RS485_MODBUS Communication Protocol

Ver19

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1. Overview

This protocol applies to the communication protocol between the grid-connected PV inverters in all power ranges of Solis and the monitoring software of the upper computer. MODBUS RTU protocol is adopted. This protocol can read the operation information of the inverter and control the operation of the inverter in real time.

Before configuring communication, please read this file in detail, which includes the four remote information of the inverter, message examples, communication parameters, and other explanations.

2. Physical interface

Adopts RS485 Receiver-Transmitter, Client-Server Model:

Slave Address	1~247
Baud rate	9600bps
Parity checking	None
Data	8
Stop	1
model	RTU

Note: The device address is an important parameter for the host computer to identify the inverter, and the same 485 bus cannot have duplicate device address.

3. Communication Description

3.1. Data type

U16：2-byte unsigned integer, high first and then low;

S16：2-byte signed integer, high first and then low;

U32：4-byte unsigned integer, the high byte is in front of the low byte, and the high word is in the front and the low word is behind;

S32：4-byte signed integer, the high byte is in front of the low byte, and the high word is in the front and the low word is behind;

3.2. Inter-frame interval requirement

More than 300ms communications frame interval is required. Recommended max data frame 100 bytes (50 registers)

3.3. Data frame

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

Slave Address：Is the corresponding slave address, it must be match with inverter address. Broadcast Address 0xFF, only used for remote control

Function code：03H、04H、06H and 10H are available

Function code(Hex)	Name	Reg Address	Function
03H	Read the holding registers	40001-49999	Read the setting content of holding registers
04H	Read the input registers	30001-39999	Read the detail information of the inverter
06H	Write a single holding registers	40001-49999	Set single-byte functions
10H	Write multiple holding registers	40001-49999	Set multi-byte function

Data： Including the start register address, data length, the number of data bytes, data content. 02H low-byte and follow high-byte, others high-byte first, and follow by low byte.

CRC Check： CRC look-up table checking mode. High-byte first, and follow by low Byte.

When the slave device receives address 0xFF and the function code is "write", receive the command but not response.

4. Error information and data process

Slave Response (Hex)

Slave Address	Function code	Error code	CRC Check	
xx	xx|0x80	xx	Low byte	High byte
			xx	xx

When the inverter communication module detected an error other than CRC error, it must response to the master device. (High byte of function code is 1 which is adding 128 to the function code)

Inverter com module response to the Error Code

0x01 illegal function code, the server doesn't understand the function code

0x02 illegal data address, in relation to requests

0x03 illegal data, in relation to requests.

0x04 Service failure, Inverter com module can't get access to the data during execution

0x05 HMI and Dsp communication failure；

5. Detail description of the Protocol

5.1. Inverter Model Parameter Address Definition

Corresponding function code is 0x04. The following table has the same address with the actual address of the message frame. No need extra offset or transform

Register address (Decimal)	Name	Data type	Remark
35000	SOLIS inverter type definition	U16	Grid-Tied： 1110H---Single Phase Inverter（Note: Applicable model 0.7-8K1P/7-10K1P/no-screen series) 1111H---Single phase microinverter（Note: The current applicable model is 0.6-0.8K1P)-2023/06/19 1120H---Three Phase Inverter（Note: Currently applicable model 5-25K3P/5-30K3P(K2) no-screen） 1121H---Three Phase Inverter（Note: Applicable models are 25-50K/50-70K/80-110K/90-136K/125K/25-50 no-screen series/3-30K3P (K3) no-screen series） 1123H---Three Phase Inverter（Note: Applicable models MAX/PRO） 1124H---Three Phase Inverter（Note: Applicable models 320K） Illustrate: 1) The upper eight digits represent the large version number of the protocol, and the lower eight digits represent the machine type number. 2) This register address cannot be obtained or the data obtained is 0000H, which means that it is an undefined model. If a value is obtained, the host computer can select the corresponding model interface function according to the model. 3) This address is not limited by the boot waiting time, as long as the LCD is powered on, the address information can be obtained.

5.2. Register address of inverter operation information.

Corresponding function code is 0x04. The function code is 0x04, the register address needs to offset one bit.

Note: METER SN number is represented by the SN number of the inverter plus the slave address of the inverter to indicate the SN number of the METER, which is used to distinguish whether the device has an electric meter device. For single phase, the data of phase A shall prevail. The positive value of METER active power means sending electricity to the grid, and the negative number means taking electricity from the grid.

Register address	name	Data type	Unit	Remark	
3000	Product model	U16	1	The data is the model number of the inverter, if you have any needs, please contact the technical support	
3001	DSP software version	U16	1	Example: 0xAABB, AA represents the major version number of the slave DSP and BB represents the major version number of the main DSP.	
3002	HMI Major Version	U16	1	Only HMI major version， The high byte is empty, and the low byte represents the major version number.	
3003	AC output type	U16	1	0 - Single phase 1-Three-phase four-wire system 2-Phase three-wire system 3-Phase 3-wire system or 3-phase	
3004	DC input type	U16	1	0-1 DC input 1-2 DC input 2-3 DC input 3-4 DC input …… 19-20 DC input	1. 3004<4, PV and MPPT voltage and current information need to read 3022-3029; 2. 4≤3004<8, PV voltage and current need to read 3287-3338, MPPT voltage and current need to read 3022-3029; 3. 8≤3004; PV voltage and current need to read 3287-3338; MPPT voltage and current need to read 3500-3546;
3005-3006	Active power	S32	1W		
3007-3008	Total DC output power	U32	1W		
3009-3010	Total energy	U32	1kWh	If you need to display the fractional part, you can associate it with the 3117 register address here.	
3011-3012	Energy this month	U32	1kWh		
3013-3014	Energy last month	U32	1kWh		
3015	Energy today	U16	0.1kWh		
3016	Reserve	U16	0.1kWh		

3017-3018	Energy this year	U32	1kWh	
3019-3020	Energy last year	U32	1kWh	
3021	HMI version	U16		Duplicates the 3002 partial function Note: There are major and minor version numbers. The high byte represents the minor version number, and the low byte represents the major version number. For example, 0xAABB, AA represents the minor version and BB represents the major version.
3022	DC voltage 1	U16	0.1V	1. 3004<4, PV and MPPT voltage and current information need to read 3022-3029; 2. 4≤3004<8, PV voltage and current need to read 3287-3338, MPPT voltage and current need to read 3022-3029; 3. 8≤3004; PV voltage and current need to read 3287-3338; MPPT voltage and current need to read 3500-3546;
3023	DC current 1	U16	0.1A	
3024	DC voltage 2	U16	0.1V	
3025	DC current 2	U16	0.1A	
3026	DC voltage 3	U16	0.1V	
3027	DC current 3	U16	0.1A	
3028	DC voltage 4	U16	0.1V	
3029	DC current 4	U16	0.1A	
3030	Alarm code data	U16	1	See Appendix 1 In conjunction with the 3044 register address, it is used to subdivide the fault message display. Take grid overvoltage as an example: the 3044 register reads the information 1010, and the 3030 register is one of 0000-0004, corresponding to the display
3031	Initialize ground voltage Value	U16	0.1V	
3032	DC busbar voltage	U16	0.1V	
3033	DC half-busbar voltage	U16	0.1V	
3034	AB line voltage / A phase voltage	U16	0.1V	Output type (3003) is 1: output phase voltage 2: Output line voltage (230K series only)
3035	BC line voltage / B phase voltage	U16	0.1V	Output type (3003) is 1: output phase voltage 2: Output line voltage (230K series only)
3036	CA line voltage / C phase voltage	U16	0.1V	Output type (3003) is 1: output phase voltage 2: Output line voltage (230K series only) 0: Output single-phase voltage
3037	A phase current	U16	0.1A	
3038	B phase current	U16	0.1A	
3039	C phase current	U16	0.1A	
3040	Reserved			
3041	Standard working mode	U16	1	Working Mode:

				00---No response mode 01---Volt–watt default 02---Volt–var 03---Fixed power factor 04---Fix reactive power 05---Power-PF 06---Rule21Volt－watt（Only For US）
3042	Inverter temperature	S16	0.1℃	Note：AC NTC (IGBT)
3043	Grid Frequency	U16	0.01Hz	
3044	Inverter status	U16	1	See Appendix 1 In conjunction with the 3030 register address, it is used to subdivide the information display. Take grid overvoltage as an example: the 3044 register reads the information 1020, and the 3030 register is one of the 0000-0004, corresponding to the display
3045-3046	Limited active power adjustment rated power output value	S32	1W	Note: It is the maximum active power output value, which is associated with the 06 function code 3070 The switch is 0xAA: The power limit setting value [06 function code 3052] × the rated power The switch is 0x55: rated power Suitable for 5-25K/25-50K/50-70K/80-110K series.
3047-3048	Reactive power regulation rated power output value	S32	1Var	Note: It is the maximum reactive power output value, which is associated with 06 function code 3071 The switch is 0x55: output value 0; The switch is 0xA1: only for the limited reactive power value [06 function code 3051] × rated power in standard mode 4 Switch 0xA2: SQRT(1^2-[06 function code 3054]^2) ×rated power) Suitable for 5-25K/25-50K/50-70K, use the hold register 3051 to control the inverter reactive power, that is, automatically enter the working mode 4.
3049	Inverter control word	U16	1	See Appendix 3
3050	Actual value of limited Active power	U16	1%	Set the range 0-100%, if the setting instruction is 100%, you need to write 10000 100% refers to the rated nominal power.
3051	Actual adjust value of power factor	S16	0.01	Setting range (-1~-0.80, 0.80~1) (power factor 1.00 and -1.00 are the same, display 1), if you set instruction 1, write 1000
3052	Actual power factor adjustment	S16	0.001	Setting range (-1~-0.8, 0.8~1) (Power factor 1.00 and -1.00 are the same, show 1) This function is only for the standard mode 3 fixed power factor setting function
3053	Reactive power value	S16	1%	Setting range (-60% - +60%) Default: 0 If the instruction is set to 60%, it needs to be written to 6000;

3054	Standard	U16	1	See Appendix 4
3055	Power curve number	U16	1	
3056-3057	Reactive power value	S32	1Var	
3058-3059	Apparent power value	S32	1VA	
3060	Real-time power factor	S16	0.001	Only available for the 50-70K/255K series. No data is available for other models
3061	Inverter serial number SN_1	U16	1	Inverter sequence (hexadecimal display) Example: SN number: 12345679ABCDEF The value upload value for 3061 is 0x4321 The value upload value for 3062 is 0x8765 The value upload value for 3063 is 0xCBA9 The value upload value for 3064 is 0x0FED
3062	Inverter serial number SN_2	U16	1	
3063	Inverter serial number SN_3	U16	1	
3064	Inverter serial number SN_4	U16	1	
3065-3072	Reserved		1	
3073	System time - year	U16	1	0-99
3074	System time - month	U16	1	1-12
3075	System time - day	U16	1	1-31
3076	System time-hour	U16	1	0-23
3077	System time-minute	U16	1	0-59
3078	System time - second	U16	1	0-59
3079	DRM	U16	1	DRM Number
3080-3085	Reserved			
3086	Leakage current protection value	U16	1mA	
3087	Insulation resistance protection value	U16	1kOhm	
3088-3089	Reserved			
3090	Power limit switch	U16	1	Limit the power switch (hold register 3070) feedback value 0xAA power limit switch is enabled, 0x55 power limit switch is turned off (power limit returns to 100%)
3091	Reactive power switch	U16	1	Limited reactive power switch (hold register 3071) feedback value 0x55 Off, power factor restored 1, reactive power ratio returned 0; 0xA1 reactive power ratio setting is valid; 0xA2 power factor 02 setting is valid.
3092	Real Time PV insulation	U16	1kΩ	Range:0-32000kΩ

	resistance			
3093	Inverter Temperature	S16	0.1℃	
3094	Inverter installation Method	U16		Inverter installation method (default 0; 0 is 90° installation mode, 1 is 15° installation mode; Depending on the installation method, the inverter implements different load shedding strategies)
3095	Derating/Limit status information	U16	1	Suitable for 255K series. See Appendix 2
3096	Fault Code 01	U16	1	
3097	Fault Code 02	U16	1	
3098	Fault Code 03	U16	1	
3099	Fault Code 04	U16	1	
3100	Fault Code 05	U16	1	
3101-3105	Reserved			
3106	Ileak Real time data	U16	1mA	
3107	Grid filter number	U16	1	
3108	Master dsp sub version	U16	1	Note: Only the main DSP minor version number, the high byte is empty, and the low byte represents the main DSP minor version number. Integrate with the main DSP major version number of 3001 into a major DSP version number.
3109	Real time power percentage	U16	0.01%	Note: Real-time power/power rating calculation.
3110	Inverter reated apparent power	U16	10VA	
3111	Internal EPM Switch (EPM Soft Switch for AU 2020 Code)	U16	1	1、Value=：（ 0.7-8K1P） 01：Current Sensor 02：Meter in Grid 03：Meter in Load 04：24H consumption 05：EPM OFF 2、Value=：（5-25K） 01：Meter in Grid 02：Meter in Load 03：24H consumption 04：EPM OFF 3、Value=：（25-50K/50-70K/80-110K） 01：Meter in Grid 02：Meter in Load 03：EPM OFF 04：24H consumption"
3112	Internal EPM backflow power (EPM Soft Limit for AU 2020 Code)	S16	100W	"Value=:1100W + to grid - from grid"

3113	Internal EPM failsafe switch	U16	1	BIT00: 0：FailSafe off 1：FailSafe turn on BIT01: 0：MET-CT Failsafe off 1：MET-CT Failsafe turn on BIT02~15: Reserved
3114	Internal EPM real time backflow power	U16	10W	1←→10W
3115	Internal EPM Hard Switch for AU 2020 Code	U16	1	Value=： 00：Null (Not effective) 01：ON 02：OFF
3116	Internal EPM Hard Limit for AU 2020 Code	S16	100W	1←→100W
3117	Total Energy – Decimal Part	U16	0.001kWh	Here associated with register 3009-3010, For example: 900->0.900kWh
3118	CT Link Test	U16	1	Internal EPM matched to CT mode (single camera only): 0: Connection successful, 1: Connection failed, 2: Can't judge
3119	G100 Running Status	U16	1	G100 operating status: 1: Normal state; 2: Overrun state; 3: Fault status; 4: G100 off state; Other values are not valid.
3120	ARC-Fault Number of occurrences	U16	1	
3121	Italy Single Self-Test	U16	1	Value: Start Single Protection Test 00---Null 01---59.S1(253.0V 3000ms) 02---59.S2(264.5V 200ms) 03---27.S1(195.5V 1500ms) 04---27.S2(34.5V 200ms) 05---81>.S1(50.2Hz 100ms) 06---81<.S1(49.8 Hz 100ms) 07---81>.S2F(51.5Hz 100ms) 08---81<.S2F(47.5 Hz 100ms) 09---81>.S2S(51.5Hz 1000ms) 10---81<.S2S(47.5 Hz 4000ms) 11---59.S1 PhaseB(253.0V 3000ms) 12---59.S2 PhaseB(264.5V 200ms) 13---27.S1 PhaseB(195.5V 1500ms)

				14---27.S2 PhaseB(34.5V 200ms) 15---81>.S1 PhaseB(50.2Hz 100ms) 16---81<.S1 PhaseB(49.8 Hz 100ms) 17---81>.S2F PhaseB(51.5Hz 100ms) 18---81<.S2F PhaseB(47.5 Hz 100ms) 19---81>.S2S PhaseB(51.5Hz 1000ms) 20---81<.S2S PhaseB(47.5 Hz 4000ms) 21---59.S1 PhaseC(253.0V 3000ms) 22---59.S2 PhaseC(264.5V 200ms) 23---27.S1 PhaseC(195.5V 1500ms) 24---27.S2 PhaseC(34.5V 200ms) 25---81>.S1 PhaseC(50.2Hz 100ms) 26---81<.S1 PhaseC(49.8 Hz 100ms) 27---81>.S2F PhaseC(51.5Hz 100ms) 28---81<.S2F PhaseC(47.5 Hz 100ms) 29---81>.S2S PhaseC(51.5Hz 1000ms) 30---81<.S2S PhaseC(47.5 Hz 4000ms) Note: The setting has power-off saving function only available under Italy standard.
3122	Italy Full Self-test	U16	1	Value: Start Complete Self Test 1—In Single self-test condition. 2—In Full Self-test condition Note: The setting has power-off saving function only available under Italy standard.
3123	01-59.S1 Voltage	U16	0.1V	
3124	01-59.S1 Time	U16	1ms	
3125	02-59.S2 Voltage	U16	0.1V	
3126	02-59.S2 Time	U16	1ms	
3127	03-27.S1 Voltage	U16	0.1V	
3128	03-27.S1 Time	U16	1ms	
3129	04-27.S2 Voltage	U16	0.1V	
3130	04-27.S2 Time	U16	1ms	
3131	05-81>.S1Frequency	U16	0.01Hz	
3132	05-81>.S1 Time	U16	1ms	
3133	06-81<.S1 Frequency	U16	0.01Hz	
3134	06-81<.S1 Time	U16	1ms	
3135	07-81>.S2F Frequency	U16	0.01Hz	
3136	07-81>.S2F Time	U16	1ms	
3137	08-81<.S2F Frequency	U16	0.01Hz	
3138	08-81<.S2F Time	U16	1ms	
3139	09-81>.S2S Frequency	U16	0.01Hz	
3140	09-81>.S2S Time	U16	1ms	
3141	10-81<.S2S Frequency	U16	0.01Hz	
3142	10-81<.S2S Time	U16	1ms	

3143	DSP1 Version	U16	1	Hex Only applicable for 80-110K PRO Note: Here is the main version number of the master-slave DSP, the high byte represents the slave DSP main version number, and the low byte represents the main version number of the master DSP. For example, 0xAABB, AA represents the main version number of the slave DSP, and BB represents the main version number of the main DSP.
3144	DSP2 Version	U16	1	
3145	DSP3 Version	U16	1	
3146	DSP4 Version	U16	1	
3147	Voltage Ride-through enable switch	U16	1	BIT00: LVRT 0-Disable，1-Enable，Default:0 BIT01:US Rule21 VRT 0-Disable，1-Enable，Default:1 BIT02:US Rule21 FRT 0-Disable，1-Enable，Default:1 BIT03:Brazil LVRT 0-Disable，1-Enable，Default:1 BIT04:BDEW LVRT 0-Disable，1-Enable，Default:1 BIT05-BIT15: Reserved
3148	Voltage Ride-through enable flag bit	U16	1	0xA5 -VRT disable 0x5A -VRT enable By default, it is implemented according to national standards
3149	AFCI board model	U16	1	0 - Old AFCI function 1- Lingshi detection plate 2-TI detection plate Associated with the 06 function code 3077 register address AFCI switch function.
3150	AFCI board Version	U16	1	For TI solution upgrade, query the AFCI test board version number
3151	AFCI faulty data sets	U16	1	1 - Represents that the HMI has obtained all fault data of DSP 0 - Indicates not obtained or not finished
3152	AFCI board CT module hardware fault check result	U16	1	Module failure detection results: Bitwise operation: 0: no fault, 1: faulty. BIT00: Module 1 BIT03: Module 4 BIT01: Module 2 BIT04: Module 5 BIT02: Module 3
3153	AFCI board arc fault check result	U16	1	Arc fault detection results: When an AFCI fault is reported, 1 - 1st string is giving alarm N- Nth string is giving alarm 1-30 (for PV string arc fault) 31-35 (for detecting arc faults in modules)

				Example: 31 represents module 1 arc fault (when the main DSP cannot detect the specific string situation)
3154	Standard operating mode Status	U16	1	Each bit represents the running state of 1 working mode, 0 Not run, 1 running, BIT00: Voltage vs. Active Volt–watt, BIT01: Voltage vs. Reactive Volt–var BIT02: Fixed power factor BIT03: Fix reactive power BIT04: Active pair power factor Power-PF BIT05-BIT15: Reserved Among them, the reactive power mode of BIT01-04 is only one on; For the time being, only 4777-A/-B/-C/-N/-H, TOR, UL0240-18, under the Hawaii standard, the BIT corresponding set of 3154 is used to indicate the running state of the standard working mode, and the other standards use 3073 to display the current standard working mode;
3155	The "Power on Display Select National Standard" status	U16	1	0x0000: Default value, invalid value 0x0001: Waiting for the standard to be selected 0x0002: Standard settings 0x0003: Set the standard complete
3156	Reserved			
3157	External PID Status (Hardware Device)	U16	1	Bitwise Operations: BIT00: PID Status (1-PID On, 0-PID Off) BIT01~15: Reserved
3158	Volt-Var Vref real-time value	U16	0.1V	Example： 2303<->230.3V
3159	DC daily power generation	U16	0.1kwh	
3160	Accuracy Flag	U16	1	Bitwise operations: The default is 0. BIT00: Upload over-frequency load shedding and under-frequency load increase Fstart (1-Accuracy is 0.001Hz, 0-accuracy is 0.01Hz illustrate: 1), 3401/3405 register address information associated with the 03/06/10 function code. 2), associated with 03/06/10 function code 3413 register address information (only related to 320K series)) BIT01~15: reserved
3161	Meter or dual 485 optional function switch	U16	1	For electric meters and dual 485 optional function switches: 0: The interface is the meter communication function; 1: The interface is dual 485 communication function; Default is 0

				Description: For 5-25K series
3162 -3203	Reserved			
3204	DSP1_A phase AC voltage	U16	0.1V	For 80-110K MAX/PRO internal voltage calibration applications; Voltage calibration strategy: 1. Obtain the AC side information of the 4 units with register addresses 3204-3215 through the 04 function code. 2. Compare with the reference voltage. If it exceeds the range, the host computer will give an alarm. 3. Send the reference voltage value through the 10 function code 3308-3310 register address.
3205	DSP1_B phase AC voltage	U16	0.1V	
3206	DSP1_C phase AC voltage	U16	0.1V	
3207	DSP2_A phase AC voltage	U16	0.1V	
3208	DSP2_B phase AC voltage	U16	0.1V	
3209	DSP2_C phase AC voltage	U16	0.1V	
3210	DSP3_A phase AC voltage	U16	0.1V	
3211	DSP3_B phase AC voltage	U16	0.1V	
3212	DSP3_C phase AC voltage	U16	0.1V	
3213	DSP4_A phase AC voltage	U16	0.1V	
3214	DSP4_B phase AC voltage	U16	0.1V	
3215	DSP4_C phase AC voltage	U16	0.1V	
3216 -3219	Reserved			
3220	Broadcast Batch Upgrade Flag	U16	1	8 bits high: 0-ARM does not support batch upgrades 1-ARM supports batch upgrades Lower 8 bits: 0-DSP does not support batch upgrade 1-DSP supports batch upgrade
3221	Inverter initial setting state	U16	1	See Appendix 5
3222	Reserved	U16	0.1%	Description: Bit error rate between HMI and DSP.
3223	Safety Version	U16	1	
3224	AFCI SelfCheck Completed	U16	1	
3225	IGBT Self-Check Flag Bit	U16	1	0: Indicates not triggered 1: Indicates that it is being triggered 2: Indicates that the trigger is successful

				4: End of self-test
3226	Reserved			
3228	One Click Reset Enable Command Status	U16	1	0000H---Dsiable 0059H---Enable Use Function Code 06 Address 3302 Note：One Click Reset，Function：Factory Reset and Clear Energy Data
3229	One Click Reset Operating Command Status	U16	1	0000H---Disable 0045H---Enable Use Function Code 06 Address 3303 If not receive 0045H End flag，HMI will stay in waiting until 5mins timeout Note: If the operating command is not received within 10s after the enable command is sent, the enable command will automatically become invalid.
3230-3247	SN Number	U16	1	ASCII Display ie： 3230 = ‘01’ 3231 = ‘23’ Display：‘0123’
3248	Total consumption of household loads	S32	0.01kwh	Currently it is only applicable to single-phase grid-connected inverters and CT load monitoring mode.
3250	Meter placement	U16	1	BIT00: Meter is on the load side BIT01: Meter is on the main grid side BIT02: 24H Consumption Monitoring(Only get meter data, no control) BIT03-BIT15: Reserved
3251	Meter AC voltage A	U16	0.1V	
3252	Meter AC current A	U16	0.01A	
3253	Meter AC voltage B	U16	0.1V	
3254	Meter AC current B	U16	0.01A	
3255	Meter AC voltage C	U16	0.1V	
3256	Meter AC current C	U16	0.01A	
3257	MeterActive powerA	S32	0.001kW	
3259	MeterActive powerB	S32	0.001kW	
3261	MeterActive powerC	S32	0.001kW	
3263	Meter Total active power	S32	0.001kW	
3265	Meter Reactive power A	S32	1Var	
3267	Meter Reactive power B	S32	1Var	
3269	Meter Reactive power C	S32	1Var	
3271	Meter Total reactive power	S32	1Var	
3273	Meter Apparent power A	S32	1VA	

3275	Meter Apparent power B	S32	1VA	
3277	Meter Apparent power C	S32	1VA	
3279	Meter Apparent power	S32	1VA	
3281	Meter Power factor	S16	0.001	-1.000~-0.800 +0.800~+1.000 1Ph meter: DDSD1352: Actual accuracy 0.001 ACR10RD16TE:Actual accuracy0.01
3282	Meter Grid frequency	U16	0.01Hz	
3283-3284	MeterGrid power total active energy	U32	0.01kWh	
3285-3286	MeterGrid power transmission total active energy	U32	0.01kW	
3287	PV string voltage and Current Combination Description	U16		Represents several PV voltages corresponding to several PV currents of the string inverter; 0000H: 1 voltage corresponds to 2 current 0003H: 1 voltage to 3 current Description: The relationship between PV voltage and current in registers 3289-3335 of 04 function code is associated Example: Step1: Get the 3004 register. If the number of PV input channels is greater than 4, continue to the Step2; otherwise, directly obtain the DC input voltage and current of the 3022-3029 register address; Step2: Get 3287 register, If recevied 0, indicates1Voltage-2current. That is 3321 string voltage corresponds to 3301 and 3302 two string current data If received 3, indicates 1Voltage-3Current. That is 3321 string voltage corresponds to 3301-3303 three string current data
3289	PV21 Current	S16	0.1A	1. 3004<4, PV and MPPT voltage and current information need to read 3022-3029; 2. 4≤3004<8, PV voltage and current need to read 3287-3338, MPPT voltage and current need to read 3022-3029; 3. 8≤3004; PV voltage and current need to read 3287-3338; MPPT voltage and current need to read 3500-3546;
3290	PV22 Current	S16	0.1A	
3291	PV23 Current	S16	0.1A	
3292	PV24 Current	S16	0.1A	
3293	PV25 Current	S16	0.1A	
3294	PV26 Current	S16	0.1A	
3295	PV27 Current	S16	0.1A	
3296	PV28 Current	S16	0.1A	
3297	PV29 Current	S16	0.1A	
3298	PV30 Current	S16	0.1A	
3299	总 PV Voltage	U16	0.1V	
3300	总 PV Current	S16	0.1A	
3301	PV1 Current	S16	0.1A	

3302	PV2 Current	S16	0.1A	
3303	PV3 Current	S16	0.1A	
3304	PV4 Current	S16	0.1A	
3305	PV5 Current	S16	0.1A	
3306	PV6 Current	S16	0.1A	
3307	PV7 Current	S16	0.1A	
3308	PV8 Current	S16	0.1A	
3309	PV9 Current	S16	0.1A	
3310	PV10 Current	S16	0.1A	
3311	PV11 Current	S16	0.1A	
3312	PV12 Current	S16	0.1A	
3313	PV13 Current	S16	0.1A	
3314	PV14 Current	S16	0.1A	
3315	PV15 Current	S16	0.1A	
3316	PV16 Current	S16	0.1A	
3317	PV17 Current	S16	0.1A	
3318	PV18 Current	S16	0.1A	
3319	PV19 Current	S16	0.1A	
3320	PV20 Current	S16	0.1A	
3321	PVStr1 Voltage	U16	0.1V	
3322	PVStr2 Voltage	U16	0.1V	
3323	PVStr3 Voltage	U16	0.1V	
3324	PVStr4 Voltage	U16	0.1V	
3325	PVStr5 Voltage	U16	0.1V	
3326	PVStr6 Voltage	U16	0.1V	
3327	PVStr7 Voltage	U16	0.1V	
3328	PVStr8 Voltage	U16	0.1V	
3329	PVStr9 Voltage	U16	0.1V	
3330	PVStr10 Voltage	U16	0.1V	
3331	PVStr11 Voltage	U16	0.1V	
3332	PVStr12 Voltage	U16	0.1V	
3333	PVStr13 Voltage	U16	0.1V	
3334	PVStr14 Voltage	U16	0.1V	
3335	PVStr15 Voltage	U16	0.1V	
3336	PVStr16 Voltage	U16	0.1V	
3337	PV31 Current	U16	0.1A	
3338	PV32 Current	U16	0.1A	
3339-3499	Reserve	U16		
3500	MPPT 1V	U16	0.1V	1. 3004<4, PV and MPPT voltage and current information need to read 3022-3029; 2. 4≤3004<8, PV voltage and current need to read 3287-3338, MPPT voltage and current need to read
3501	MPPT 2V	U16	0.1V	
3502	MPPT 3V	U16	0.1V	
3503	MPPT 4V	U16	0.1V	

3504	MPPT 5V	U16	0.1V	3022-3029; 3. 8≤3004; PV voltage and current need to read 3287-3338; MPPT voltage and current need to read 3500-3546;
3505	MPPT 6V	U16	0.1V	
3506	MPPT 7V	U16	0.1V	
3507	MPPT 8V	U16	0.1V	
3508	MPPT 9V	U16	0.1V	
3509	MPPT 10V	U16	0.1V	
3510	MPPT 11V	U16	0.1V	
3511	MPPT 12V	U16	0.1V	
3512	MPPT 13V	U16	0.1V	
3513	MPPT 14V	U16	0.1V	
3514	MPPT 15V	U16	0.1V	
3515-3529	Reserve	U16		
3530	MPPT 1I	S16	0.1A	1. 3004<4, PV and MPPT voltage and current information need to read 3022-3029; 2. 4≤3004<8, PV voltage and current need to read 3287-3338, MPPT voltage and current need to read 3022-3029; 3. 8≤3004; PV voltage and current need to read 3287-3338; MPPT voltage and current need to read 3500-3546;
3531	MPPT 2I	S16	0.1A	
3532	MPPT 3I	S16	0.1A	
3533	MPPT 4I	S16	0.1A	
3534	MPPT 5I	S16	0.1A	
3535	MPPT 6I	S16	0.1A	
3536	MPPT 7I	S16	0.1A	
3537	MPPT 8I	S16	0.1A	
3538	MPPT 9I	S16	0.1A	
3539	MPPT 10I	S16	0.1A	
3540	MPPT 11I	S16	0.1A	
3541	MPPT 12I	S16	0.1A	
3542	MPPT 13I	S16	0.1A	
3543	MPPT 14I	S16	0.1A	
3544	MPPT 15I	S16	0.1A	
3545	MPPT 16V	S16	0.1V	
3546	MPPT 16I	S16	0.1A	
3547-3566	Reserve	U16		
3570	A Phase Module NTC Temperature	U16	0.1℃	Available for : 250K Series
3571	B Phase Module NTC Temperature	U16	0.1℃	
3572	C Phase Module NTC Temperature	U16	0.1℃	
3573	DC NTC1 Temperature	U16	0.1℃	
3574	DC NTC2 Temperature	U16	0.1℃	
3575	DC NTC3 Temperature	U16	0.1℃	
3576	DC NTC4 Temperature	U16	0.1℃	
3577	DC NTC5 Temperature	U16	0.1℃	

3578	DC NTC6 Temperature	U16	0.1℃	
3579	DC NTC7 Temperature	U16	0.1℃	
3580	DC NTC8 Temperature	U16	0.1℃	
3581 -3600	Reserve			
3601	Adjustable PV quantity	U16		1: means it can be adjusted; 0: means it can't be adjusted; The inverter is adjustable when it is running, and unadjustable when it is not running (fault, offline, etc.)
3602	Active power adjustable amount: upward adjustment value	S32	1W	Example: For a 230kW model, the maximum real-time active power can be sent to 200kW. If the active power is currently controlled to 150kW, the data is "+50kW" and "-150kW", a total of 2 points. "+" is an upward adjustment value; "-" is a downward adjustment value;
3604	Active power adjustable amount: downward adjustment value	S32	1W	
3606	Capacitive reactive power adjustable amount: upward adjustment value	S32	1Var	Example: 230kW model, the maximum reactive power can be sent to 0.6*apparent power =151.8kvar. If the current reactive power output is capacitive 100kvar, the data is capacitive reactive power "+51.8kvar" and "-100kvar"; "+" is an upward adjustment value; "-" is a downward adjustment value;
3608	Capacitive reactive power adjustable amount: downward adjustment value	S32	1 Var	
3610	Adjustable amount of inductive reactive power: upward adjustment value	S32	1 Var	Example: 230kW model, the maximum reactive power can be sent to 0.6*apparent power =151.8kvar. If the current reactive power output is perceptual 100kvar, that is, the data is perceptual reactive power "+51.8kvar" and "-100kvar"; "+ "" is the upward adjustment value; "-" is the downward adjustment value;
3612	Adjustable amount of inductive reactive power: downward adjustment value	S32	1 Var	
3614	ABC three-phase upper limit value under maximum reactive power	U16	0.1V	
3615	ABC three-phase lower limit value under maximum reactive power	U16	0.1V	
3616	PV total active power control switch	U16	1	0: off; 1: on Others are invalid and closed by default.
3617	PV total reactive power control switch	U16	1	0: off; 1: on Others are invalid and closed by default.
3618	PV total voltage control switch	U16	1	0: off; 1: on Others are invalid and closed by default.
3619	Inverter initialization completed	U16	1	0: Not completed 1: Initialization completed Others are invalid and the default is not completed.
3620	Active power control status	U16	1	0: off; 1: on Others are invalid and closed by default.

3621	Reactive power control status	U16	1	0: off; 1: on Others are invalid and closed by default.
3622	Voltage control status	U16	1	0: off; 1: on Others are invalid and closed by default.
3623	Is it in full generation condition	U16	1	0: Not fully generating 1: Fully generating Others are invalid. The default is not fully generating.
3624	Reactive power can be output at night	U16	1	0: Unable to output reactive power 1: Can output reactive power Others are invalid. Reactive power cannot be output by default.
3625	Active power control completed	U16	1	0: Not completed 1: Completed Others are invalid and the default is not completed.
3626	Reactive power control completed	U16	1	0: Not completed 1: Completed Others are invalid and the default is not completed.
3627	Voltage adjustment completed	U16	1	0: Not completed 1: Completed Others are invalid and the default is not completed.
3628	Is it controllable remotely?	U16	1	0: Uncontrollable 1: Controllable Others are invalid and uncontrollable by default.
3629	DC switch position	U16	1	0: off 1: on Others are invalid and enabled by default.
3630	AC switch position	U16	1	0: off 1: on Others are invalid and enabled by default.
3631	Emergency shutdown	U16	1	0: Disabled 1: Enabled Others are invalid and are not enabled by default.
3632	Starting	U16	1	0: Startup completed 1: Startup in progress Others are invalid and completed by default.
3633	Alarm operation	U16	1	0: No alarm 1: Alarm running Others are invalid, no alarm by default
3634 -3637	Reserved			
3650	59.S1 Voltage(B phase)	U16	0.1V	10<-->1V
3651	59.S1 Time(B phase)	U16	1ms	1<-->1ms
3652	59.S2 Voltage(B phase)	U16	0.1V	10<-->1V
3653	59.S2 Time(B phase)	U16	1ms	1<-->1ms
3654	27.S1 Voltage(B phase)	U16	0.1V	10<-->1V
3655	27.S1 Time(B phase)	U16	1ms	1<-->1ms
3656	27.S2 Voltage(B phase)	U16	0.1V	10<-->1V
3657	27.S2 Time(B phase)	U16	1ms	1<-->1ms
3658	81>.S1 Frequency(B phase)	U16	0.01Hz	100<-->1Hz
3659	81>.S1 Time(B phase)	U16	1ms	1<-->1ms
3660	81<.S1 Frequency(B phase)	U16	0.01Hz	100<-->1Hz

3661	81<.S1 Time(B phase)	U16	1ms	1<-->1ms
3662	81>.S2F Frequency(B phase)	U16	0.01Hz	100<-->1Hz
3663	81>.S2F Time(B phase)	U16	1ms	1<-->1ms
3664	81<.S2F Frequency(B phase)	U16	0.01Hz	100<-->1Hz
3665	81<.S2F Time(B phase)	U16	1ms	1<-->1ms
3666	81>.S2S Frequency(B phase)	U16	0.01Hz	100<-->1Hz
3667	81>.S2S Time(B phase)	U16	1ms	1<-->1ms
3668	81<.S2S Frequency(B phase)	U16	0.01Hz	100<-->1Hz
3669	81<.S2S Time(B phase)	U16	1ms	1<-->1ms
3670	59.S1 Voltage(C phase)	U16	0.1V	10<-->1V
3671	59.S1 Time(C phase)	U16	1ms	1<-->1ms
3672	59.S2 Voltage(C phase)	U16	0.1V	10<-->1V
3673	59.S2 Time(C phase)	U16	1ms	1<-->1ms
3674	27.S1 Voltage(C phase)	U16	0.1V	10<-->1V
3675	27.S1 Time(C phase)	U16	1ms	1<-->1ms
3676	27.S2 Voltage(C phase)	U16	0.1V	10<-->1V
3677	27.S2 Time(C phase)	U16	1ms	1<-->1ms
3678	81>.S1 Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3679	81>.S1 Time(C phase)	U16	1ms	1<-->1ms
3680	81<.S1 Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3681	81<.S1 Time(C phase)	U16	1ms	1<-->1ms
3682	81>.S2F Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3683	81>.S2F Time(C phase)	U16	1ms	1<-->1ms
3684	81<.S2F Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3685	81<.S2F Time(C phase)	U16	1ms	1<-->1ms
3686	81>.S2S Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3687	81>.S2S Time(C phase)	U16	1ms	1<-->1ms
3688	81<.S2S Frequency(C phase)	U16	0.01Hz	100<-->1Hz
3689	81<.S2S Time(C phase)	U16	1ms	1<-->1ms
3700	Rated active power	U32	W	Currently applicable to all US versions.Rated active power
3702	Active power at PF=+0.8 under rated full load	U32	W	Active power at PF=+0.8 at rated full load
3704	Leading power factor	U16	0.01	

	+0.8			
3705	Acive power at PF=-0.8 under rated full load	U32	W	Active power at PF=-0.8 at rated full load
3707	Lagging power factor -0.8	U16	0.01	
3708	Normal operating performance category	U16		Other-none 1-CAT_A 2-CAT_B
3709	Abnormal operating performance category	U16		Other-none 1-CAT_I 2-CAT_II 3-CAT_III
3710	AC rated voltage	U16	V	
3711	AC 1st overvoltage upper limit	U16	0.1V	AC Level 1 Overvoltage Upper Limit
3712	AC 1st undervoltage lower limit	U16	0.1V	AC level 1 undervoltage lower limit
3713	Control mode	U16	V	Bit0: Over-frequency derating Bit1: Volt-watt Bit2: Volt-var Bit3: Fixed reactive power Bit4: Fixed PF Bit5: active-reactive P-Q
3714	Admittance parameters	U16	0.001	1000->1---80-110K 10 000 000->1---1-10K/5-25k-EN/25-50k-Sunspec 1 000 000 000->1---50-70K Note: 1-10K (excluding 6-10K-4G) series of single cameras, due to different precision requirements, SolisCloud recognizes them through 35000 addresses.
3715	Manufacturer	U16		0-Null 1-Ginlong
3716	Hardware version number (mainboard)	U16		0-None 0x1010: DK1635-V2(1-10K，not include 6-10K-4G) 0x1020: IVDG2330-V4（80-100K） 0x1021: IVDDF2330-V5.2（230K） 0x1022: IVMAS5750-V2 (25-50K-Sunspec) 0x1023: MW2070-V8 (5-25K-EN) 0x1024: IVMH5750-V4.2 (50-70K-EN)
3717	Real-time reactive power	U32	1 Var	
3719	Capacitive maximum reactive power, 60% apparent power	U32	1 Var	
3721	Inductive maximum reactive power, 60% apparent power	U32	1 Var	
3733	IV curve type identification code	U16		0x00: The default value represents undefined; 0x01: With 60-point IV curve function;

				0x02: With 128-point IV curve function;
3734	IV curve 128 point scaning flags	U16	1	0x00: Not configured 0x10: Request processing 0x11: The request failed 0x12: The request succeeded 0x20: Turning on IV scanning 0x21: Unable to turn on IV scanning 0x22: The IV scan is turned on 0x30: Scanning 0x31: Scan failed 0x32: The scan is successful 0x40: The HMI geting data from DSP 0x41: HMI failed to obtain DSP data 0x42: The HMI obtains the data of the DSP successfully
3735	String Number	U16	1	After querying the number of strings, 06 function code sends 3239 register to query the corresponding string data)
3736	IV_PV Voltage1	U16	0.1V	Scan data of 128 points of IV curve Note: According to the 06 function code 3238 and 3239 register address settings, to obtain the IV curve of a string of 128 points of PV strings, 4 frames of data packets are required, and each packet can only obtain 64 data. Specifically, execute according to the 06 function code 3239 register setting instruction.
3737	IV_PV Current1	S16	0.01A	
3738	IV_PV Voltage2	U16	0.1V	
3739	IV_PV Current2	S16	0.01A	
3740	IV_PV Voltage3	U16	0.1V	
3741	IV_PV Current3	S16	0.01A	
3742	IV_PV Voltage4	U16	0.1V	
3743	IV_PV Current4	S16	0.01A	
3744	IV_PV Voltage5	U16	0.1V	
3745	IV_PV Current5	S16	0.01A	
3746	IV_PV Voltage6	U16	0.1V	
3747	IV_PV Current6	S16	0.01A	
3748	IV_PV Voltage7	U16	0.1V	
3749	IV_PV Current7	S16	0.01A	
3750	IV_PV Voltage8	U16	0.1V	
3751	IV_PV Current8	S16	0.01A	
3752	IV_PV Voltage9	U16	0.1V	
3753	IV_PV Current9	S16	0.01A	
3754	IV_PV Voltage10	U16	0.1V	
3755	IV_PV Current10	S16	0.01A	
3756	IV_PV Voltage11	U16	0.1V	
3757	IV_PV Current11	S16	0.01A	
3758	IV_PV Voltage12	U16	0.1V	
3759	IV_PV Current12	S16	0.01A	
3760	IV_PV Voltage13	U16	0.1V	
3761	IV_PV Current13	S16	0.01A	

3762	IV_PV Voltage14	U16	0.1V	
3763	IV_PV Current14	S16	0.01A	
3764	IV_PV Voltage15	U16	0.1V	
3765	IV_PV Current15	S16	0.01A	
3766	IV_PV Voltage16	U16	0.1V	
3767	IV_PV Current16	S16	0.01A	
3768	IV_PV Voltage17	U16	0.1V	
3769	IV_PV Current17	S16	0.01A	
3770	IV_PV Voltage18	U16	0.1V	
3771	IV_PV Current18	S16	0.01A	
3772	IV_PV Voltage19	U16	0.1V	
3773	IV_PV Current19	S16	0.01A	
3774	IV_PV Voltage20	U16	0.1V	
3775	IV_PV Current20	S16	0.01A	
3776	IV_PV Voltage21	U16	0.1V	
3777	IV_PV Current21	S16	0.01A	
3778	IV_PV Voltage22	U16	0.1V	
3779	IV_PV Current22	S16	0.01A	
3780	IV_PV Voltage23	U16	0.1V	
3781	IV_PV Current23	S16	0.01A	
3782	IV_PV Voltage24	U16	0.1V	
3783	IV_PV Current24	S16	0.01A	
3784	IV_PV Voltage25	U16	0.1V	
3785	IV_PV Current25	S16	0.01A	
3786	IV_PV Voltage26	U16	0.1V	
3787	IV_PV Current26	S16	0.01A	
3788	IV_PV Voltage27	U16	0.1V	
3789	IV_PV Current27	S16	0.01A	
3790	IV_PV Voltage28	U16	0.1V	
3791	IV_PV Current28	S16	0.01A	
3792	IV_PV Voltage29	U16	0.1V	
3793	IV_PV Current29	S16	0.01A	
3794	IV_PV Voltage30	U16	0.1V	
3795	IV_PV Current30	S16	0.01A	
3796	IV_PV Voltage31	U16	0.1V	
3797	IV_PV Current31	S16	0.01A	
3798	IV_PV Voltage32	U16	0.1V	
3799	IV_PV Current32	S16	0.01A	
33601	Energy Read Progress	U16	1%	0% means not started. 1~99%, indicating the process progress of the inverter reading the local power data, and the data will start to accumulate from 1% after receiving the historical power record reading command; 100% means the inverter has

				finished reading the local power data; other data invalid; After the upper computer sends the historical power record reading command, it can start or end the reading of the power record data register according to this state;
33602	Energy Check Method	U16	1	1. Query by Month data, that is, query Day details; corresponding to 33604-33634 data, up to 31 days; 2. Query by Year data, that is, query Month details; corresponding to the data of 33635-33658; 3. Query according to the total data, that is, query the data of each year of ten years; corresponding to the data of 33659-33678; other invalid;
33603	Energy Detailed Type	U16	1	1: PV power generation, 2: total grid-side power transmission 3: total grid-side power generation Others are invalid; synchronize with the data of 43503;
33604	XYearYMonth1Day	U16	0.1kwh	Query the power detailed data of all days in the Month according to the YearMonth that needs to be queried;
33605	XYearYMonth2Day	U16	0.1kwh	
33606	XYearYMonth3Day	U16	0.1kwh	
33607	XYearYMonth4Day	U16	0.1kwh	
33608	XYearYMonth5Day	U16	0.1kwh	
33609	XYearYMonth6Day	U16	0.1kwh	
33610	XYearYMonth7Day	U16	0.1kwh	
33611	XYearYMonth8Day	U16	0.1kwh	
33612	XYearYMonth9Day	U16	0.1kwh	
33613	XYearYMonth10Day	U16	0.1kwh	
33614	XYearYMonth11Day	U16	0.1kwh	
33615	XYearYMonth12Day	U16	0.1kwh	
33616	XYearYMonth13Day	U16	0.1kwh	
33617	XYearYMonth14Day	U16	0.1kwh	
33618	XYearYMonth15Day	U16	0.1kwh	
33619	XYearYMonth16Day	U16	0.1kwh	
33620	XYearYMonth17Day	U16	0.1kwh	
33621	XYearYMonth18Day	U16	0.1kwh	
33622	XYearYMonth19Day	U16	0.1kwh	
33623	XYearYMonth20Day	U16	0.1kwh	
33624	XYearYMonth21Day	U16	0.1kwh	
33625	XYearYMonth22Day	U16	0.1kwh	
33626	XYearYMonth23Day	U16	0.1kwh	
33627	XYearYMonth24Day	U16	0.1kwh	
33628	XYearYMonth25Day	U16	0.1kwh	
33629	XYearYMonth26Day	U16	0.1kwh	
33630	XYearYMonth27Day	U16	0.1kwh	

33631	XYearYMonth28Day	U16	0.1kwh	
33632	XYearYMonth29Day	U16	0.1kwh	
33633	XYearYMonth30Day	U16	0.1kwh	
33634	XYearYMonth31Day	U16	0.1kwh	
33635	XYear1Month	U32	0.1kwh	Query the detailed power data of all Months in the Year according to the Year that needs to be queried; 33635 means high 16bit data, 33636 means low 16bit data;
33637	XYear2Month	U32	0.1kwh	
33639	XYear3Month	U32	0.1kwh	
33641	XYear4Month	U32	0.1kwh	
33643	XYear5Month	U32	0.1kwh	
33645	XYear6Month	U32	0.1kwh	
33647	XYear7Month	U32	0.1kwh	
33649	XYear8Month	U32	0.1kwh	
33651	XYear9Month	U32	0.1kwh	
33653	XYear10Month	U32	0.1kwh	
33655	XYear11Month	U32	0.1kwh	
33657	XYear12Month	U32	0.1kwh	
33659	0Year	U32	1kwh	The data of each year of 10 years read; 33659 means high 16bit data, 33660 means low 16bit data;
33661	1Year	U32	1kwh	
33663	2Year	U32	1kwh	
33665	3Year	U32	1kwh	
33667	4Year	U32	1kwh	
33669	5Year	U32	1kwh	
33671	6Year	U32	1kwh	
33673	7Year	U32	1kwh	
33675	8Year	U32	1kwh	
33677	9Year	U32	1kwh	
33679	Historical fault/alert data read progress	U16	1%	0%, means not started, or cleared to 0 after the Bluetooth connection is disconnected for 1 minute; 1~99%, indicating the process progress of the inverter reading historical fault/warning data, and this data starts to accumulate from 1% after receiving the historical fault/warning data reading command; 100% means the inverter reads local historical faults /alert end of data; other data is invalid;
33680	Serial numbers of 5 historical fault/alert data	U16	1	Query 5 pieces of data each time, and each record data occupies 5 registers; Range: 1~8, others are invalid; 1: 1-5 recent entries; 2: 6-10 recent entries; 3: 11-15 recent entries; 4: 16-20 recent entries; 5: the latest 21-25 entries; 6: the latest 26-30 entries; 7: 31-35 recent entries; 8: 36-40 recent entries;
33681	Date of occurrence of fault/alarm 1: Year	U16	1	

33682	Date of occurrence of fault/alarm 1: Month-Day	U16	1	High Byte：Month，01-12 Low Byte：Day，01-31
33683	Fault/Alarm 1 occurred when: hours: minutes	U16	1	High Byte：hour, 00-23 Low Byte：Min，00-59
33684	Fault/Alarm 1 status	U16	1	
33685	Fault/Alert 1 data	U16	1	
33686	Date of occurrence of fault/alarm 2: Year	U16	1	
33687	Date of occurrence of fault/alarm 2: Month-Day	U16	1	High Byte：Month，01-12 Low Byte：Day，01-31
33688	Fault/Alarm 2 occurred when: hours: minutes	U16	1	High Byte：Hour，00-23 Low Byte：Min，00-59
33689	Fault/Alarm 2 status	U16	1	
33690	Fault/Alert 2 data	U16	1	
33691	Date of occurrence of fault/alarm 3: Year	U16	1	
33692	Date of occurrence of fault/alarm 3: Month-Day	U16	1	High Byte：Month，01-12 Low Byte：Day，01-31
33693	Fault/Alarm 3 occurred when: hours: minutes	U16	1	High Byte：Hour，00-23 Low Byte：Min，00-59
33694	Fault/Alarm 3 status	U16	1	
33695	Fault/Alert 3 data	U16	1	
33696	Date of occurrence of fault/alarm 4: Year	U16	1	
33697	Date of occurrence of fault/alarm 4: Month-Day	U16	1	High Byte：Month，01-12 Low Byte：Day，01-31
33698	Fault/Alarm 4 occurred when: hours: minutes	U16	1	High Byte：Hour，00-23 Low Byte：Min，00-59
33699	Fault/Alarm 4 status	U16	1	
33700	Fault/Alert 4 data	U16	1	
33701	Date of occurrence of fault/alarm 5: Year	U16	1	
33702	Date of occurrence of fault/alarm 5: Month-Day	U16	1	High Byte：Month，01-12 Low Byte：Day，01-31
33703	Fault/Alarm 5 occurred when: hours: minutes	U16	1	High Byte：Hour，00-23 Low Byte：Min，00-59
33704	Fault/Alarm 5status	U16	1	
33705	Fault/Alert 5 data	U16	1	

5.3. Register address of inverter setting

The function code is 0x03, 0x06 and 0X10, the register address needs to offset one bit. Example: register address: 3000, the send address is 2999.

Register address	name	Data type	Unit	Remark
3000	Year	U16		00-99
3001	Month	U16		1-12
3002	Day	U16		1-31
3003	Hours	U16		0-23
3004	Mins	U16		0-59
3005	Seconds	U16		0-59
3006	Slave address	U16		The slave address setting is only set with the 0x06 function code;
3007	ON/OFF	U16		0xBE-ON 0xDE-OFF 0x10—Night ON enable 0x11—Night ON disable 0x20—24H Consumption Enable 0x21—24H Consumption Disable
3008	Reserve			
3009	Power curve No.	U16		
3010	81>S1	U16	0.01Hz	100<-->1Hz, 48-53Hz，default 50.2Hz 43038-43049 Only valid under CEI 0-21 standard
3011	81>S1-T	U16	0.01s	100<-->1S, 0.05-0.5S， Default :0.10S
3012	81<S1	U16	0.01Hz	100<-->1Hz, 48-53Hz， Default :49.8Hz
3013	81<S1-T	U16	0.01s	100<-->1S, 0.05-0.5S， Default :0.10S
3014	81>S2F	U16	0.01Hz	100<-->1Hz, 48-53Hz， Default :51.5Hz
3015	81>S2F-T	U16	0.01s	100<-->1S, 0.05-0.5S， Default :0.10S
3016	81<S2F	U16	0.01Hz	100<-->1Hz, 45-49Hz， Default :47.5Hz
3017	81<S2F-T	U16	0.01s	100<-->1S, 0.05-0.5S， Default :0.10S
3018	81>S2S	U16	0.01Hz	100<-->1Hz, 48-53Hz， Default :51.5Hz
3019	81>S2S-T	U16	0.01s	100<-->1S, 0.05-5.0S， Default :1.0S
3020	81<S2S	U16	0.01Hz	100<-->1Hz,

				45-49Hz， Default :47.5Hz
3021	81<S2S-T	U16	0.01s	100<-->1S, 0.05-5.0S， Default :4.0S
3022	Restart Inverter	U16	1	55AAH: Restart inverter Note：Only applicable for 80-110K PRO. Use function code 06
3023	DRM S1 Limit 1	U16	0.01%	Range（0-100%）
3024	DRM S1 Limit 2	U16	0.01%	
3025	DRM S1 Limit 3	U16	0.01%	
3026	DRM S1 Limit 4	U16	0.01%	
3027	DRM ON/OFF	U16	1	0x0000 — OFF 0x00AA — ON Default：0. Note: After this is turned on, the EPM function will be turned off automatically.
3028	Restart the HMI	U16	1	0xAA55 is valid, others are invalid Only for single register write, it will take effect if it is successfully sent three times within 6 seconds.
3029	Inverter installation Method	U16	1	Inverter installation method (default 0; 0 is 90° installation method, 1 is 15° installation method; according to different installation methods, the inverter implements different temperature derating logic)
3030	Night SVG Q Set	S16	0.01%	10000<-- >100%; Range：-60%--- 60%；Default :0%
3031	Remote active power limit percentage	U16	0.01%	100% refers to the rated nominal power (note: this value only takes effect when the 3080-BIT2 remote B2 control command enables position 1, and needs to be set with power off saving) Note: 3052 is the local power limit value, 3031 is the remote power limit setting value does not affect each other, DSP takes the minimum value limit.
3032	Reserve	U16		
3033	VRT Enable Switch	U16	1	BIT00: LVRT 0-Disable，1-Enable，Default:0 BIT01:US Rule21 VRT 0-Disable，1-Enable，Default:1 BIT02:US Rule21 FRT 0-Disable，1-Enable，Default:1 BIT03:Brazil LVRT 0-Disable，1-Enable，Default:1 BIT04:BDEW LVRT 0-Disable，1-Enable，Default:1

				BIT05:NRS(South Africa) LVRT 0-Disable，1-Enable，Default: 0 BIT06-BIT15:Reserved Note: Here you need to set power off saving, you can obtain the execution status of the current inverter through the 04 function code 3147 register, and then associate the setting function.
3034	BDEW LVRT K value	U16	1	Range：0—10
3035-3040	Reserve	U16		
3041	50549_2 VRT enable	U16	1	Applicable: 50549_2, VDE4110, 50549-SW, NC-RFG (Poland) VRT enable 0-disabled, 1-enabled, default is 0
3042	50549_2 low voltage ride through mode	U16	1	0-None, 1-Additional reactive current mode, 2-Additional reactive current + active power priority mode, 3-Additional reactive current + reactive power limitation mode, 4-Additional reactive current + zero current threshold mode, 5-Zero current mode; default is 0
3043	50549_2 Static voltage range lower limit percentage	U16	0.01%	Range：8000-10000，Default 9000
3044	50549_2 static voltage range upper limit percentage	U16	0.01%	Range：10000-12000，Default 11000
3045	50549_2 K1 setting value during VRT	U16		50549-2: (Accuracy: LCD sends 1 to represent K as 1) VDE4110, 50549-SW, NC-RFG (Poland): (Accuracy : LCD sends 15 to represent K as 1.5) Note: Except for the 50549-2 standard, the accuracy of other standards is 0.1.
3046	50549_2 K2 setting value during VRT	U16		50549-2: (Accuracy: LCD sends 1 to represent K as 1) VDE4110, 50549-SW, NC-RFG (Poland): (Accuracy : LCD sends 15 to represent K as 1.5) Note: Except for the 50549-2 standard, the accuracy of other standards is 0.1.
3047	50549_2 VRT voltage change value percentage setting	U16	0.01%	

3048	50549_2 VRT reactive power upper limit percentage	U16	0.01%	
3049	50549_2 VRT zero current mode voltage lower limit setting percentage	U16	0.01%	
3050	Reserved			
3051	Reactive power limitation	S16	0.01%	10000<-- >100% Range（-6000- +6000） default：0 Only available for working mode 04 Note: To enable 3051, need to enable 3071 A1. To have power off saving function, need to work with 3069
3052	Power limitation	U16	0.01%	10000<-- >100% Range（0-110%） 100% = rated。 Note: To enable 3052, need to enable 3070 AA. To have power off saving function, need to work with 3069
3053	PF Setting	S16	0.001	PF： （800<-- >0.80，1000<-- >1.00） （-800<-- >-0.80，-1000<-- >-1.00） （PF 1.00 same with -1.00） range（-1~-0.80---0.80~1） Note: To have power off saving function, need to work with 3069
3054	PF Setting 02	S16	0.001	PF Low： （800<-- >0.80，1000<-- >1.00） （-800<-- >-0.80，-1000<-- >-1.00） （PF 1.00 same with -1.00） range（-1~-0.80---0.80~1） For working mode 03 fixed pf function Note: To enable 3054, need to enable 3071 A2. To have power off saving function, need to work with 3069 If Use this function, inverter will switch to mode 03
3055	Reserve			
3056	Calibrate total generation	U32	1kWh	
3058	Calibrate current month generation	U32	1kWh	
3060	Calibrate last month generation	U32	1kWh	
3062	Calibrate today generation	U16	0.1kW	

			h	
3063	Calibrate yesterday generation	U16	0.1kWh	
3064	Calibrate this year generation	U32	1kWh	
3066	Calibrate last year generation	U32	1kWh	
3068	Standard number	U16	1	See Appendix 4
3069	Power-off saving function Note：Don’t set 1 too frequently， the flash has a limited write and read lifespan. Less than 10000 times.	U16	1	BIT00: 0- Power off not saving 1- Power off saving For 3052/3149/3150/3157 Reg
				BIT01: 0- Power off not saving 1- Power off saving For 3053 Reg
				BIT02: 0- Power off not saving 1- Power off saving For3051,3130-3146,3073,3126-3127,3321-3332Reg
				BIT03: 0- Power off not saving 1- Power off saving For3051,3130-3146,3073,3126-3127,3321-3332Reg
				BIT04-15:Reserved Power-off saving function Note：Don’t set 1 too frequently， the flash has a limited write and read lifespan. Less than 10000 times.
3070	Power limitation switch	U16	1	0xAA ON，0x55 OFF(Power to 100%)(for 3052 and 3081 Reg) default :0xAA Applicable for 5-25K/25-50K/50-70K series。
3071	Reactive power switch	U16	1	0x55 OFF，PF=1 Reactive =0 0xA1 Reactive setting effective，PF =1 (for 3051 and 3083 Reg)； 0xA2 PF 02 setting effective，Reactive =0 (for 3054 Reg) default :0x55。 Applicable for 5-25K/25-50K/50-70K series。
3072	Day Time PID Switch	U16	1	0xAA ON 0x55 OFF Default：OFF Note: Available for 255K Series DO set with Day Time PID Solution

3073	Working mode	U16	1	Working mode: 00---No response mode 01---Volt–watt default 02---Volt–var 03---Fixed power factor 04---Fix reactive power 05---Power-PF 06---Rule21Volt–watt 0C--- P-Q Note: If need power off saving function, set 3069=1
3074	Italy Standard Switching Mode	U16	1	0：Off，Default: OFF (81>S1—50.2Hz/0.1s-Inverter 81<S1—49.8Hz/0.1s-Inverter) 1：Local Control (81>S2—51.5Hz/0.1s-Local 81<S2—47.5Hz/0.1s-Local) 2：External Signal (81>S2—51.5Hz/1.0s-External 81<S2—47.5Hz/4.0s-External) Note: The setting has power-off saving function only available under Italy standard。
3075	Italy Single Test	U16	1	Value: Start Single Protection Test 00---Null 01---59.S1(253.0V 3000ms) 02---59.S2(264.5V 200ms) 03---27.S1(195.5V 1500ms) 04---27.S2(34.5V 200ms) 05---81>.S1(50.2Hz 100ms) 06---81<.S1(49.8 Hz 100ms) 07---81>.S2F(51.5Hz 100ms) 08---81<.S2F(47.5 Hz 100ms) 09---81>.S2S(51.5Hz 1000ms) 10---81<.S2S(47.5 Hz 4000ms) 11---59.S1 PhaseB(253.0V 3000ms) 12---59.S2 PhaseB(264.5V 200ms) 13---27.S1 PhaseB(195.5V 1500ms) 14---27.S2 PhaseB(34.5V 200ms) 15---81>.S1 PhaseB(50.2Hz 100ms) 16---81<.S1 PhaseB(49.8 Hz 100ms) 17---81>.S2F PhaseB(51.5Hz 100ms) 18---81<.S2F PhaseB(47.5 Hz 100ms) 19---81>.S2S PhaseB(51.5Hz 1000ms) 20---81<.S2S PhaseB(47.5 Hz 4000ms) 21---59.S1 PhaseC(253.0V 3000ms)

				22---59.S2 PhaseC(264.5V 200ms) 23---27.S1 PhaseC(195.5V 1500ms) 24---27.S2 PhaseC(34.5V 200ms) 25---81>.S1 PhaseC(50.2Hz 100ms) 26---81<.S1 PhaseC(49.8 Hz 100ms) 27---81>.S2F PhaseC(51.5Hz 100ms) 28---81<.S2F PhaseC(47.5 Hz 100ms) 29---81>.S2S PhaseC(51.5Hz 1000ms) 30---81<.S2S PhaseC(47.5 Hz 4000ms) Note: The setting has power-off saving function only available under Italy standard.
3076	Italy Full Test	U16	1	Value: Start Complete Self Test 0---Full test stop or not start 2---Full test starts Note: The setting has power-off saving function only available under Italy standard.
3077	AFCI ON/OFF	U16	1	1. When the 04 function code query 3149 register value is 0 (old DSP board detects AFCI function): 1<-->Open 0<-->Close 2. When the 04 function code query 3149 register value is 1 or 2 (new AFCI board detects AFCI function): 1<-->Separate switch enable (associated with 06 function code 3247 register address) 0<-->The branch switch is not enabled (associated with 06 function code 3247 register address) Before setting the AFCI detection board switch, you need to query the current 04 function code 3149 register address type
3078	CT Direction Set	U16	1	0xAA Correct，0x55 Reverse, Others not effective. Correct direction is towards grid. When actual connection is reversed, set 0x55 can work normally.
3079	AFCI Level	U16	1	Range: 0,1,2,3,4,5,6,7. Default: 0
3080	Power control word	U16	1	Power control word: Bit0---Max power limit flag： 0---Default is 1.09 rated P (For 4777-A/B/C/N, UL,Mex code, receive 0, indicates 1.00 rated P; Others default 1.09 rated P) 1---Set as 1.1 rated P When HMI or external 485 set once,ARM will save this flag in the flash and detect it after power on and send DSP the command Bit1---Resv）

				Bit2— Remote active power limit enable flag bit (associated with 3031 remote control active power percentage register address) 1---enable; 0---disable; default is 0 (Note: it needs to be saved after power-off, and when this bit is 1, it needs to be sent after power-on)
3081	Limit power actual value	S16	10W	Use 06 code to open 3070 Reg AA, Then set 3081 Reg Applicable to 5-25K/25-50K/50-70K/80-110K series
3082	CT Ratio Setting	U16	1	Example: 3000 -> 3000:1 Note:Only applicable to 1ph inverters
3083	Limiting reactive power adjustment value	S16	10Var	Use 06 code to open 3071 Reg, Then set 3083 Reg Applicable to 5-25K/25-50K/50-70K/80-110K series
3084	Leakage current protection	U16	1mA	1<-- >1mA Range：50-800mA；Default 240mA
3085	PV insulation protection	U16	1kOhm	1<-- >1k Range：20k-1000k；Default 200K
3086	Reserve	U16		
3087	ARC_Fault Manual Reset	U16	1	0x00AA:Manual Reset ARC_Fault Note: Manual reset ARC_FAULT is only effective if it exceeds 5 ARC_FAULT in 24 hours. 04 Function code 3120 register address can obtain the number
3088	VRT Enable Flag bit	U16	1	0xA5 -Disable， 0x5A -Enable，Run the DSP default logic The default value of DSP is on, and the default value of LCD is determined according to national standards;
3089	Grid code accuracy set flag	U16	1	The lower 8 bits represent the modifiable precision setting parameters: 0x0001: Set the precision selection voltage 0.1V, time precision 0.01s, frequency precision 0.01Hz. 0x0000: Set the precision selection voltage 1V, the time precision is 0.1s, and the frequency precision is 0.1Hz. The upper 8 bits represent unmodifiable setting parameters: 0x01xx: a single rule, the setting precision selects the voltage 0.1V, the time precision is 0.02s, and the frequency precision is 0.01Hz. Note: 1. The upper computer first reads 3089 " Grid code accuracy set flag " through the 03 function code,

				and then performs corresponding settings according to the precision requirements. If the value of 3089 is less than or equal to 255, you can read and set the precision of the relevant national standard by modifying the value. This value will not be saved when power off. If the value of 3089 is greater than 255, the value cannot be modified. 2. The 0x01xx mode is an added function according to the IEEE1547 standard (UL-208V-A2 and UL-240V-A2) when the over-under-frequency time exceeds 1000s. 3. The register address range covered by 3089 is: 3090-3105.
3090	OV-G-V 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Note: User-defined standard setting must use function code 0x10
3091	OV-G-V-T 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：1.0s
3092	OV-G-V 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3093	OV-G-V-T 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-1.0s default：0.2s
3094	UN-G-V 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3095	UN-G-V-T 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：1.0s
3096	UN-G-V 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3097	UN-G-V-T 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-1.0s default：0.2s

3098	OV-G-F 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3099	OV-G-F-T 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：1.0s
3100	OV-G-F 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3101	OV-G-F-T 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：0.2s
3102	UN-G-F 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3103	UN-G-F-T 01	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：1.0s
3104	UN-G-F 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range
3105	UN-G-F-T 02	U16	1	See 3089 register address definition rules for numerical precision User-def Code Range Range：0.10-9.0s default：0.2s
3106	Startup time	U16	1s	1<-->1s Range：10-600s default：60s
3107	Reconnect time	U16	1s	1<-->1s Range：10-600s default：60s
3108	Recover V upper limit	U16	0.1V	10<-->1V；Resolution 0.1V；Default is the OVGV01
3109	Recover V lower limit	U16	0.1V	10<-->1V；Resolution 0.1V；Default is the UNGV01
3110	Recover F upper limit	U16	0.01Hz	100<-->1Hz；Resolution 0.1Hz；Default is the OVGF01
3111	Recover F lower limit	U16	0.01Hz	100<-->1Hz；Resolution 0.1Hz；Default is the UNGF01
3112	Startup V upper limit	U16	0.1V	10<-->1V；Resolution 0.1V；Default is 253.0V
3113	Startup V lower limit	U16	0.1V	10<-->1V；Resolution 0.1V；Default is 195.5V
3114	Startup F upper limit	U16	0.01Hz	100<-->1Hz；Resolution 0.1Hz；Default is 50.1Hz
3115	Startup F lower limit	U16	0.01Hz	100<-->1Hz；Resolution 0.1Hz；Default is 49.5Hz

3116	Denmark Freq Change Protection Threshold	U16	0.1Hz/s	(1000<-- >1Hz/s, Range:0-3500, Default:2500) Note: LCD display Hz/s, range 0-3.5Hz/s, step 0.1Hz/s
3117	Denmark Freq Change Protection Time	U16	1ms	（1<-- >1ms）,Range 0-5000，Default 80
3118	Working mode control switch	U16	1	"BIT00, overvoltage active power automatic limit, 0 off (default), 1 on BIT01, Vref control enable (3126-3127 register address),0 off (default), 1 on BIT02-15, Reserved" Note: For Italian and Polish PN50549 standard requirements.
3119	OV-G-V03	U16	0.1V	1<-->0.1V
3120	OV-G-V03-T	U16	10ms	1<-->10ms
3121	UN-G-V03	U16	0.1V	1<-->0.1V
3122	UN-G-V03-T	U16	10ms	1<-->10ms Range：0.5-21.0s Default ：2.0s
3123	Reserve	U16		
3124	National standard special switch	U16		BIT00~BIT01: Island function selection control word BIT1 comes first, BIT0 comes last: 00—Default island detection command 01—Danish special island detection command 10—Turn off island detection command 11—Denmark special island and default island detection are enabled at the same time Default is 00; BIT02~15: reserved
3125	Shutdown command for active and reactive power control	U16		01: Turn off the Volt-Watt function; 02: Turn off all reactive power functions: Volt-var, fixed reactive power, fixed power factor, etc.; others are invalid;
3126	Volt-Var Vref Setting	U16	0.1V	10<-->1V Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02. Set Vref first, then set the voltage value of mode 2 (register address 3138-3141) Note: The Vref setting function needs to open the BIT01 Vref control enable bit of the 3118 register;
3127	Volt-Var Vref Time Setting	U16	0.1s	5000<-->500s Range：300s~5000s Default：300s Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.

				Note: The Vref setting function needs to open the BIT01 Vref control enable bit of the 3118 register;
3128	02 working mode V2-Q2 Percent	S16	0.01%	10000<-->100% Range：-60%--- 60%；Default:00% >0 is leading; <0 is lagging
3129	02 working mode V3-Q3 Percent	S16	0.01%	10000<-->100% Range：-60%--- 60%；Default:00% >0 is leading; <0 is lagging
3130	01/06 working mode V1Set	U16	0.1V	10<-- >1V； If need power off saving, set 3069 BIT03 or 02；
3131	01/06 working mode V2Set	U16	0.1V	10<-- >1V； If need power off saving, set 3069 BIT03 or 02；
3132	01/06 working mode V3Set	U16	0.1V	10<-- >1V； If need power off saving, set 3069 BIT03 or 02；
3133	01/06 working mode V4Set	U16	0.1V	10<-- >1V； If need power off saving, set 3069 BIT03 or 02；
3134	01/06 working mode（P1% Set）	U16	0.01%	10000<-->100%,Range（0-100%）,100%- P-rated Power-off save function, need to open 3069 register BIT03 or BIT02.
3135	01/06 working mode（P2% Set）	U16	0.01%	10000<-->100%,Range（0-100%）,100%- P-rated Power-off save function, need to open 3069 register BIT03 or BIT02.
3136	01/06 working mode（P3% Set）	U16	0.01%	10000<-->100%,Range（0-100%）,100%- P-rated Power-off save function, need to open 3069 register BIT03 or BIT02.
3137	01/06 working mode（P4% Set）	U16	0.01%	10000<-->100%,Range（0-100%）,100%- P-rated Power-off save function, need to open 3069 register BIT03 or BIT02.
3138	02 working mode V1Set	U16	0.1V	10<-->1V； If need power off saving, set 3069 BIT03 or 02 First set Vref (3126-3127), then set the voltage value of mode 2
3139	02 working mode V2Set	U16	0.1V	10<-->1V； If need power off saving, set 3069 BIT03 or 02 First set Vref (3126-3127), then set the voltage value of mode 2
3140	02 working mode V3Set	U16	0.1V	10<-->1V； If need power off saving, set 3069 BIT03 or 02 First set Vref (3126-3127), then set the voltage value of mode 2
3141	02 working mode V4Set	U16	0.1V	10<-->1V； If need power off saving, set 3069 BIT03 or 02 First set Vref (3126-3127), then set the voltage value of mode 2

3142	02 working mode （ MaxLeadingVar%）	U16	1%	10000<-- >100% Range：0--- 60%；Default:30% If need power off saving, set 3069 BIT03 or 02
3143	02 working mode （ MaxLaggingVar%）	U16	1%	10000<-- >100% Range：0--- （-60%）； Default:-30% If need power off saving, set 3069 BIT03 or 02
3144	05 working mode （Pb% Set）	U16	1%	（10000<-- >100%）； Range： 50--- 100%；Default:100% If need power off saving, set 3069 BIT03 or 02
3145	05 working mode （Pc% Set）	U16	1%	（10000<-- >100%）； Range： 50--- 100%；Default:100% If need power off saving, set 3069 BIT03 or 02
3146	05 working mode（PFcSet）	S16	0.01	-1~-0.9---+0.9~+1.0 （800<-->0.80，1000<-->1.00） If need power off saving, set 3069 BIT03 or 02
3147	10mins over voltage	U16	0.1V	10<-->1V；
3148	Power ramp rate (Wgra), general	U16	0.01%	（10000<-->100%）；Range：5%---600%；Default:16.67%；Accuracy 1% Start up ramp rate
3149	Power ramp up rate	U16	0.01%	3000<-->30%/min；Range：10%—100%；Default：16.66%，Only for AUS If need power off saving, set 3069 as 1
3150	Power ramp down rate	U16	0.01%	3000<-->30%/min；Range：10%—100%；Default：50%，Only for AUS If need power off saving, set 3069 as 1
3151	Internal EPM Switch (EPM Soft Switch for AU 2020 Code)	U16		1、Value=：（ 0.7-8K1P） 01：Current Sensor 02：Meter in Grid 03：Meter in Load 04：24H consumption 05：EPM OFF 2、Value=：（ 3-20K 3P） 01：Meter in Grid 02：Meter in Load 03：24H consumption 04：EPM OFF 3、Value= ：（25-50K/50-70K/80-110K） 01：Meter in Grid 02：Meter in Load 03：EPM OFF 04：24H consumption"（04：50-70k power off not saving）
3152	Internal EPM backflow power (EPM Soft Limit for	S16	100W	Value=:1->100W + to grid

	AU 2020 Code)			- from grid
3153	Internal EPM failsafe switch	U16	1	Value=: 0：FailSafe off 1：FailSafe on
3154	Internal EPM Hard Switch for AU 2020 Code	U16	1	Value=： 00：Null (Not effective) 01：ON (For Meter in Grid) 02：OFF 03: ON (For Meter in Load) For all AU 2020 Code Series" Note: If soft switch is ON, only 01 and 02 is effective If soft switch is OFF, 01-03 are effective, for individual hard switch
3155	Internal EPM Hard Limit for AU 2020 Code	S16	100W	Value=:1->100W + to grid - from grid
3156	Backflow Work mode	U16	1	00-Default , 3PH Sum 01- 3PH Sum 02- Min Phase power * 3 for backflow power
3157	Power Control Slope	U16	0.01%	3000<-->30%/min； Range：10%—100%； Default： VDE: 30%/min，Other: 0。 Noet: 0 - Power control is immediately, no limit Power off saving if 3069 BIT0=1
3158	RD244_EPM_ON/OFF setting	U16		0x00AA: On 0x0055: Close The default is 0x0055
3159	Factory Reset	U16	1	0x00AA: Enable 0x0000：Not Enable Default：0x0000 Factory Reset includes： 1、Clear alarm messages, 2、Reset special setting to default 3、Reset grid code default
3160	Reset 01 Working Mode	U16	1	0x00AA:Enable 0x0000：Not Enable Default：0x0000 Default working mode and Default value
3161	Reset 02 Power rate limit	U16	1	0x00AA:Enable 0x0000：Not Enable Default：0x0000 Default Power rate limit and default value

3162	Reset 0 Freq Derate Set	U16	1	0x00AA:Enable 0x0000：Not Enable Default：0x0000 Default Freq Derate Setand default value
3163	Reset 04 10min overvoltage	U16	1	0x00AA:Enable 0x0000：Not Enable Default：0x0000 Default 10min overvolatge and default value
3164	G100 Control Switch	U16	1	0x55：off 0x56：Meter is in grid 0x57：CT is in grid Others invalid Note：3PH Grid Tied inverter，No CT ，No 0x57。
3165	Backflow Current	S16	0.01A	100<-->1.00A Range：0-99A,Default：16A
3166	Clear G100 Alarm	U16	1	0xA5：Clear Alarm；Others Invalid.
3167	G100 Clear Alarm Type Select	U16		illustrate: 1. The alarm information can be cleared up to 3 times within 30 days for home use. 2. It takes 4 hours for non-domestic use to clear the alarm information, and there is no limit on the number of times. 3. There are no restrictions on installers. 4. Specifically clear the alarm information and execute the associated 06 function code 3166 register address. This 3167 register is only for type selection.
3168	05 P-PF working mode - Point A power percentage (Pa% Set)	U16	1	10000<-->100% Range: 0--- (-60%); Default: -30% Note: For the power-off saving function, the 3069 register BIT03 or BIT02 needs to be turned on.
3169	05 P-PF working mode - Point A power factor (PFaSet)	U16	1	-1~-0.9---+0.9~+1.0 Implemented according to actual standard requirements (800<-->0.80, 1000<-->1.00) Note: For the power-off saving function, the 3069 register BIT03 or BIT02 needs to be turned on.
3170	05 P-PF working mode - Point B power factor (PFbSet)	U16	1	-1~-0.9---+0.9~+1.0 Implemented according to actual standard requirements (800<-->0.80, 1000<-->1.00) Note: For the power-off saving function, the 3069 register BIT03 or BIT02 needs to be turned on.
3171	05 P-PF working mode -	U16	1	10000<-->100%

	Point D power percentage (Pd% Set)			Range: 0--- (-60%); Default: -30% Note: For the power-off saving function, the 3069 register BIT03 or BIT02 needs to be turned on.
3172	05 P-PF working mode - Point D power factor (PFdSet)	U16	1	-1~-0.9---+0.9~+1.0 Implemented according to actual standard requirements (800<-->0.80, 1000<-->1.00) Note: For the power-off saving function, the 3069 register BIT03 or BIT02 needs to be turned on.
3173	02 Volt-Var Working mode - Voltage preset point setting	U16	0.1V	Accuracy: 10<-->1V, set the adjustable range and default value according to the national standard setting table
3174	High voltage ride-through boost bus voltage command control enable flag	U16		0: High-voltage ride-through boost bus voltage command control is not enabled 1: High-voltage ride-through boost bus voltage command control enable Default is 0
3175	No restart function after shutdown due to PV insulation failure	U16		0x00: The non-stop function for PV insulation faults is turned off and is saved after power failure. 0x01: The PV insulation fault non-stop function is enabled and will be saved after power failure. 0x2A: Clear fault information. 0x2A does not have the power-off saving function. Default is 0
3176	Default Export Limit Value (For AU SAPN Flexible Export Project)	U16	100W	Value= （Power off saving） 1->100W + to grid；- from grid Note： SAPN Flexible Export
3177	Default Export Limit Enable Switch (For AU SAPN Flexible Export Project)	U16	1	00AAH：Enable, inverter backflow power returns to default value (3176 register value); 0000H：Disable，inverter backflow power follows （3152 register value） Note： SAPN Flexible Export，This is due to the need to automatically associate the default backflow power value after the inverter and collector are disconnected
3178	Enable switch (For AU SAPN Flexible Export Project)	U16	1	3177 enable switch 0055H: represents enable (3177 register function allows setting); 0000H: Function is not enabled; Disabled by default.
3179	Safety Fault&Ride through Switch Set	U16	1	BIT00，Safety fault synchronization switch, 0 OFF(Default)，1 ON

				BIT01，VRT enable switch, 0 OFF(Default)，1 ON BIT02-15，Reserved Note: This address is only suitable for MAX projects, does not involve LCD and DSP protocols, only associates LCD switch functions.
3180	Shading MPPT Scan Enable	U16	1	Default 0； 1：ON； 0：OFF。 Note: 3180 and 3181 need to be set together, with 10 function code to set up. Improve the success rate of communication and 3304_BIT12 operation removal.
3181	Shading MPPT Scan Time interval	U16	1min	Default：30min； 10-180 min adjustable。 Note: 3180 and 3181 need to be set together, with 10 function code to set up. Improve the success rate of communication and 3304_BIT12 operation removal.
3182	EN50549 Reconnect Slope Limit (Wgra_Rec) setting	U16	0.1%	（1000<-->100%）； Range：5%---3000%； Default:10%；Set Accuracy1%
3183	EN50549 Startup Slope Limit（Wgra_nor）setting	U16	0.1%	（1000<-->100%）； Range：5%---3000%； Default:600%；Set accuracy 1%
3184	Power Ramp up Slope Limit (Wgra+) setting	U16	0.01%	（10000<-->100%）； Range：5%---600%； Default:16.67%；Set Accuracy1%
3185	Power Ramp down Slope Limit (Wgra+) setting	U16	0.01%	（10000<-->100%）； Range：5%---600%； Default:16.67%；Set Accuracy1%
3186	EN50549 P-Lock in	U16	1%	100<-->100%， Range：0-100%； Default:20%,Set Accuracy1%
3187	EN50549 P-Lock out	U16	1%	100<-->100%， Range：0-100%； Default:5%,Set Accuracy1%
3188	05 Working Mode P-PF, Ulockin Vset For Brazil 140, Dubai, CEI021	U16	0.1V	10->1. The range and default values are subject to the interpretation of the standard
3189	05 Working Mode P-PF, Ulockout Vset For Brazil 140, Dubai, CEI021	U16	0.1V	10->1. The range and default values are subject to the interpretation of the standard
3190	Change slope (Wnor)	U16	0.01%	Scaling: 10000<-->100%);

	setting of power burst in Rule21Phase1 and Hawaiian standards			Range: 1%---100%; Default: 100%; Setting accuracy is 1%, unit is 100%/second
3191	Change slope (Wcon) settings for connection and reconnection in Rule21Phase1 and Hawaiian standards	U16	0.01%	Scaling: 10000<-->100%); Range: 1%---100%; Default: 2%; Setting accuracy is 1%, unit is 100%/second Description: Duplicate with the 3320 register function of the 03/06/10 function code.
3192	Rule21 normal working power change slope enable setting	U16		0---disabled; 1---enable; Default is disable
3194	RS485 baud rate switching setting	U16		0：9600,8,N,1 1：19200,8,N,1 2：38400,8,N,1 3：57600,8,N,1 4：115200,8,N,1 Others are invalid；
3195	Power factor control mode	U16		0---Mode 0: The power factor is set according to the data transmitted from DATA00-DATA01 1---Mode 1: The power factor is tracked according to the VDE4105 curve mode. 2---Mode 2: The power factor is tracked according to the Brazilian standard curve 3---Mode 3: Reserved 4---Mode 4: Reserved Default is 0
3196	Real-time active power compensation parameter setting	U16	0.001	Power compensation settings: Default: 1.000 Range: 0.800~1.200
3200	Overfrequency load shedding special function settings	U16		Overfrequency load shedding special function setting low byte BIT00: Swedish frequency sensitivity function enable control bit 0---function is turned off; 1---function is turned on; the default is 0 BIT01: Overfrequency load shedding function enable control bit 0---function is on; 1---function is off; the default is 0 BIT02: Underfrequency boost function enable control bit 0---function is on; 1---function is off; the default is 0

				Execution logic: first determine the frequency load shedding mode, and then execute different functions according to each BIT after entering the frequency load shedding mode; BIT03-BIT7：Revs
3201	FSM power change limit percentage	U16	0.01%	Range: 5%-10%
3202	Droop settings for FSM	U16	0.01%	Range: 2%-12%
3203	FSM response dead zone setting	U16	1mHz	Range: 0-500mHz
3204	FSM frequency insensitivity setting	U16	1 mHz	Range: 0-1000mHz
3205 -3222	Reserved			
3223	Actual adjustment value of power limit	S32	10	Note: To use this function, first open the AA in the 3070 register of the 06 function code, and then set the 3081 register, so that the function will be effective. illustrate: Applicable to 320K series.
3225	Limited reactive power adjustment value	S32	10	Note: To use this function, first open the 3071 register of the 06 function code, and then set the 3083 register before the function is effective. illustrate: Applicable to 320K series.
3227	Electric meter or dual 485 optional function switch	U16		For electric meters and dual 485 optional function switches: 0: The interface is the meter communication function; 1: The interface is dual 485 communication function; Default is 0 Note: for 5-25K series projects;
3229	Bluetooth Connection Status	U16	1	Bluetooth collector 1 (APP) write 1-No connection, 2-Connecting, 3-Connected. illustrate: 1. The Bluetooth module sends the connection status between the Bluetooth module and the terminal device to the MCU. 2. The MCU transmits the Bluetooth connection status to the light board.
3230	Datalogger 1 Connection Status	U16	1	Collector 1 (built-in GPRS) write 1-No connection, 2-Connecting, 3-Connected.
3231	Datalogger 2 Connection	U16	1	Collector 2 (external WIFI/external GPRS) write

	Status			1-No connection, 2-Connecting, 3-Connected. illustrate: 1. The MCU judges the state of the collector 2. 2. If the MCU does not receive any frame data from the collector 2 within 10 minutes, it will judge that there is no connection.
3232	WIFI Signal Strength	U16	1%	Range：0-100%；
3233	Password Level	U16	1	1-installer, 2-user, 3-administrator, others are nvalid; Description: It is used to set the password of the screenless Bluetooth APP.
3234	The 1st、2nd digit password	U16	1	After setting the MD5 16 encryption password in ASCII code, intercept the length content of the first 6 bytes; Description: It is used for password setting of the Bluetooth APP without screen, in little-endian format. For example: Password: 123456 MD5 16-bit encryption:49BA59ABBE56E057 Write password value:49BA59ABBE56 For example: password: 123456; corresponding register:
3235	The 3rd、4th digit password	U16	1	
3236	The 5th、6th digit password	U16	1	
3238	IV curve 128 points request flag bits	U16	1	0: no operation 1: request IV curve scan
3239	IV curve 128 point string number	U16	1	1- The lower 8 bits are the string number 2- The upper 8 bits are the number of string reads Note: Set the corresponding serial number according to the actual requirements, and obtain the IV curve information according to the corresponding number of string readings. use 04 to read registers 3736-3799 and get string data Lower 8 bits: Set the corresponding string number according to actual requirements. High 8 bits: Number of string reads: 0: Read the voltage value of registers 3736-3799 1: Read the 3736-3799 register voltage value 2: Read the 3736-3799 register current value 3: Read the 3736-3799 register current value
3240	IV curve start scan enable setting	U16	1	1---Start IV curve scan, 0---Do not scan the IV curve, Default is 0 Description: For the IV curve acquisition requirement, after setting the start IV curve, read the 3341 register according to the 04 function code. If the number of IV curves is read, it means

				that the IV curve scan is over. If the IV curve is still not read after 5 minutes quantity, the timeout ends. After repeating three times, no reading was found, and a scanning exception was reported.
3241	IV curve starting voltage	U16	1V	1<-->1V Note: 0x03 and 0x10 function codes are enabled (available in 25-50k)
3242	IV curve interval voltage	U16	1V	1<-->1V Note: 0x03 and 0x10 function codes are enabled (available in 25-50k)
3243	Get the current IV curve No.	U16	1	Description: The current maximum IV curve is NO: 30. Step 1: Send the scan IV curve command and wait for the scan to end. Step 2: Send 06 function code 3243 register to set the IV curve number and obtain the required IV curve information. Step 3: Obtain the IV curve information through the 04 function code curve data address (range: 04 function code 3341-3462).
3244	Remote Request AFCI Fault Signature Data Switch	U16	1	1 means on, 0 means off After opening, wait to query the 04 function code 3151 register, if the result of the 3151 register is 1, set the module number and module frame number
3245	Obtained module number and module frame number	U16	1	The lower eight bits are the module number 1 corresponds to module 1 2 corresponds to module 2 ... The high eight bits are the data frame number of the module 1 corresponds to the first frame 2 corresponds to the second frame 1: Frame 1 data 2: The second frame data 16: The 16th frame data 17: The data of the 17th frame is special (only registers 3736-3737 have data)
3246	Remote acquisition of AFCI fault characteristic data non-stop flag	U16	1	1- Non-stop in case of AFCI failure 0 - means no action Remarks: ARM transmits fault information to DSP through IO port level detection. Turn on this switch. After detecting a fault, ARM will not transmit fault information to DSP
3247	AFCI board sub switch	U16	1	When the 04 function code query 3149 register

				value is 1 or 2, and the 06 function code 3077 is 1: (1 means the sub switch is enabled, 0 means the sub switch is not enabled) 1.BIT00-MPPT is set to 1 when fully open, and set to 0 for other states. 2.BIT01-MPPT1 switch 3.BIT02-MPPT2 switch … 10.BIT10-MPPT10 switch
3248 -3251	Reserved			
3252	Learning enable switch	U16	1	1-on 0-off Lingshi AFCI function 10 function code setting
3253	Self-Learning time setting	U16	1	Set the time in units of 12h: 1 represents 12h 2 stands for 24h 3 represents 36h … Lingshi AFCI function 10 Function code setting: To set the 3253 register, you need to set the 3252 (learning enable switch) register to 1 at the same time
3254	Self-learning result clear switch	U16	1	1-on 0-off Lingshi AFCI function
3255- 3259	Reserved			
3294	AD debug array	U16	1	Range: 1-10; AD benchmarks, real-time values, etc.
3295	Read DSP fixed address variable value function	U32	1	Remarks: The length of the address is 32Bit. If you want to read the variable at address 0x12345678, the data you need to send is: 3295 is 0x1234, and 3296 is 0x5678 Associated with the 3216 register address of the 04 function code.
3297	Read ARM fixed address variable value function	U32	1	Remarks: The length of the address is 32Bit. If you want to read the variable at address 0x12345678, the data you need to send is: 3295 is 0x1234, and 3296 is 0x5678 Associated with the 3218 register address of the 04 function code.
3299	Calibrate real-time power parameter settings	U16	1	Range: 800-1200, the default is 1000 For example: the inverter receives 1200, which means the current power is multiplied by 1.2 to display the real-time power
3300	Clear Generation Data	U16	1	0x55AA----represents clearing power generation;

				Other values - do nothing. (Only use 06 function code to set, 10 is not available)
3301	Fan self-test	U16	1	0000H—means the self-test function of the fan is not started. 0001H—indicates that the fan self-test function is started. Explanation: After the fan self-test function is sent successfully, check the 3044 register of the inverter 04 function code, if there is a fan abnormal alarm (F011H), it means that the fan is abnormal, and if it is not, it means that the fan function is normal.
3302	One Click Reset Enable Command	U16	1	0000H---Disable 0001H --- Whether to enable the instruction, read the address of the 3228 register through the 04 function code, and obtain the random value xxxxH, which means that the one-key shutdown is enabled. Note: One key to get off the machine, function: restore factory settings, clear power generation.
3303	One Click Reset Operating Command	U16	1	0000H---Disable xxxxH---Enable one-key off-machine execution, 1. The enable value of xxxxH is the specific data content of the 04 function code 3228 register address. 2. Read the address of the 3229 register through the 04 function code, and get 0045H ('E'), which means that the end of the one-key shutdown. Or force a wait of 5 minutes before the timeout ends. Note: If the execution command does not receive the execution command within 10s after sending the one-key shutdown enable command, the one-key shutdown enable command will automatically become invalid.
3304	Special Function Control Word 01	U16	1	Special Function control word BIT0-BIT15（Power off saving） BIT00：Boost not working function OFF Control word 0---ON；1---OFF；Default 0 Note: OFF-> Boost always working BIT01：DC injection adjustment function off control word 0---ON；1---OFF；Default 0 Note: OFF-> Stop DC injection adjustment, for test purpose BIT02：0% Power Relay Trip Function Switch 1---Enabled；0--Disabled；Default is 0 (Note: When

				power control is set to 0%, the AC relay will disconnect if this function is enabled) BIT03: AFCI self-inspection control bit; 0 --- no self-inspection, 1 --- self-inspection start; the default is 0;(AFCI self-inspection process: 1. The LCD first controls the inverter to shut down 2. After the inverter is off, the LCD sends a self-test start command and self-test mode 3. DSP performs AFCI self-test 4. After the self-test is completed, the DSP returns the self-test end flag and the self-test result 5. After the LCD receives the self-test end flag bit, it will display according to the self-test result bit 6. The self-test result is consistent with the expectation, the LCD issues a power-on command, and the inverter runs normally, but the result is inconsistent with the expectation, and no power-on command will be issued) BIT04: AFCI self-test mode control bit; 0---normal self-test operation (no arc) data, 1---abnormal self-test operation (with arc) data; default is 0; BIT05: phase line ground fault detection function off control bit; 0-----phase line ground fault detection is on, 1--phase line ground fault detection function is off; the default is 0. BIT06：Reserved。 BIT07： AC hardware overcurrent low sensitivity switch flag bit; 0---low sensitivity protection function is off (2 to 5 protections within 30 seconds), 1---low sensitivity protection function is turned on (50 protections within 30 seconds, equivalent to shielding The hardware overcurrent protection is disabled, but the blocking wave logic operates normally). ; default is 0 BIT11: The inverter forces into the MPPT parallel mode setting; 0--- normal operation, automatically determine whether to enter parallel mode, 1--- force into parallel mode, Default is 0; BIT12-15：Reserved
3305	Grid V A compensation	S16	0.1V	10<-->1V Range：-50V~+50V Default 0 1Ph inverter only phase A
3306	Grid V B compensation	S16	0.1V	10<-->1V Range：-50V~+50V Default 0

3307	Grid V C compensation	S16	0.1V	10<-->1V Range：-50V~+50V Default 0
3308	Grid V A compensation Rated value	S16	0.1V	The voltage compensation rating here takes the voltage value from the reference device and sends it directly to the inverter, which calculates the difference and sets it. It is mainly suitable for PRO series models.
3309	Grid V B compensation Rated value	S16	0.1V	
3310	Grid V C compensation Rated value	S16	0.1V	
3311	Enable “Power ON display to select grid code” Flag	U16	1	00: Disabled (no national standard selection interface when booting); 01: Enabled (power-on display selects the national standard interface); 0 is the default value.
3312	Special control word 02	U16	1	Special function control word 02-BIT0-BIT15 (the control word is saved after power off) BIT00: constant voltage Mppt mode enable control bit; (Note: the associated 3313 register is used at the same time) 0---disable;1---enable;Default is 0; BIT01: Multi-channel Mppt parallel enable control bit; 0--- Mppt runs independently for each channel; 1--- Mppt runs in parallel; The default is 0; BIT02: Relay protection function settings 0--- protection enable, 1--- protection is not enabled, Default is 0 BIT03: Leakage current protection function setting 0--- protection enable, 1--- protection is not enabled, Default is 0 BIT04: Grounding protection function setting 0--- protection enable, 1--- protection is not enabled, Default is 0 BIT05: Grid Disturbance 02 setting 0--- grid disturbance protection enabled (wave-by-wave current limiting enable); 1. The power grid disturbance protection is closed --- (wave-by-wave current limiting is not enabled); Default is 1 BIT06: Grid Current Sampling AD Anomaly Protection (IgADCheckPro)

				(0--- grid current sampling AD protection enable; 1--- grid current sampling AD protection is turned off; Default is 0) Compatible: Grid current DC component protection enable command (0--- The DC component of the grid current protection is not enabled; 1--- Power grid current DC component protection enable; Default is 0) BIT07-15: Reserved.
3313	Voltage value in constant voltage Mppt mode	U16	0.1V	10<-->1V Range 100V---850V； Description: The associated 3312 registers are used at the same time
3314	Grid filter Setting	U16	1	Range：0~7
3315	Special control word 03	U16	1	Special control word 03- (the control word is power off saving, you can first obtain the status of DSP execution through the 03 function code 3315 register address information, and associate the corresponding setting bit display) BIT00: NoSmallPulse enable control bit; (no narrow pulse) 0--- narrow pulse control enabled; 1--- Narrow pulse control is not enabled; Default is 0; BIT01: Grid current follow contains (IgFollow) enable control bit; 0--- protection is not enabled; 1--- Protection enablement; Default is 0; BIT02: PV midpoint grounding protection enable command control bit; 0--- protection is not enabled, 1--- protection is enabled, Default is 0;
3316	External EPM FailSafe Switch	U16	1	0x0000: External EPM FailSafe is turned off. 0x00AA: 5G_EPM FailSafe on; 0x0055: Other external EPM FailSafe is turned on; Default is 0x0000
3317	PCC (point of coupling) voltage in the case of Rule21Phase3	U16	0.1V	Reference only 1P：Range：200--250; Default :240V； 3P: Range：260--290; Default:277.1V
3318	PCC offset voltage in the case of ule21Phase3	U16	0.1V	Reference only Range：-20--20;Default:0V；
3320	US Code reconnection power recovery slope setting value	U16	0.01%	1->0.01% Range：0.1%~100%，Default：0.33%

3321	P_Q Mode P1	U16	0.01%	100->1% Range：0~70%Pn，Default：20%Pn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3322	P_Q Mode P2	U16	0.01%	100->1% Range：40%~80%Pn，Default：50%Pn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3323	P_Q Mode P3	U16	0.01%	100->1% Range：50%~100%Pn，Default：100%Pn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3324	P_Q Mode P4	U16	0.01%	100->1% Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3325	P_Q Mode P5	U16	0.01%	100->1% Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3326	P_Q Mode Q1	U16	0.01%	100->1% Range：-60~60%Sn，Default：0Sn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3327	P_Q Mode Q2	U16	0.01%	100->1% Range：-60%~60%Sn，Default：0Sn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3328	P_Q Mode Q3	U16	0.01%	100->1% Range：-60%~60%Sn，Default：-44%Sn Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3329	P_Q Mode Q4	U16	0.01%	100->1% Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3330	P_Q Mode Q5	U16	0.01%	100->1% Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3331	Volt Var P3Tau	U16	0.01s	1->0.01s Range：0.5~60s，Default：10s Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.
3332	Volt Var Q3Tau	U16	0.01s	1->0.01s Range：1~90s，Default：5s Note: The power-off save function needs to be enabled in the 3069 register BIT03 or BIT02.

3334	DRM7 Reactive power	S16	0.01%	Range：-60%~0, Default：-30
3335	Active priority or reactive power priority control settings	U16	1	0---Q priority， 1---P priority； Range：0---1；Default：0
3336	Meter Setting	U16	1	0：DDSD1352C 1：ACR10RD16TE 2：ACR10RD16TE4 3：DTSD1352 4：SDM630mct 5：AGF-AE-D/200 US split phase meter
3337	Volt Var Qdroop	U16	0.01%	100->1% Range2%-7%，Default2%
3338	Overfrequency load shedding power lower limit percentage	U16	0.01%	The scaling is 10000 which represents 100%
3339	CT sampling power threshold	U16	1W	The associated CT sampling value can be set to confirm the CT_FailSafe function through disturbance detection.For the inverter has its own CT sampling function.
3340	Fan de-icing main switch	U16	1	0--off 1--on Default is 0.
3341	Fan start interval	U16	0.1s	Range: 1200-6000
3342	Fan de-icing temperature threshold	S16	0.1℃	Range: -100-150
3343	Start SVG start time - month	U16	1	Range：1-12
3344	Open SVG start time-day	U16	1	Range：1-31
3345	Enable SVG end time - month	U16	1	Range：1-12
3346	Enable SVG end time-day	U16	1	Range：1-31
3400	Frequency Derating Mode	U16	1	Range：00-14H Default 00 （00---No requirement 01---Australia requirement over-frequency derating and under-frequency ramping。 02--- Reserved。 03---VDE4105, Spanish NTS631 (RD1699), VDE4110, EN50438, Polish NC_RFG (PN-50549) series required over-frequency derating 04---Over-frequency derating required by US Rule 21 and Brazil's new standard (Act 140). Or custom overfrequency derating (start and end points can be set, can be used for 50 and 60Hz) 05---Brazil Over-frequency derating 06---South Africa Over-frequency derating

				07---US Rule21Phase1 Over-frequency derating 08---US Rule21Phase3 Over-frequency derating 09---Over-frequency derating required by Dubai standard 0A---Overfrequency derating required by UK G98 and G99. (The specific DSP selects the Overfrequency derating of G98 according to the national standard G98; the standard G99 selects the Overfrequency derating of G99) 0B---Over-frequency derating required by German BDEW 0C---Over-frequency derating and under-frequency ramping according to the Danish standard, Over-frequency derating required by the Vietnamese standard and Over-frequency derating required by the Israeli standard 0D---China 2018 Over-frequency derating 0E---Over-frequency derating required by EN50549 and C10-11 (Belgium), Norwegian REN342 and Swedish standards 0F---Overfrequency derating required by Italian standards 10H---South Africa Levelise's energy storage over and under frequency control 11H---Overfrequency derating required by French standards 12H—Overfrequency derating required by Austrian standards 13H—Hawaii standard, new American standard 1547, KS3-LVRT (Jeju Island, South Korea) standard requires over-frequency derating 14H—Over-underfrequency power response mode required by FCAS in Australia (temporarily only applied to energy storage machines)
3401	UnderFrequency Ramping Fstart Mode： 01H(D04-05) 03H/08H/13H/14H(D32-33)	U16	0.01Hz	1->0.01Hz
3402	UnderFrequency Ramping Droop Mode：03H/08H/13H/14H (D34-35)	U16	0. 1%	1->0.01%

3403	Overfrequency Derating Response Time Mode：13H(D36-37)	U16	0.01s	1->0.01s
3404	Overfrequency Derating Droop Mode： 03H/0AH/0CH/11H/12H/13H(D04-05)08H(D12-13) 0DH(D18-19)	U16	0.01%	1->0.01%
3405	Overfrequency Derating Fstart Mode： 03H/0AH/0CH/11H/12H/13H(D02-03) 01H/04H/09H/14H(D06-07)08H(D10-11)	U16	0.01Hz	1->0.01Hz Accuracy0.01Hz
3407	Overfrequency Derating Fstop Mode： 01H/09H (D02-03) 04H/14H(D08-09),08H(D14-15)	U16	0.01Hz	1->0.01Hz Range： 51.0Hz~54.0Hz，Default：52.0Hz Accuracy0.05Hz 61.0Hz~64.0Hz，Default：62.0Hz Accuracy0.05Hz
3408	Overfrequency Derating_ HystEna Mode：08H(D16-17)	U16	1	1--hysteresis enable； 0--hysteresis disable Default：0
3410	UnderFrequency Ramping Fstop Mode：01H(D34-35)	U16	0.01Hz	1->0.01Hz Range： 47.0-49. 0Hz，Default：48.0Hz Accuracy0.05Hz
3413	EN50549 - Overfrequency Derating Start Frequency（f1）Mode：0EH(D20-21)	U16	0.01Hz	100<-->1Hz Range： 50.2---52.0Hz，Default：50.20Hz Accuracy0.01Hz
3414	0E Mode EN50549 - Overfrequency Derating HystEnable Mode：0EH(D22-23)	U16	1	0---droop mode；1---step mode；Default 为 0
3415	0E Mode EN50549 - Overfrequency Derating HystFrequency（fstop） Mode：0EH(D24-25)	U16	0.01Hz	1->0.01Hz Range：50.0---f1Hz，Default：50.20Hz Accuracy0.01Hz
3416	0E Mode EN50549 - Overfrequency Derating HystFrequency Response Time（Tstop） Mode：0EH(D26-27)	U16	1s	1<-->1s Range：0--600s；Default:30s； Accuracy 1s

3417	0E Mode EN50549 - Overfrequency Derating （Droop） Mode：0EH(D28-29)	U16	0.01%	100<-->1.0% Range：2%---12%；Default:5%； Accuracy0.1%
3418	0E Mode EN50549 and 04 Mode Brazil 140 - Overfrequency Derating Frequency Response delay Tintendelay Mode：04H/0EH(D30-31)	U16	0.01s	100<-->1s Range：0--2s；Default:0s； Accuracy0.1s
3419	0EH/08H mode over-frequency load reduction and minimum power 0EH/08H (B9_D54-55)	U16	0.01%	100<->1%（Applicable 320k）
3420	Voltage ride through △U enable switch (B5_D48-49)	U16	1	0xA2—Disable 0x2A-Enable（Applicable 320k）
3421	Voltage ride through zero current mode zero current threshold voltage upper limit (B5_D50-51)	U16	0.01%	10000<->100%（Applicable 320k）
3422 -3451	Resevrved			
3452	Special control word 04	U16		BIT0-BIT5 are reserved; BIT6: boost self-test function switch, 0 means on, 1 means off, the default is 0, it will be saved after power off. BIT7: ABC three-phase NTC temperature abnormality detection function switch, 0 is on, 1 is off, the default is 0, and it is saved when power off. BIT8-BIT15 reserved;
3453	Special control word 05	U16		BIT0: The first switch for DC reverse connection fault, 0 is on, 1 is off, the default is 0, and it is saved when power off; BIT1: second switch; BIT2: Third way switch; BIT3: The fourth switch; BIT4: fifth way switch; BIT5: Sixth way switch; BIT6: seventh switch; BIT7: Eighth switch;

				BIT8: Ninth way switch; BIT9: 10th way switch; BIT10: Eleventh switch; BIT11: twelfth switch; BIT12: Thirteenth switch; BIT13: Fourteenth switch; BIT14-BIT15 reserved;
3500	External fan start and stop condition switch	U16		BIT0: Temperature switch (cannot be set, remains on (1)); BIT1: Power switch, 0 means off, 1 means on, default 1, saved when power off; BIT2: Current switch, 0 means off, 1 means on, default is 1, saved when power off; BIT3-BIT15 reserved; Range: 0-0x07
3501	External fan temperature starting point	U16	0.1℃	10<-->1.0℃ Range: 0℃---120℃ Setting accuracy 1℃ Note: The temperature at the starting point must be greater than or equal to the temperature at the stopping point.
3502	External fan temperature stop point	U16	0.1℃	10<-->1.0℃ Range: 0℃---120℃ Setting accuracy 1℃ Note: The temperature at the stop point must be less than or equal to the temperature at the start point
3503	External fan power starting point	U16	1%	1<-->1.0% Range: 0%---110% Setting accuracy 1% Note: The power percentage of the start point must be greater than or equal to the power percentage of the stop point.
3504	External fan power stop point	U16	1%	1<-->1.0% Range: 0%---110% Setting accuracy 1% Note: The power percentage of the stop point must be less than or equal to the power percentage of the start point.
3505	External fan current starting point	U16	0.1A	10<-->1.0A Range: 0A---100A Setting accuracy 1A Note: The current at the starting point must be greater than or equal to the current at the stopping

				point.
3506	External fan current stop point	U16	0.1A	10<-->1.0A Range: 0A---100A Setting accuracy 1A Note: The current at the stop point must be less than or equal to the current at the start point.
3507	External fan speed control curve temperature point 1	U16	0.1℃	10<-->1.0℃ Range: 2℃---118℃ Setting accuracy 1℃ Note: Temperature point 1<= (temperature point 2 - 2℃)
3508	External fan speed control curve temperature point 2	U16	0.1℃	10<-->1.0℃ Range: 4℃---120℃ Setting accuracy 1℃ Note: Temperature point 2>= (temperature point 1 + 2℃)
3509	External fan speed control curve speed 1	U16	1%	1<-->1.0% Range: 0%---100% Setting accuracy 1% Description: The rotation speed of temperature range 1 (T<=temperature point 1)
3510	External fan speed control curve speed 2	U16	1%	1<-->1.0% Range: 0%---100% Setting accuracy 1% Description: The rotation speed of temperature range 2 (temperature point 1<T<=temperature point 2)
3511	External fan speed control curve speed 3	U16	1%	1<-->1.0% Range: 0%---100% Setting accuracy 1% Description: The rotation speed of temperature range 3 (T>temperature point 1)
3512	External fan initialization switch	U16		0x0000 — means closed, 0x00AA — means on, Default: 0. Description: After writing 0xAA, restore the register value at address 3500-3511 to the initial state;
43501	History Energy Data Check method	U16	1	1. Query by monthly data, that is, query daily details; 2. Query data by year, that is, query monthly details; 3. Query according to the total data, that is, query the annual data of ten years; other invalid;

				43501-43503 must be written at the same time, and when the corresponding data Range is valid, the query action is valid, and the data of 33601-33603 is read after at least 200ms interval;
43502	History Energy Data Check Year/Month	U16	1	High byte: year, Range0-99, others are invalid; Low byte: month, Range1-12, others are invalid; When querying by month, the values of year and month are required to be valid; When querying by year, the value of the year needs to be valid, and the value of the month can be written into 0x00; When querying by total data, this register can be written into 0x00;
43503	Data type of historical energy data	U16	1	1: PV power generation, 2: total grid-side power transmission 3: Total grid-side power generation
43506	Query method of fault/warning records	U16	1	1: Fault record, 2: Warning record, others are invalid; 43506-43507 must be written at the same time, and when the corresponding data Range is valid, the query action is valid and the interval is at least
43507	Query sequence number of fault/warning records	U16	1	1: 1-5 recent entries; 2: 6-10 recent entries; 3: 11-15 recent entries; 4: 16-20 recent entries; 5: The latest 21-25 entries; 6: The latest 26-30 entries; 7: the latest 31-35 entries; 8: the latest 36-40 entries; other invalid;

5.4. EPM (external device) operating information

Function code 0x04. No need address offset

Note: The following information applies to external EPM devices

Register address	name	Data type	Unit	Remark	Address type
36000	EPM AC V A	U16	V	10<-->1V	3X
36001	EPM AC I A	U16	A	10<-->1A	3X
36002	EPM AC V B	U16	V	10<-->1V	3X
36003	EPM AC I B	U16	A	10<-->1A	3X
36004	EPM AC V C	U16	V	10<-->1V	3X
36005	EPM AC I C	U16	A	10<-->1A	3X
36006	EPM_Power A	S16	W	1<-->100W	3X
36007	EPM_Power B	S16	W	1<-->100W	3X
36008	EPM_Power C	S16	W	1<-->100W	3X
36009-	EPM_Power Total	S32	W	1<-->100W	3X

36010				Note: Little Endian Low first, High Latter	
36011-36012	Inverter Total Power	S32	W	1<-- >100W Note: Little Endian Low first, High Latter	3X
36013-36014	Reserve				3X
36015	Power control percent	U16		10000<-->100%	3X
36016	CT ratio	U16		1<-->10 Note:EPM-5G/ PLUS, 05+ Ver change to 1-10, Original is 1-100	3X
36017	Backflow power setting value	S16	W	1<-->100W	3X
36018	Inverter number setting value	U16			3X
36019	Year	U16		00-99	3X
36020	Month	U16			3X
36021	Day	U16			3X
36022	Hours	U16			3X
36023	Mins	U16			3X
36024	Seconds	U16			3X
36025	FailSafe ON/OFF	U16		0←→OFF 1←→ON Default:OFF, After Ver06	3X
36026	Grid PF	S16		-1.0~-0.8 +0.8~+1.0	3X
36027	Grid Freq(Meter)	U16	Hz	100<-->1Hz	3X
36028-36029	Total Load power	U32	W	1<-->100W Note：Calculate from inverter power and EPM power Note: Little Endian Low first, High Latter	3X
36030-36049	Reserve				3X
36050-36051	Inverter total generation energy	U32	kWh	100<-- >1kWh Note: Little Endian Low first, High Latter	3X
36052-36053	Load total consumption energy	U32	kWh	100<-- >1kWh Note: Little Endian Low first, High Latter	3X
36054-36055	Grid import total active energy	U32	kWh	100<-- >1kWh Note: Little Endian Low first, High Latter	3X
36056-3605	Grid export total	U32	kWh	100<-- >1kWh	3X

7	active energy			Note: Little Endian Low first, High Latter	
36058	EPM data transmission Switch (Transmit ON/OFF)	U16		0←→OFF； 1←→ON； Default is 0；	3X
36059	Batch upgrade flag	U16		0←→ Not support batch upgrade； 1←→ support batch upgrade； Default is 0；	3X
36060	EPM model	U16		00E0: 5G-EPM 0000：Unknown EPM or 2G-EPM (Hex)	3X

5.5. EPM (External device) setting

Function code 0x03,0x06 and 0x10 No need off set.

Register address	name	Data type	Unit	Remark	Address type
36500	Year	U16		00-99	4X
36501	Month	U16		1-12	4X
36502	Day	U16			4X
36503	Hours	U16			4X
36504	Mins	U16			4X
36505	Seconds	U16			4X
36506	Slave Address	U16			4X
36507	CT ratio	U16		1<-->100	4X
36508	Backflow power	S16	W	1<-->100W	4X
36509	Inverter number	U16			4X
36510	EPM mode	U16		01：Sum of three phase power 02：Minimum power from one phase *3。	4X
36511	FailSafe ON/OFF	U16		0←→OFF 1←→ON Default:OFF	4X
36512	Reserve				4X
36513	EPM data transmission Switch	U16		0←→OFF； 1←→ON； Default is 0；	4X
36514	Inverter type Select	U16		0x55←→PV inverter（Meter Info OFF）； 0xAA←→Hybrid inverter（Meter Info ON）； Default: 0x55；	4X

6. Example

6.1. error message

Send		Response	
01 04 0B B6 00 01 D2 08		01 84 02 C2 C1	
01	Address	01	Address
04	Function code	84	Function code
0B B6	Register Start Addr	02	error code 02（Invalid data address）
00 01	1 register	C2 C1	CRC Check
D2 08	CRC Check		

6.2. 04 function code

1） Acquire 1 operating message

Send		Response	
01 04 0B B7 00 01 83 C8		01 04 02 00 43 F8 C1	
01	Address	01	Address
04	Function code	04	Function code
0B B7	Register Start Addr	02	Byte number
00 01	1 register	00 43	Data
83 C8	CRC Check	F8 C1	CRC Check

2）Acquire multiple operating message

Send		Response	
01 04 0B B7 00 02 C3 C9		01 04 04 00 43 02 07 4A F2	
01	Address	01	Address
04	Function code	04	Function code
0B B7	Register Start Addr	04	Byte number
00 02	2 registers	00 43	Data1
03 C9	CRC Check	02 07	Data2
		4A F2	CRC Check

6.3. 03 function code

1）Acquire 1 setting

Send		Response	
01 03 0B B7 00 01 36 08		01 03 02 00 13 F9 89	
01	Address	01	Address
03	Function code	03	Function code
0B B7	Register Start Addr	02	Byte number
00 01	1 register	00 13	Data
36 08	CRC Check	F9 89	CRC Check

2）Acquire multiple settings

Send		Response	
01 03 0B B7 00 03 B7 C9		01 03 0C 00 13 00 02 00 14 AF 79	
01	Address	01	Address
03	Function code	03	Function code
0B B7	Register Start Addr	0C	Byte number
00 03	3 registers	00 13	Data（19year）
B7 C9	CRC Check	00 02	Data（2month）
		00 14	Data（20day）
		AF 79	CRC Check

6.4. 06 function code

Set 1 Reactive power switch

Send		Response	
01 06 0B FE 00 A1 2B A6		01 06 0B FE 00 A1 2B A6	
01	Address	01	Address
06	Function code	06	Function code
0B FE	Address	0B FE	Address
00 A1	Effective	00 A1	Effective
2B A6	CRC Check	2B A6	CRC Check

Reactive power limitation

Send		Response	
01 06 0B EA 17 70 A4 0E		01 06 0B EA 17 70 A4 0E	
01	Address	01	Address
06	Function code	06	Function code
0B EA	Address	0B EA	Address
17 70	60%	17 70	60%
A4 0E	CRC Check	A4 0E	CRC Check

6.5. 10 function code

Send		Response	
01 10 0B B7 00 03 06 00 13 00 02 00 14 51 65		01 10 0B B7 00 03 32 0A	
01	Address	01	Address
10	Function code	10	Function code
0B B7	Register Start Addr	0B B7	Register Start Addr
00 03	3 registers	00 03	3 registers
06	Byte number	32 0A	CRC Check
00 13	Data（19year）		
00 02	Data（2month）		
00 14	Data（20day）		
51 65	CRC Check		

6.6. Broadcast setting

Note: When the broadcast message uses the 06 or 10 function code for parameter setting, you only need to change the device address to FF. For the rest of the information, please refer to the 06 or 10 function code message example.

Send		Response	
FF 06 0B EB 1F 40 E7 C4		Slave responds, no reply message	
FF	Broadcast Address		
06	Function code		
0B EB	Register		
1F 40	Data（80kW）		
E7 C4	CRC Check		

Appendix 1：

	Means		**Display**	
	2G-	**30KW Series**	**2G-**	**30KW Series**
	Single-Phase	**15kW Series**	**Single-Phase**	**15kW Series**
		All 4G Series and Newer Series		**All 4G Series and Newer Series**
0000H（0000）	Normal	Waiting	Generating	Waiting
0000H（0001）	\	Controlled Off Grid	\	Grid Off
0001H	\	OpenRun	\	OpenRun
0002H	Waiting	SoftRun	Waiting	SoftRun
0003H0000）	Initializing	Generating	Initializing	Generating
0003H0001）	\	Over-Temp Derating	\	LimByTemp
0003H0002）	\	Over-Freq Derating	\	LimByFreq
0003H0004）	\	Over-Volt Derating	\	LimByVg
0003H0008）	\	Reac-Power Derating	\	LimByVar
0003H0010）	\	Under-Freq Derating	\	LimByUnFr
0003H0020）	\	Softrun	\	Ramp-up
0003H0040）	\	Bypass Overload	\	Overload
0003H（0100）	\	DRM Limit	\	LimByDRM
0003H（0200）	\	PLMT Limit	\	LimByEPM
1004H	Grid off	\	Grid Off	\
……	……		……	
F010H	Grid surge(Warning)		Surge Alarm	
F011H	FAN fault (Warning)		Fan Alarm	
F013H	AC SPD ERROR(Warning)		VgSpdFail	
F014H	DC SPD ERROR (Warning)		DcSpdFail	
F015H	Fan fault （Warning External）		Fan_H Alarm	
F016H	Fuse Alarm(Warning)		FuseFail	
F017H	AC Phase Ground Fault(Warning)		L&PE FAIL	
F018H	DSPCommunicationError(Warning)		DSP_Comm Alarm	
F019H(0000)	0000_Boost Error		0000_BoostFail	
F01CH	IGBT Temperature Difference (ABC 3ph NTC temperature difference)		IGBT TEMP DIF	
……	……		……	
……	……		……	
1010H(0000)	Grid Over Voltage		OV-G-V	
1010H(0001)	Grid Over Voltage 01		OV-G-V01	
1010H(0002)	Grid Over Voltage 02		OV-G-V02	
1010H(0003)	Grid Over Voltage 03		OV-G-V03	
1010H(0004)	Grid Over Voltage 04		OV-G-V04	
1010H(0005)	Grid Over Voltage 05		OV-G-V05	

1011H(0000)	Grid Under Voltage	UN-G-V
1011H(0001)	Grid Under Voltage 01	UN-G-V01
1011H(0002)	Grid Under Voltage 02	UN-G-V02
1012H(0000)	Grid Over Frequency	OV-G-F
1012H(0001)	Grid Over Frequency 01	OV-G-F01
1012H(0002)	1. add 35000	OV-G-F02
1013H(0000)	Grid Under Frequency	UN-G-F
1013H(0001)	Grid Under Frequency 01	UN-G-F01
1013H(0002)	Grid Under Frequency 02	UN-G-F02
1014H	Grid reverse	Backfeed_Iac
1015H	No Grid	NO-Grid
1016H	Grid Unbalance	G-PHASE
1017H	Grid Frequency Fluctuation	G-F-FLU
1018H	Grid Over Current	OV-G-I
1019H	Grid current tracking fault	IGFOL-F
101AH	Grid phase abnormal	PHASE-FAULT
101BH	Reserved	WORD1_B09
101CH	Igbt shift fault	IGBTSift-Pro
101DH(0001)	Static overvoltage 1	G100-VH
101DH(0002)	Static overvoltage 2	G100-OV1
101DH(0003)	Dynamic overvoltage	G100-D-VH
101DH(0004)	Static undervoltage 1	G100-UV1
101DH(0005)	Static undervoltage 2	G100-VL
101DH(0006)	Dynamic undervoltage	G100-D-VL
……	……	……
1020H(0000)	DC Over Voltage	OV-DC
1020H(0001)	DC Over Voltage 01	OV-DC01
1020H(0002)	DC Over Voltage 02	OV-DC02
1020H(0003)	PV Ground Fault	PVGndRun Fau
1020H(0004)	DCBoost Fault	BoostFail
1021H	DC Bus Over Voltage	OV-BUS
1022H	DC Bus Unbalance	UNB-BUS
1023H(0000)	DC Bus Under Voltage	UN-BUS
1023H(0001)	DC Bus Under Voltage 01	UN-BUS01
1023H(0002)	DC Bus Under Voltage 02	UN-BUS02
1024H	DC Bus Unbalance 2	UNB2-BUS
1025H	DC(Channel A) Over Current	OV-DCA-I
1026H	DC(Channel B) Over Current	OV-DCB-I
1027H	DC interference	DC-INTF.
1028H	DC reverse	Reve-DC
1029H	PV mid-point grounding	PvMidIso
102AH	The bus voltage is inconsistent (Note: the master and slave DSP bus voltage	Vbus-Sam

	sampling is inconsistent)	
……	……	……
1030H	The Grid Interference Protection	GRID-INTF.
1031H	The DSP Initial Protection	INI-FAULT
1032H	Temperature Protection	OV-TEM01
1033H(0000)	PV Insulation fault	PV ISO-PRO
1033H(0001)	PV Insulation fault 01	PV ISO-PRO1
1033H(0002)	PV Insulation fault 02	PV ISO-PRO2
1034H(0000)	Leakage Current Protection	ILeak-PRO
1034H(0001)	Leakage Current Protection 01	ILeak-PRO01
1034H(0002)	Leakage Current Protection 02	ILeak-PRO02
1034H(0003)	Leakage Current Protection 03	ILeak-PRO03
1034H(0004)	Leakage Current Protection 04	ILeak-PRO04
1035H	Relay Protection	elayChk-FAIL
1036H(0000)	DSP_B Communication Fault	DSP-B-Com-Fau
1036H(0001)	DSP_B Sampling Fault	DSP-B-Sam-Fau
1037H	DC Injection Protection	DCInj-FAULT
1038H	12V Under Voltage Faulty	12Power-FAULT
1039H	Leakage Current Check Protection	ILeak-Check
103AH	Under temperature protection	UN-TEM
103BH	Reserved	Reserved
103CH	Reserved	WORD4_B02
103DH	L&PE Fault	L&PE-FAULT
103EH	NTC Over Temp	OV-TEM02
……	……	……
1040H	AFCI Check Fault	AFCI-Check
1041H	AFCI Fault	ARC- FAULT
1046H	Grid INTF 02	GRID-INTF02
1047H	Grid current sampling error	IG-AD
1048H	IGBT over current	IGBT-OV-I
……	……	……
1050H	Instantaneous overcurrent of grid side current	OV-IgTr
1051H	Battery overvoltage hardware fault (hybrid)\DC bus hardware overvoltage (inverter)	OV-Vbatt-H(hybrid)\ OV-BUS-H(inverter
1052H	LLC hardware overcurrent	OV-ILLC
1053H	Battery overvoltage detection	OV-Vbatt（hybrid） / EPM-HardLimit(Note：inverter)
1054H	Battery undervoltage detection	UN-Vbatt
1055H	battery not connected	NO-Battery
1056H	Bypass Overvoltage Fault	OV-VBackup

1057H	Bypass overload fault	Over-Load
1058H	DSP self-check exception	DspSelfChk
1059H	Vg sampling exception	Vg-Sample
105AH	DSP hardware mismatch	HardFault
105BH	DSP detects battery overcurrent	BAT-DOC
……	……	……
2010H	Fail Safe	Fail Safe
2011H	Fail Safe	Fail Safe
2012H	battery communication failure	CAN_Comm_FAIL
2014H	DSP communication failure	DSP_Comm_FAIL
2015H	BMS warning fault 01	Alarm1-BMS
2016H	Inconsistent battery selection	BatName-FAIL
2017H	BMS warning fault 02	Alarm2-BMS
2018H	DRM connection failed	DRM_LINK_FAIL
2019H	Abnormal meter selection	MET_SEL_FAIL
201AH	CT Connect Error	CT_FAULT
201BH	DRM Control off grid	DRM_CTL_Off
……	……	……
2020H	High ambient temperature for lead-acid batteries	HighTemp.AMB
2021H	Low ambient temperature for lead-acid batteries	LowTemp.AMB
……	……	……
2030H	Grid-connected Backup overload	BKAC Overload
……	……	……
2040H	EPM hard limit protection	EPM-HardLimit
2041H	AFCI board ommunication fail	AFCI-Comm-Fail
2042H	AFCI board CT module fail	AFCI-CTModule-Fail
2043H	G100 overcurrent protection	State 2 excursion
……	……	……

Appendix 2：

Register	BIT	Fault Name	Definition
3095 Limit Status	BIT00	LimByTemp	0—No 1—Yes
	BIT01	LimByFreq	0—No 1—Yes
	BIT02	LimByVg	0—No 1—Yes
	BIT03	LimByVar	0—No 1—Yes
	BIT04	LimByUnFr	0—No 1—Yes
	BIT05	Ramp-up	0—No 1—Yes
	BIT06	Overload	0—No 1—Yes
	BIT07	reserved	0—No 1—Yes
	BIT08	LimByDRM	0—No 1—Yes

	BIT09	LimByEPM	0—No 1—Yes
	BIT10	reserved	0—No 1—Yes
	BIT11	reserved	0—No 1—Yes
	BIT12	reserved	0—No 1—Yes
	BIT13	reserved	0—No 1—Yes
	BIT14	reserved	0—No 1—Yes
	BIT15	reserved	0—No 1—Yes
3096 Fault Code 1	BIT0	Grid voltage AB overvoltage	0—No 1—Yes
	BIT1	Grid voltage BC overvoltage	0—No 1—Yes
	BIT2	Grid voltage CA overvoltage	0—No 1—Yes
	BIT3	Grid voltage AB undervoltage	0—No 1—Yes
	BIT4	Grid voltage BC undervoltage	0—No 1—Yes
	BIT5	Grid voltage CA undervoltage	0—No 1—Yes
	BIT6	Grid Over Frequency	0—No 1—Yes
	BIT7	Grid Under Frequency	0—No 1—Yes
	BIT8	Grid Unbalance	0—No 1—Yes
	BIT9	reserved	0—No 1—Yes
	BIT10	Grid Frequency Fluctuation	0—No 1—Yes
	BIT11	Grid phase abnormal	0—No 1—Yes
	BIT12	No Grid	0—No 1—Yes
	BIT13	Grid reverse	0—No 1—Yes
	BIT14	Grid AB transient overvoltage	0—No 1—Yes
	BIT15	Hardware overcurrent screening failure	0—No 1—Yes
3097 Fault Code 2	BIT0	DC Over Voltage 01	0—No 1—Yes
	BIT1	DC Over Voltage 02	0—No 1—Yes
	BIT2	DC reverse	0—No 1—Yes
	BIT3	Master and slave bus voltage detection is inconsistent	0—No 1—Yes
	BIT4	DC Bus Over Voltage	0—No 1—Yes
	BIT5	DC Bus Under Voltage	0—No 1—Yes
	BIT6	DC Bus Unbalance	0—No 1—Yes
	BIT7	DC bus voltage detection abnormality	0—No 1—Yes
	BIT8	Grid voltage AB effective value average overvoltage	0—No 1—Yes
	BIT9	Grid voltage BC effective value average amount overvoltage	0—No 1—Yes
	BIT10	Grid voltage CA effective value average overvoltage	0—No 1—Yes
	BIT11	PV mid-point grounding	0—No 1—Yes
	BIT12	DCBoost Fault	0—No 1—Yes

	BIT13	DC hardware overcurrent (1, 2, 3, 4 channels)	0—No 1—Yes
	BIT14	Grid current tracking fault	0—No 1—Yes
	BIT15	Grid voltage effective value instantaneous overvoltage fault	0—No 1—Yes
3098 Fault Code 3	BIT0	Phase A effective value overcurrent	0—No 1—Yes
	BIT1	Phase B effective value overcurrent	0—No 1—Yes
	BIT2	C phase effective value overcurrent	0—No 1—Yes
	BIT3	DC1 average overcurrent	0—No 1—Yes
	BIT4	DC 2 average overcurrent	0—No 1—Yes
	BIT5	AC hardware overcurrent (ABC phase)	0—No 1—Yes
	BIT6	DC component of current exceeds limit	0—No 1—Yes
	BIT7	Grid voltage AB overvoltage 02	0—No 1—Yes
	BIT8	Grid voltage BC overvoltage 02	0—No 1—Yes
	BIT9	Grid voltage CA overvoltage 02	0—No 1—Yes
	BIT10	Grid voltage AB undervoltage 02	0—No 1—Yes
	BIT11	Grid voltage BC undervoltage 02	0—No 1—Yes
	BIT12	Grid voltage CA undervoltage 02	0—No 1—Yes
	BIT13	Grid overfrequency 02	0—No 1—Yes
	BIT14	Grid underfrequency 02	0—No 1—Yes
	BIT15	Grid overvoltage 03 (level three overvoltage)	0—No 1—Yes
3099 Fault Code 4	BIT0	Battery overcurrent	0—No 1—Yes
	BIT1	Module over temperature	0—No 1—Yes
	BIT2	System overtemperature	0—No 1—Yes
	BIT3	Relay failure	0—No 1—Yes
	BIT4	PV midpoint grounding	0—No 1—Yes
	BIT5	Low temperature protection	0—No 1—Yes
	BIT6	negative ground fault	0—No 1—Yes
	BIT7	Positive ground fault	0—No 1—Yes
	BIT8	12V undervoltage fault	0—No 1—Yes
	BIT9	Leakage current fault 01 (30mA)	0—No 1—Yes
	BIT10	Leakage current fault 02 (60mA)	0—No 1—Yes

	BIT11	Leakage current fault 03 (150mA)	0—No 1—Yes
	BIT12	Leakage current fault 04 (300mA)	0—No 1—Yes
	BIT13	Leakage current sensor failure	0—No 1—Yes
	BIT14	Grid Disturbance 02	0—No 1—Yes
	BIT15	Grid current sampling abnormality	0—No 1—Yes
3100 Fault Code 5	BIT0	Instantaneous overcurrent on the grid side	0—No 1—Yes
	BIT1	Battery overvoltage hardware failure/Vbus	0—No 1—Yes
	BIT2	LLC hardware overcurrent	0—No 1—Yes
	BIT3	Battery overvoltage detection failure	0—No 1—Yes
	BIT4	Battery undervoltage detection failure	0—No 1—Yes
	BIT5	Level 2 hardware overcurrent on AC side (ABC phase)	0—No 1—Yes
	BIT6	Master-slave DSP communication abnormality	0—No 1—Yes
	BIT7	Detect anomalies from DSP	0—No 1—Yes
	BIT8	AFCI self-test failure	0—No 1—Yes
	BIT9	AFCI failure	0—No 1—Yes
	BIT10	Battery not connected fault	0—No 1—Yes
	BIT11	DSP self-test abnormality	0—No 1—Yes
	BIT12	Grid voltage sampling abnormality	0—No 1—Yes
	BIT13	DSP software and hardware do not match	0—No 1—Yes
	BIT14	Inverter overvoltage fault	0—No 1—Yes
	BIT15	Load overload fault	0—No 1—Yes
3101 Fault Code 6	BIT00	Fail Safe	0—No 1—Yes
	BIT01	DRM controlled off-grid	0—No 1—Yes
	BIT02	CT connection abnormality	0—No 1—Yes
	BIT03	DRM not connected	0—No 1—Yes
	BIT04	reserved	0—No 1—Yes
	BIT05	reserved	0—No 1—Yes
	BIT06	reserved	0—No 1—Yes
	BIT07	reserved	0—No 1—Yes
	BIT08	EPM hard limit protection	0—No 1—Yes
	BIT09	AFCI board communication abnormality	0—No 1—Yes

	BIT10	AFCI board CT module hardware abnormality	0—No 1—Yes
	BIT11	G100 overcurrent protection	0—No 1—Yes
	BIT12	reserved	0—No 1—Yes
	BIT13	reserved	0—No 1—Yes
	BIT14	reserved	0—No 1—Yes
	BIT15	reserved	0—No 1—Yes

Appendix 3:

Bit	Displayed Code	Note
Bit0	Relay protects non-enable command significant bits	0—Protect enabled; 1—Protect non-enabled
Bit1	Leakage Current protects non-enable command significant bits	0—Protect enabled; 1—Protect non-enabled
Bit2	AFCI protects non-enable command significant bits	0—Protect enabled; 1—Protect non-enabled
Bit3	Grounding protection non-enable command significant bit	0—Protect enabled; 1—Protect non-enabled
Bit4	The overfrequency load shedding function does not enable command significant bits	0—Protect enabled; 1—Protect non-enabled
Bit5	The grid disturbance 02 function is not a significant bit of the enable command	0—Protect enabled; 1—Protect non-enabled
Bit6	Multiple Mppt parallel mode enables significant bits	0—Protect enabled; 1—Protect non-enabled
Bit7	Constant VoltageMptt mode to enable significant bits	0—Protect enabled; 1—Protect non-enabled
Bit8	Grid CurrentAD sampling anomaly protects against non-enabled significant bits	0—Protect enabled; 1—Protect non-enabled
Bit9-bit15	Resv	

Appendix 4:

3054H	national standard			
	Three-phase machine(5-136K) (Three-phase energy storage)	Single phase grid connected machine (Single-phase energy storage)	Three phase grid connected machine(125K)	Three phase grid connected machine(225K)
01H	G59/3	G59/3	G59/3	G59/3 (600V)

02H	UL480-13 (60Hz480V) (Description: Low voltage60Hz270V)	UL240-13	UL600-13	UL600-13
03H	VDE0126(380V)	VDE0126	VDE0126	VDE0126
04H	Reserve1	Reserve1	AS4777-15	AS4777-15 (Temporarily unused)
05H	Reserve2	Reserve2	AS4777-02	AS4777-02 (Temporarily unused)
06H	CQC-380A Note: The 80-136K series displays CQC-B-380A （B class）	CQC （B class）	CQC-600 (A class)	CQC-800 (A class)
07H	EN50438IE	EN50438IE	EN50438IE	ENEL (Temporarily unused)
08H	UL-380V(60Hz380V)	UL-208V	UL-380V(60Hz380V)	UL-380V(60Hz380V) (Temporarily unused)
	UL-220V(60Hz220V) Note: Low voltage UL-220V(60Hz220V)			
09H	MEX-CFE	MEX-CFE	MEX-CFE	MEX-800
0AH	custom	custom	custom	custom
0BH	VDE4105(380V)	VDE4105	VDE4105(380V)	VDE4105(380V) (Temporarily unused)
0CH	DK1	DK1	EN50438DK	DK1
0DH	EN50549PO	EN50549PO	EN50549PO	EN50549PO
0EH	EN50549NL	EN50549NL	EN50549NL	EN50549NL
0FH	EN50549ES (Estonia)	EN50549ES	EN50549ES	EN50549ES
10H	EN50438L	EN50438L	EN50438L	EN50438L(800V)
11H	UL-480V-A	UL-240V-A	UL-600V-A	UL800-13
12H	UL-380V-A	UL-208V-A	UL-380V-A	UL-380V-A (Temporarily unused)
13H	BRAZIL	BRAZIL	BRAZIL	BRAZIL

14H	Reserve3	Reserve3	AUS-Q-0.9	AUS-Q-0.9 (Temporarily unused)
15H	Reserve4	Reserve4	AUS-Q-0.8	AUS-Q-0.8 (Temporarily unused)
16H	G83/1	G83/1	G83/1	G83/1 (Temporarily unused)
17H	RD1699	RD1699	RD1699	RD1699 (Temporarily unused)
18H	IEC61727	IEC61727	IEC61727	IEC61727
19H	GN-380L	G83/1-A	GN-600L	GN-800L
1AH	CQC-480A Note: The 80-136K series displays CQC-B-480A （B class）	GNB	CQC-480V	CQC-480V (Temporarily unused)
1BH	GN-HV-L	GNC	GN-HV-L	GN-HV-L (Temporarily unused)
1CH	G59/3-A	NewZeal	G59/3-A	G59/3-A （600V）
1DH	4105/480(480V)	G83/3	4105/480(480V)	4105/480(480V) (Temporarily unused)
1EH	Reserve5	Chile	AS4777_480	AS4777_480 (Temporarily unused)
1FH	NewZeal	NRS097	NewZeal	NewZeal (Temporarily unused)
20H	CQC-500A （B class）	Philippin	CQC500	CQC500 (Temporarily unused)
21H	CQC-540A Note: The 80-136K series displays CQC-B-540A （B class）	N4105-BEL	CQC540	CQC540 (Temporarily unused)
22H	GN-540L	IEC61727L	GN540L	GN540L (Temporarily unused)

23H	N4105-BEL	KS1	N4105-BEL	N4105-BEL (Temporarily unused)
24H	CHILE	France	CHILE	CHILE (Temporarily unused)
25H	NRS097	ISONE240	NRS097	NRS097 (Temporarily unused)
26H	GN380L-A	ISONE208	GN600L-A	GN800L-A
27H	GNHVL-A	ISONE240A	GNHVL-A	GNHVL-A (Temporarily unused)
28H	NRS480	ISONE208A	NRS480	NRS480 (Temporarily unused)
29H	CQC380DZ	GN300V	CQC600DZ	CQC800DZ
2AH	GN380DZL	MEA(THAILAND)	GN600DZL	GN800DZL
2BH	ISONE480	R21P3-240	ISONE600	ISONE600
2CH	ISONE480A	R21P3-208	ISONE600A	ISONE800
2DH	KS1	R21P3-24A	KS1	KS4
2EH	R21P3-480	R21P3-20A	R21P3-600	R21P3-600
2FH	R21P3-48A	Sri Lanka	R21P3-60A	R21P3-800
30H	Philippin	PEA(THAILAND)	Philippin	Philippin (Temporarily unused)
31H	France	Reserve5	France	France (Temporarily unused)
32H	Sri Lanka	Mala230LV	SRILANKA	SRILANKA
33H	MEA	Indon230V	THAILANDMEA	THAILANDMEA (Temporarily unused)
34H	PEA	G98	THAILANDPEA	THAILANDPEA (Temporarily unused)
35H	Reserve6	G99	4777SA-48(480)	4777SA-48(480) (Temporarily unused)
36H	Mala230LV	GEN50	Mala230LV	Mala230LV (Temporarily unused)
37H	Mala277LV	GEN60	Mala277LV	Mala277LV (Temporarily

				unused)
38H	Mala277MV	TW220(TAIWAN)	Mala277MV	Mala277MV (Temporarily unused)
39H	Indon230V	TW110(TAIWAN)	Indon230V	Indon230V (Temporarily unused)
3AH	Dubai-A(Dubai Medium Voltage)	DK230V	DEWA230LV	DEWA230LV (Temporarily unused)
3BH	Dubai-B(Dubai Medium Voltage)	Barbados	DEWA277LV	DEWA277LV (Temporarily unused)
3CH	DEWA277MV	BRAZIL-H	DEWA277MV	DEWA277MV (Temporarily unused)
3DH	G98	G99-N	G98	G98
3EH	G99	CEI 0-21(Italy)	G99	G99
3FH	BDEW230V	MEX-220V(MEX-110V Note: Low voltage display)	BDEW230V	BDEW230V (Temporarily unused)
40H	BDEW277V	MEX220-A(MEX110-A Note: Low voltage display)	BDEW277V	BDEW277V (Temporarily unused)
41H	GEN50	SG1	GEN50	GEN50 (Temporarily unused)
42H	GEN60	Reserve6	GEN60	GEN60 (Temporarily unused)
43H	Reserve7	Reserve7	4777SA-40(380)	4777SA-40(380) (Temporarily unused)
44H	KS2(Korean non-standard)	EN50549	KS2(Korean non-standard)	KS2(Korean non-standard) (Temporarily unused)
45H	TW220(TAIWAN)	PH-L(Philippin)	TW220(TAIWAN)	TW220(TAIWAN) (Temporarily unused)
46H	DK277V	C10/11(Belgium)	DK277V	DK277V (Temporarily unused)

47H	DK230V	DK2	DK230V	DK230V (Temporarily unused)
48H	Barbados	G98-NI	Barbados	Barbados (Temporarily unused)
49H	IEC61727L	G99-NI	IEC61727L	IEC61727L
4AH	SG1	IRAN	SG1	SG1
4BH	G99N	EIFS-SW(Sweden)	G99-N	G99-N
4CH	MEX-480V (MEX-220V Note: Low voltage display)	R14-240A （Hawaii）	MEX-480V	MEX-480V (Temporarily unused)
4DH	MEX480V-A (MEX220V-A Note: Low voltage display)	R14-208A （Hawaii）	MEX480-A	MEX480-A (Temporarily unused)
4EH	Reserve8	TOR (Austria)	4777WA-40(380)	4777-A-EH
4FH	Reserve9	R14-240 （Hawaii）	4777WA-48(480)	4777-B-EH
50H	Reserve10	R14-208 （Hawaii）	4777NW-40(380)	4777-C-EH
51H	Reserve11	Reserve8	4777NW-48(480)	4777-N-EH
52H	EN50549	GREECE	EN50549L	EN50549L
53H	CEI 0-21(Italy)	HK230(Hong Kong)	CEI 0-21(Italy)	CEI 0-21(Italy)
54H	PH-L(Philippin)	RENBLAD(挪威 342)	PH-L(Philippin)	PH-L(Philippin) (Temporarily unused)
55H	C10/11(Belgium)	4777-A (AS4777-2020A)	C10/11(Belgium)	C10/11(Belgium)
56H	DK2	4777-B	DK2	DK2
57H	G98-NI	4777-C	G98-NI	G98-NI
58H	G99-NI	4777-N	G99-NI	G99-NI
		(New Zealand)		
59H	IRAN	NTS631 (Reserve9 Note: This display is only for grid connected users using LCD display, and the rest remains unchanged)	Iran	Iran

5AH	EIFS-SW(Sweden)	UL-240-18 (Note: UL-1574 requirements A is the old UL1547-2014 A2 is the new UL1547-2018)	EIFS-SW(Sweden)	EIFS-SW(Sweden)
5BH	KS3	UL-208-18	EN50549-2（600V）	EN50549-2(800V)
5CH	TOR(Austria)	EN50549IE	CEA600(India)	CEA800(India)
5DH	BRAZIL-H	VIETNAM	Puerto600(Puerto Rico)	Puerto600(Puerto Rico)
5EH	CQC-A-380 (Only for the 80-110K/90-136K series（A class）)	GNSD (Shandong, China)	BRAZIL-H	SG-800V （Singapore）
5FH	CQC-A-480 (only for 80-110K/90-136K series（A class）	PN-50549(Poland)	VIETNAM	G99-B
60H	CQC-A-540 (only for 80-110K/90-136K series（A class）)	ESB-Micro (Note: New Ireland EN50549)	VDE4110	GREECE800(Greece)
61H	G99-B	ESB-Mini ((Note: New Ireland EN50549))		NTS631(800V)
62H	Reserve12	Israel		VIETNAM
63H	Reserve13	R14H-240（Hawaii）		VDE4110
64H	GREECE	R14H-208（Hawaii）		UL800-18 (Note: UL-1574 requirementsA is the old UL1547-2014 A2 is the new UL1547-2018)
65H	HK230V(hong kong)	EN50549FI		UL600-18 (Note: UL-1574 requirements A is the old UL1547-2014 A2 is the new UL1547-2018)
66H	REN342 (RENBLAD Norway	BRA-N220 (BRA-N22L		PN-50549(poland)

	342)	For LV)		
67H	CEI 0-16	EN50549TR (Turkey 50549-1)		TR-2 (Turkey 50549-2)
68H	NTS631 (Reserve14 Note: This display is only for grid connected users using LCD display, and the rest remain unchanged)	MEX-22N (MEX-11N For LV Applicable only for Hybrid)		SI-2
69H	4777-A(AS477-2020)	LTU-1		
6AH	4777-B	GNHN		
6BH	4777-C	ES-L-N （Spain）		
6CH	4777-N(NEW ZEALAND)			
6DH	4777-A-H			
6EH	4777-B-H			
6FH	4777-C-H			
70H	4777-N-H			
71H	UL480-18 (Note: UL-1574 requirements A is the old UL1547-2014 A2 is the new UL1547-2018)			
72H	EN50549IE			
73H	EN50549-2			
74H	VIETNAM			
75H	VDE4110			
76H	GNSD-A380			
77H	GNSD-A-HV			
78H	GNSD-A540			
79H	GNSD-B380			
7AH	GNSD-B-HV			
7BH	GNSD-B540			
7CH	PN-50549(poland)			

7DH	ESB-Micro(Note: New Ireland EN50549)			
7EH	ESB-Mini(Note: New Ireland EN50549)			
7FH	Israel			
80H	Egypt			
81H	KS3-LVRT			
82H	CQC3310 (Note: Energy storage machine is dedicated, reserved for grid connected machines)			
83H	EN50549FI			
84H	BRA-N380 (BRA-N38L For LV)			
85H	EN50549TR			
86H	TR-2			
87H	SI-1			
88H	SI-2			
89H	PH-480			
8AH	VN-480			
8BH	LTU-1			
8CH	LTU-2			
8DH	KSC8565-D （Only Applicable to Korean 60K）			
8EH	KSC8565-T （Only Applicable to Korean 60K）			
8FH	MEX-48N (MEX-22N for LV)			
90H	ESB-MV （Ireland for 80-110K PRO）			
91H	ESB-SC （Ireland for 80-110K PRO）			

92H	UL208-13（Applicable to residential 3ph LV）			
93H	UL-208-18（Applicable to residential 3ph LV）			
94H	R14H-208（Applicable to residential 3ph LV）			
95H	R21P3-208（Applicable to residential 3ph LV）			
96H	ISONE208（Applicable to residential 3ph LV）			
97H	R14H-480（Applicable to residential 3ph LV）			
98H	GNHN-A380			
99H	GNHN-A-HV			
9AH	GNHN-B380			
9BH	GNHN-B-HV			
9CH	ES-L-N（Spain）			
9DH	DK1-L-400			
9EH	DK2-L-400			
9FH	DK1-M-400			
A0H	DK2-M-400			
A1H	TOR-MV			

Appendix 5：

Bit	Displayed Code
BIT0	Model setting is complete.
BIT1	National standard setting is completed.
BIT2	The power curve setting is completed.
BIT3	Module identification flag (For 110kW models: 0---Onsemi module; 1---Infinoen module).
BIT4	Fan detection hardware ID identification flag(For 5-20kW models:

	1—supports fan detection, 0—does not support fan detection
BIT5	Australian energy storage machine FCAS function status flag (0, FCAS function is not running, other working modes can be executed; 1, FCAS function is running, does not respond to other working modes)
BIT6	AFCI self-test end flag: 1---self-test is over, 0---self-test is not over or self-test is not completed
BIT7	AFCI self-test result flag bit: 1---self-test with arc, 0-self-test without arc
BIT8、BIT9	Main DSP chip type: 00---F28062,01---F28374S (Analysis: BIT9 is in the front, BIT8 is in the back, 01---BIT9 is 0, BIT8 is 1), this flag is external and Distinguish the role of remote upgrade.
BIT 10	IGBT screening completion flag bit: 0—screening is not completed or has not been screened, 1—screening is completed.
BIT11~BIT13:	Resv.
BIT14	DSP waveform data flag (0----no waveform; 1----waveform ready). (The default is 0, after the initial setting is successful, it is set to 1, and it can only run after the model and national standard settings are completed)