epv10_total L	PV10 energy total (Low)		0.1kWh	
915	Epv11_today H	PV11 energy today (High)		0.1kWh	
916	Epv11_today L	PV11 energy today (Low)		0.1kWh	
917	Epv11_total H	PV11 energy total (High)		0.1kWh	
918	Epv11_total L	PV11 energy total (Low)		0.1kWh	
919	Epv12_today H	PV12 energy today (High)		0.1kWh	
920	Epv12_today L	PV12 energy today (Low)		0.1kWh	
921	Epv12_total H	PV12 energy total (High)		0.1kWh	
922	Epv12_total L	PV12 energy total (Low)		0.1kWh	
923	Epv13_today H	PV13 energy today (High)		0.1kWh	
924	Epv13_today L	PV13 energy today (Low)		0.1kWh	
925	Epv13_total H	PV13 energy total (High)		0.1kWh	
926	Epv13_total L	PV13 energy total (Low)		0.1kWh	
927	Epv14_today H	PV14 energy today (High)		0.1kWh	
928	Epv14_today L	PV14 energy today (Low)		0.1kWh	
929	Epv14_total H	PV14 energy total (High)		0.1kWh	
930	Epv14_total L	PV14 energy total (Low)		0.1kWh	
931	Epv15_today H	PV15 energy today (High)		0.1kWh	
932	Epv15_today L	PV15 energy today (Low)		0.1kWh	
933	Epv15_total H	PV15 energy total (High)		0.1kWh	
934	Epv15_total L	PV15 energy total (Low)		0.1kWh	
935	Epv16_today H	PV16 energy today (High)		0.1kWh	
936	Epv16_today L	PV16 energy today (Low)		0.1kWh	
937	Epv16_total H	PV16 energy total (High)		0.1kWh	
938	Epv16_total L	PV16 energy total (Low)		0.1kWh	
939	PID PV9+ Voltage	PID PV9PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
940	PID PV9+ Current	PID PV9PE Current	-10~10mA	0.1mA	
941	PID PV10+ Voltage	PID PV10PE/ Flyspan voltage (MAX HV)	0~1000V	0.1V	

942	PID PV10+ Current	PID PV10PE Current	-10~10mA	0.1mA	
943	PID PV11+ Voltage	PID PV11PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
944	PID PV11+ Current	PID PV11PE Current	-10~10mA	0.1mA	
945	PID PV12+ Voltage	PID PV12PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
946	PID PV12+ Current	PID PV12PE Current	-10~10mA	0.1mA	
947	PID PV13+ Voltage	PID PV13PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
948	PID PV13+ Current	PID PV13PE Current	-10~10mA	0.1mA	
949	PID PV14+ Voltage	PID PV14PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
950	PID PV14+ Current	PID PV14PE Current	-10~10mA	0.1mA	
951	PID PV15+ Voltage	PID PV15PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
952	PID PV15+ Current	PID PV15PE Current	-10~10mA	0.1mA	
953	PID PV16+ Voltage	PID PV16PE Volt/ Flyspan voltage (MAX HV)	0~1000V	0.1V	
954	PID PV16+ Current	PID PV16PE Current	-10~10mA	0.1mA	
955	V _String17	PV String 17 voltage		0.1V	
956	Curr _String17	PV String 17 Current	-15~15A	0.1A	
957	V _String18	PV String 18 voltage		0.1V	
958	Curr _String18	PV String 18 Current	-15~15A	0.1A	
959	V _String19	PV String 19 voltage		0.1V	
960	Curr _String19	PV String 19 Current	-15~15A	0.1A	
961	V _String20	PV String 20 voltage		0.1V	
962	Curr _String20	PV String 20 Current	-15~15A	0.1A	
963	V _String21	PV String 21 voltage		0.1V	
964	Curr _String21	PV String 21 Current	-15~15A	0.1A	
965	V _String22	PV String22 voltage		0.1V	
966	Curr _String22	PV String 22 Current	-15~15A	0.1A	
967	V _String23	PV String 23 voltage		0.1V	
968	Curr _String23	PV String 23 Current	-15~15A	0.1A	
969	V _String24	PV String 24 voltage		0.1V	

970	Curr _String24	PV String 24 Current	-15A~15A	0.1A	
971	V _String25	PV String 25 voltage		0.1V	
972	Curr _String25	PV String 25 Current	-15A~15A	0.1A	
973	V _String26	PV String 26 voltage		0.1V	
974	Curr _String26	PV String 26 Current	-15~15A	0.1A	
975	V _String27	PV String 27 voltage		0.1V	
976	Curr _String27	PV String 27 Current	-15~15A	0.1A	
977	V _String28	PV String 28 voltage		0.1V	
978	Curr _String28	PV String 28 Current	-15~15A	0.1A	
979	V _String29	PV String 29 voltage		0.1V	
980	Curr _String29	PV String 29 Current	-15A~15A	0.1A	
981	V _String30	PV String 30 voltage		0.1V	
982	Curr _String30	PV String 30 Current	-15~15A	0.1A	
983	V _String31	PV String 31 voltage		0.1V	
984	Curr _String31	PV String 31 Current	-15~15A	0.1A	
985	V _String32	PV String 32 voltage		0.1V	
986	Curr _String32	PV String 32 Current	-15~15A	0.1A	
987	StrUnmatch2	Bit0~15: String 17~32 unmatch			
988	StrCurrentUnblance2	Bit0~15:String 17~32 current unblance			
989	StrDisconnect2	Bit0~15: String 17~32 disconnect			
990	PV Warning Value	PV Warning Value (PV9-PV16) Contains PV9~16 abnormal，和 Boost9~16 Drive anomalies			
991	StrWaringvalue1	string1~string16 abnormal			
992	StrWaringvalue2	string17~string32 abnormal			
……					
999	SystemCmd	M3 to DSP system command			system command
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 module		Theworkingmode displayed by the monitoring to the customer is： 0x00: waiting module 0x01: Self-test mode, 0x03:fault module 0x04:flash

			0x05 : PVBATOnline module, 0x06 : BatOnline module, 0x07 : PVOfflineMode module, 0x08 : BatOfflineMode module,		module 0x05|0x06|0x07|0x08:normal module
1001.	Systemfault word0	System fault word0			Please refer to thefault description of Hybrid
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℃	No use
1040.	Battery Temperature	Battery Temperature		0.1℃	Lead acid/lithium battery temp
1041.	SP DSP Status	SP state			CHG/DisCHG
1042.	SP Bus Volt	SP BUS2 Volt		0.1V	
1043					
Power generation data					
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_TodayH	Local load energy today		0.1kWh	
1061.	ELocalLoad_TodayL	Local load energy today		0.1kWh	
1062.	ELocalLoad_TotalH	Local load energy total		0.1kWh	
1063.	ELocalLoad_TotalL	Local load energy total		0.1kWh	
1064.	dwExportLimitApparentPower	ExportLimitApparentPower H		0.1kWh	ApparentPower
1065.	dwExportLimitApparentPower	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 Infomation					
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_BatteryVolt	Battery voltage from BMS			R SPH6K
1088.	BMS_BatteryCurr	Battery current from BMS			
1089.	BMS_BatteryTemp	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_ConstantVolt	CV voltage from BMS			
1098.	BMS_WarnInfoOld	Warning info old from BMS			
1099.	BMS_WarnInfo	Warning info from BMS			
1100.	BMS_GaugeICCurr	Gauge IC current from BMS			
1101.	BMS_MCUVersion	MCU Software version from BMS			
1102.	BMS_GaugeVersion	Gauge Version from BMS			
1103.	BMS_wGaugeFRVersion_ L	Gauge FR Version L16 from BMS			
1104.	BMS_wGaugeFRVersion_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.	uwMaxCellVolt	Maximum single battery voltage		0.001V	
1109.	uwMinCellVolt	Lowest single battery voltage		0.001V	
1110.	bModuleNum	Battery parallel number		1	
1111.		Number of batteries		1	
1112.	uwMaxVoltCellNo	MaxVoltCellNo		1	
1113.	uwMinVoltCellNo	MinVoltCellNo		1	
1114.	uwMaxTemprCell_10T	MaxTemprCell_10T		0.1℃	
1115.	uwMinTemprCell_10T	MinTemprCell_10T		0.1℃	
1116.	uwMaxTemprCellNo	MaxVoltTemprCellNo		1	
1117.	uwMinTemprCel	MinVoltTemprCellNo		1	

	lNo				
1118.	Protect pack ID	Faulty Battery Address		1	
1119.	MaxSOC	Parallel maximum SOC		1%	
1120.	MinSOC	Parallel minimum SOC		1%	
1121.	BMS_Error2	Battery Protection 2		-	**CAN ID： 0x323 Byte4~5**
1122.	BMS_Error3	Battery Protection3		-	**CAN ID： 0x323 Byte6**
1123.	BMS_WarnInfo2	Battery Warn2		-	**CAN ID： 0x323 Byte7**
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 inverte AC Power to grid High	For SPA connect inverter		SPA used
1132.	Extra AC Power to grid_L	Extrainverte 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
1141.	Eself_today H	self electric energy today H		0.1kWh	self electric energy today H
1142.	Eself_ today L	self electric energy today L		0.1kWh	self electric energy today L
1143.	Eself_total H	self electric energy total H		0.1kWh	self electric energy total H
1144.	Eself_ total L	self electric energy total L		0.1kWh	self electric energy total L
1145.	PSystem H	System power H		0.1w	System power H
1146.	PSystem L	System power L		0.1w	System power L
1147.	PSelf H	self power H		0.1w	self power H
1148.	PSelf L	self power L		0.1w	self power L
1149.	EPVAll_Today H	PV electric energy today H			
1150.	EPVAll_Today L	PV electric energy today L			
1151.	AcDischarge PackSn	Discharge power pack serial number	R	/	
1152.	Accdischarge power_H	Cumulative discharge power high 16-bit byte	R	0.1kWH	
1153.	Accdischarge power_L	Cumulative discharge power low 16-bit byte	R	0.1kWH	
1154.	AccCharge PackSn	charge power pack serial number	R	/	

1155.	AccCharge power_H	Cumulative charge power high 16-bit byte	R	0.1kWH	
1156.	AccCharge power_L	Cumulative charge power low 16-bit byte	R	0.1kWH	
1157.	FirstBattFaultSn	FirstBattFaultSn	R	/	
1158.	Second BattFaultSn	Second BattFaultSn	R	/	
1159.	Third BattFaultSn	Third BattFaultSn	R	/	
1160.	Fourth BattFaultSn	Fourth BattFaultSn	R	/	
1161.	Battery history fault code 1	Battery history fault code 1	R	/	
1162.	Battery history fault code 2	Battery history fault code 2	R	/	
1163.	Battery history fault code 3	Battery history fault code 3	R	/	
1164.	Battery history fault code 4	Battery history fault code 4	R	/	

1165.	Battery history fault code 5	Battery history fault code 5	R	/	
1166.	Battery history fault code 6	Battery history fault code 6	R	/	
1167.	Battery history fault code 7	Battery history fault code 7	R	/	
1168.	Battery history fault code 8	Battery history fault code 8	R	/	
1169.	Number of battery codes	Number of battery codes PACK number + BIC forward and reverse codes	R	/	
1170.					
……	/	/	/	/	reversed
1199	NewEPowerCalcFlag	Intelligent reading is used to identify software compatibility features			0：Old energy calculation; 1：new energy calculation
1200	MaxCellVolt	Maximum cell voltage	R	0.001V	
1201	MinCellVolt	Minimum cell voltage	R	0.001V	
1202	ModuleNum	Number of Battery modules	R	/	
1203	TotalCellNum	Total number of cells	R	/	
1204	MaxVoltCellNo	MaxVoltCellNo	R	/	
1205	MinVoltCellNo	MinVoltCellNo	R	/	
1206	MaxTemprCell_10T	MaxTemprCell_10T	R	0.1℃	
1207	MinTemprCell_10T	MinTemprCell_10T	R	0.1℃	

1208	MaxTemprCellNo	MaxTemprCellNo	R	/	
1209	MinTemprCellNo	MinTemprCellNo	R	/	
1210	ProtectPackID	Fault Pack ID	R	/	
1211	MaxSOC	Parallel maximum SOC	R	1%	
1212	MinSOC	Parallel minimum SOC	R	1%	
1213	BatProtect1Add	BatProtect1Add	R	/	
1214	BatProtect2Add	BatProtect2Add	R	/	
1215	BatWarn1Add	BatWarn1Add	R	/	
1216	BMS_HighestSoftVersion	BMS_HighestSoftVersion	R	/	
1217	BMS_HardwareVersion	BMS_HardwareVersion	R	/	
1218	BMS_RequestType	BMS_RequestType	R	/	
……	/	/	/	/	reversed
1248	bKeyAgingTestOkFlag	Success sign of key detection before aging			1：Finished test 0：test not completed
1249.	/	/	/	/	reversed

thirteen group for Storage power's SPA					
2000	Inverter Status	Inverter run state	0:waiting, 1:normal, 3:fault		SPA
…….	reversed				
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
…….	reversed				
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
……	reversed				
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 2.Grid	/	Remote setup enable
2101	RemoteCtrlPower	/		/	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	EACharge_Today_H	ACCharge energy today		0.1kwh	Storage Power
2113	EACharge_Today_L	ACCharge energy today		0.1kwh	Storage Power
2114	EACharge_Total_H	ACCharge energy total		0.1kwh	Storage Power
2115	EACharge_Total_L	ACCharge energy total		0.1kwh	Storage Power
2116	AC charge Power_H	Grid power to local load		0.1kwh	Storage 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	AutoProofreadCMD	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: Self-test mode, optional 2: Reserved 3：SysFault module 4: Flash module 5：PVBATOnline module: 6：BatOnline module			

		7：PVOfflineMode 8：BatOfflineMode The lower 8 bits indicate the machine status (web page display) 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	Vpv4	PV4 voltage			
3016	Ipv4	PV4 input current			
3017	Ppv4H	PV4 power			
3018	Ppv4L				
3019	Psys H	System output power		0.1W	
3020	Psys L				
3021	Qac H	reactive power		0.1Var	
3022	Qac L				
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 grid output power
3037	Pac3 L				
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
3052	Eac total L				

					energy
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	Epv4_today H	PV4 energy today		0.1kWh	
3080	Epv4_today L				
3081	Epv4_total H	PV4 energy total		0.1kWh	
3082	Epv4_total L				
3083	Epv_today H	PV energy today		0.1kWh	
3084	Epv_today L				

3085	Reserved				
3086	DeratingMode	DeratingMode			0:cNOTDerate 1:cPVHighDerate 2: cPowerConstantDerate 3: cGridVHighDerate 4:cFreqHighDerate 5:cDcSoureModeDerate 6:cInvTemprDerate 7:cActivePowerOrder 8:cLoadSpeedProcess 9:cOverBackbyTime 10:cInternalTemprDerate 11:cOutTemprDerate 12:cLineImpeCalcDerate 13: cParallelAntiBackflowDerate 14:cLocalAntiBackflowDerate 15:cBdcLoadPriDerate 16:cChkCTErrDerate
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	Bus Voltage	total bus voltage		0.1V	

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	Commmunication broad 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	StandbyFlag	Inverter standby flag		bitfield	bit0:turn off Order；bit1:PV Low；bit2:AC Volt/Freq out of scope；bit3~bit7 ：Reserved
3105	Fault Maincode	Inverter fault maincode			
3106	Warn Maincode	Inverter Warning maincode			
3107	Fault Subcode	Inverter fault subcode		bitfield	
3108	Warn Subcode	Inverter Warning subcode		bitfield	
3109				bitfield	
3110				bitfield	
3111	uwPresentFFTValue [CHANNEL_A]	PresentFFTValue [CHANNEL_A]		bitfield	
3112	bAfciStatus	AFCI Status			0 ： waiting state 1：self-check 2： Detection of arcing state 3：fault state 4 ： update state
3113	uwStrength[CHANNEL_A]	AFCI Strength[CHANNEL_A]			

3114	uwSelfCheckValue[CHANNEL_A]	AFCI SelfCheck[CHANNEL_A]			
3115	inv start delay time	inv start delay time		1S	inv start delay time
3116	Reserved				
3117	Reserved				
3118	BDC_OnOffState	BDC connect state			0:No BDC Connect 1:BDC1 Connect 2:BDC2 Connect 3:BDC1+BDC2 Connect
3119	DryContactState	Current status of DryContact			Current status of DryContact 0: turn off; 1: turn on;
3120	Reserved				
3121	Pself H	self-use power		0.1W	
3122	Pself L				
3123	Esys_today H	System energy today		0.1kwh	
3124	Esys_today L				
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	Esys_total H				

3138	Esys_total L	Total energy of system output \		0.1kWh	
3139	Eself_today H	Today energy of Self output		0.1kWh	
3140	Eself_today L				
3141	Eself_total H	Total energy of Self output		0.1kwh	
3142	Eself_ total L				
3143	Reserved				
3144	Priority	Word Mode			0 LoadFirst 1 BatteryFirst 2 GridFirst
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	NewBdcFlag	Whether to parse BDC data separately			0: Don't need 1： need
3165	BDCDeratingMode	BDCDeratingMode： 0: Normal, unrestricted 1： Standby or fault 2： Maximum battery current limit (discharge) 3：Battery discharge Enable (Discharge) 4： High bus discharge derating			

		(discharge) 5：High temperature discharge derating (discharge) 6：System warning No discharge (discharge) 7-15 Reserved (Discharge) 16：Maximum charging current of battery (charging) 17：High Temperature (LLC and Buckboost) (Charging) 18：Final soft charge 19：SOC setting limits (charging) 20：Battery low temperature (charging) 21：High bus voltage (charging) 22：Battery SOC (charging) 23: Need to charge (charge） 24: System warning not charging (charging) 25-29：Reserve (charge)			
3166	SysState_Mode	System work State and mode The upper 8 bits indicate the mode; 0：No charge and discharge； 1：charge； 2：Discharge； The lower 8 bits represent the status; 0: StandbyStatus; 1: NormalStatus; 2: FaultStatus 3：FlashStatus;			BDC1
3167	FaultCode	Storge device fault code			
3168	WarnCode	Storge device warning code			
3169	Vbat	Battery voltage		0.01V	
3170	Ibat	Battery current		0.1A	
3171	SOC	State of charge Capacity		1%	
3172	Vbus1	Total BUS voltage		0.1V	
3173	Vbus2	On the BUS voltage		0.1V	
3174	Ibb	BUCK-BOOST Current		0.1A	
3175	Illc	LLC Current		0.1A	
3176	TempA	Temperture A		0.1℃	
3177	TempB	Temperture B		0.1℃	
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 storge device		0.1kWh	
3183	Edischr_total L				
3184	Echr_total H	Charge total energy of storge device		0.1kWh	
3185	Echr_total L				
3186	Reserved	Reserved			
3187	BDC1_Flag	BDC mark (charge and discharge, fault alarm code) Bit0: ChargeEn; BDC allows charging Bit1: DischargeEn; BDC allows discharge Bit2~7: Resvd; reserved Bit8~11: WarnSubCode; BDC sub-warning code Bit12~15: FaultSubCode; BDC sub-error code			
3188	Vbus2	Lower BUS voltage		0.1V	
3189	BmsMaxVoltCellNo	BmsMaxVoltCellNo			
3190	BmsMinVoltCellNo	BmsMinVoltCellNo			
3191	BmsBatteryAvgTemp	BmsBatteryAvgTemp			
3192	BmsMaxCellTemp	BmsMaxCellTemp		0.1°C	
3193	BmsBatteryAvgTemp	BmsBatteryAvgTemp		0.1°C	
3194	BmsMaxCellTemp	BmsMaxCellTemp			
3195	BmsBatteryAvgTemp	BmsBatteryAvgTemp			
3196	BmsMaxSOC	BmsMaxSOC		1%	
3197	BmsMinSOC	BmsMinSOC		1%	
3198	ParallelBatteryNum	ParallelBatteryNum			
3199	BmsDerateReason	BmsDerateReason			
3200	BmsGaugeFCC（Ah）	BmsGaugeFCC（Ah）			

3201	BmsGaugeRM（Ah）	BmsGaugeRM（Ah）			
3202	BmsError	BMS Protect1			
3203	BmsWarn	BMSWarn1			
3204	BmsFault	BMS Fault1			
3205	BmsFault2	BMS Fault2			
3206	Reserved				
3207	Reserved				
3208	Reserved				
3209	Reserved				
3210	BatIsoStatus	Battery ISO detection status			0：Not detected 1： Detection completed
3211	BattNeedChargeRequestFlag	battery work request		bit0:1：Prohibit charging，0：Allow the charging bit1:1：Enable strong charge，0：disable strong charge bit2:1：Enable strong charge2 0：disable strong charge	

				2 bit8:1: Discharge is prohibited， 0：allow discharge bit9:1：Turn on power reduction 0：turn off power reduction；	
3212	BMS_Status	battery working status	R		0: dormancy 1:Charge 2:Discharge 3:free 4:standby 5:Soft start 6:fault 7:update
3213	BmsError2	BMS Protect2	R	1	
3214	BmsWarn2	BMS Warn2	R	1	
3215	BMS_SOC	BMS SOC	R	1%	
3216	BMS_BatteryVolt	BMS BatteryVolt	R	0.01V	
3217	BMS_BatteryCurr	BMS BatteryCurr	R	0.01A	
3218	BMS_BatteryTemp	battery cell maximum temperature	R	0.1℃	
3219	BMS_MaxCurr	Maximum charging current	R	0.01A	
3220	BMS_MaxDischrCurr	Maximum discharge current	R	0.01A	
3221	BMS_CycleCnt	BMSCycleCnt	R	1	

3222	BMS_SOH	BMS SOH	R	1	
3223	BMS_ChargeVoltLimit	Battery charging voltage limit value	R	0.01V	
3224	BMS_DischargeVoltLimit	Battery discharge voltage limit value			
3225	Bms Warn3	BMS Warn 3	R	1	
3226	Bms Error3	BMS Protect3	R	1	
3227	Reserved				
3228	Reserved				
3229	Reserved				
3230	BMSSingleVoltMax	BMS Battery SingleVoltMax	R	0.001V	
3231	BMSSingleVoltMin	BMS Battery SingleVoltMin	R	0.001V	
3232	BatLoadVolt	Battery LoadVolt	R	0.01V	[0，650.00]
3233					
3234	Debug data1	Debug data1	R		
3235	Debug data2	Debug data2	R		
3236	Debug data3	Debug data3	R		
3237	Debug data4	Debug data4	R		
3238	Debug data5	Debug data5	R		
3239	Debug data6	Debug data6	R		
3240	Debug data7	Debug data7	R		
3241	Debug data8	Debug data8	R		
3242	Debug data9	Debug data9	R		
3243	Debug data10	Debug data10	R		
3244	Debug data10	Debug data10	R		
3245	Debug data12	Debug data12	R		
3246	Debug data13	Debug data13	R		
3247	Debug data14	Debug data14	R		
3248	Debug data15	Debug data15	R		

3249	Debug data16	Debug data16	R		
3250	Pex1H	PV inverter 1 output power H	R	0.1W	
3251	Pex1L	PV inverter 1 output power L	R	0.1W	
3252	Pex2H	PV inverter 2 output power H	R	0.1W	
3253	Pex2L	PV inverter 2 output power L	R	0.1W	
3254	Eex1TodayH	PV inverter 1 energy Today H	R	0.1kWh	
3255	Eex1TodayL	PV inverter 1 energy Today L	R	0.1kWh	
3256	Eex2TodayH	PV inverter 2 energy Today H	R	0.1kWh	
3257	Eex2TodayL	PV inverter 2 energy Today L	R	0.1kWh	
3258	Eex1TotalH	PV inverter 1 energy Total H	R	0.1kWh	
3259	Eex1TotalL	PV inverter 1 energy Total L	R	0.1kWh	
3260	Eex2TotalH	PV inverter 2 energy Total H	R	0.1kWh	
3261	Eex2TotalL	PV inverter 2 energy Total L	R	0.1kWh	
3262	uwBatNo	battery pack number	R		BDC reports are updated every 15 minutes
3263	BatSerialNum1	Battery pack serial numberSN[0]SN[1]	R		BDC reports are updated every 15 minutes
3264	BatSerialNum2	Battery pack serial numberSN[2]SN[3]	R		
3265	BatSerialNum3	Battery pack serial numberSN[4]SN[5]	R		
3266	BatSerialNum4	Battery pack serial numberSN[6]SN[7]	R		
3267	BatSerialNum5	Battery pack serial numberSN[8]SN[9]	R		
3268	BatSerialNum6	Battery pack serial numberSN[10]SN[11]	R		
3269	BatSerialNum7	Battery pack serial numberSN[12]SN[13]	R		
3270	BatSerialNum8	Battery pack serial numberSN[14]SN[15]	R		
3271-3279	Reserve	Reserve			
3280	bClrTodayDataFlag	Clear day data flag	R		Data of the current day that the server

					determines whether to clear. 0:not cleared. 1: Clear.
BDC and BMS information (support up to 10 PARALLEL BDCS)					
4000-4107	1	The first 8 registers are the 16-bit serial number of BDC, then 69 registers have the same data area as 3165-3233, the remaining 31 registers are reserved, a total of 108 registers (including 8 registers occupied by serial number).			
4108-4215	2	The first 8 registers are the 16-bit serial number of BDC, then 69 registers have the same data area as 3165-3233, the remaining 31 registers are reserved, a total of 108 registers (including 8 registers occupied by serial number).			
……		The first 8 registers are the 16-bit serial number of BDC, then 69 registers have the same data area as 3165-3233, the remaining 31 registers are reserved, a total of 108 registers (including 8 registers occupied by serial number).			
4864-4971	9	The first 8 registers are the 16-bit serial number of BDC, then 69 registers have the same data area as 3165-3233, the remaining 31 registers are reserved, a total of 108 registers (including 8 registers occupied by serial number).			
4972-5079	10	The first 8 registers are the 16-bit serial number of BDC, then 69 registers have the same data area as 3165-3233, the remaining 31 registers are reserved, a total of 108 registers (including 8 registers occupied by serial number).			

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;