MODBUS Protocol for Energy Storage Inverter

Revision Record

S/N	Revision Content	Revised by	Revised on	Ver. No.
1	1. Two registers (with inverter fault state, charging state, and unique ID) defined by RGSC are increased. 2. Units of minimum, maximum, and default values are removed (for protocol conversion code). 3. The BMS enable register and BMS protocol register are increased. 4. The charging time and discharging time registers are increased (to achieve timed charging and discharging). 5. The state register is removed (not available and memory occupied). 6. The protocol structure is modified (refer to the controller protocol).	zhengkk	July 14, 2021	V1.4
2	1. The definition of the current state value (8: battery activation, 9: manual shutdown, 10: fault) of the machine is modified. 2. The default values of some loop parameters are set to 4096. When used in the program, 4096 is used as the default value. 3. The battery type is GEL (3) by default. If there is a difference in the program, it may be customized according to the customer ID. 4. The original Baud rate is changed to Parallel Mode. 5. The output priority is 2 (SBU) by default. If there is a difference in the program, it may be customized according to the customer ID.	zhengkk	September 16, 2021	V1.5
3	The Modbus protocol format specification and the register address table are merged into a single file. Note: 1. If the version No. on the page is incorrect, you only need to modify the table name. The title and version No. at the header are automatically updated without manual modification. 2. When releasing the version with neutral packing, you need to replace the company name at the page of the two files with "protocol", and do not delete the original characters; otherwise, the format will change when the company name is added next time.	zhengkk	September 24, 2021	V1.5
4	1. The protocol is revised, and the register is increased to supports single split-phase machine, two-way PV input and three-way AC power input, and three-way inverter output data transmission. 2. E218 register address is added to set the derated power of the machine.	wangqt	June 14, 2022	V1.6
5	1. The time of segmental charging and discharging and their enable settings are increased. 2. The settings of grid-connected generation and leakage detection are increased.	wangzw	June 1, 2022	V1.7
6	1. The single split-phase machine borrows the adjustment parameter addresses of the PLL, DF43 and DF44, to adjust the iteration control parameters; and the data type is changed to the signed number, and the default value is changed. 2. The maximum value of boost charge time E102 is changed to 900, consistent with the range set on the display. 3. The E21F address is added to set the grid-connected PF value. 4. The data annotation error in the E004 battery type and address (12-L13 and 13-L14) is fixed. 5. The error cumulative charging unit and mismatch of proportion and actual quantity of AC power are fixed, and the cumulative charging unit is changed to the same as the charging unit on the day, which is AH. 6. The 0×214 address is changed back to the AC power phase-A current (generation-3 parallel machine also uses this address as the parallel current), and 0×238–0×239 are increased as the power phase-B and phase-C	wangqt	July 28, 2022	V1.7
7	1. EOOF is used for discharge cutoff SOC setting and is valid in BMS communication. 2. E01C is used to set the current for the lithium battery to stop charging. 3. E01D is used to set the SOC for the lithium battery to stop charging. 4. E01E is used to set the low SOC capacity alarm and is valid for BMS communication. 5. E01F is used to change the SOC capacity setting of the AC power in SBU mode and is valid for BMS communication. 6. E020 is used to change the SOC capacity setting of the inverter in SBU mode and is valid for BMS communication.	zhengkk	August 2, 2022	V1.7
8	1. E207 is changed to enable the N wire grounding, which is available only for some models. 2. The number of historical fault records is increased to 32.	zhengkk	November 11, 2022	V1.80
9	1. The register for grid-connected voltage protection is increased. 2. Grid-connected active, reactive, and PF registers are increased. 3. Grid-connected power register is increased. 4. The insulation impedance detection enable and threshold setting registers are increased. 5. The grid-connected current F02C on the day is increased.	zhengkk	February 13, 2023	V1.90
10	1. The PV output priority is increased. 2. Grid-connected parameters are independently placed in group 08.	zhengkk	March 7, 2023	V1.91

11	1. The DC load switch is increased.	zhengkk	March 8, 2023	V1.92
12	1. Diesel engine operating mode and diesel engine charging current setting parameters are increased. 2. The function settings of battery participating in grid connection are increased. 3. The grid-connected active power is changed to the actual power. 4. Diesel engine voltage calibration coefficient is increased.	zhengkk	August 4, 2023	V1.93
13	1. The battery temperature register 0×0103 is increased. 2. 0×E037 register is changed to an operating mode register. 3. 0×E03A is modified to enable battery temperature compensation. 4. The SOC value corresponding to the charge and discharge period (0×E03B−0×E040) is added. 5. 0×E204 is changed to bms communication fault stop register. 6. Diesel engine rated power setting 0×E221 is increased. 7. The CT ratio register 0×E42B is increased. 8. Anti-reverse and anti-error power setting register 0×E42C is increased.	zhengkk	October 8, 2023	V1.94
14	1. A/B/C phase home load register is increased. 2. The battery voltage determination register for the timed charging and discharging period is increased. 3. The maximum power register for timed discharging is increased. 4. The normal network latency register is increased. 5. The register for normal/reconnected power rise rate is increased. 6. The register for network voltage frequency range is increased.	zhengkk	January 4, 2024	V1.95
15	1. The maximum power register for timed charging is increased. 2. The register for timed charging source selection is increased.	zhengkk	January 11, 2024	V1.96

Format Specification of the MODBUS Protocol for Energy Storage Inverter

1. Document Description

This document defines the content of RS485 communication protocol for the Company's energy storage inverters, including RS485 communication frame format, Modbus register address definition, quantity calibration, etc. The protocol follows the Modubus-RTU protocol and supports 03, 06, and 10 function codes. The maximum number of read-write registers at a time is 32.

2. Serial Communication Parameters

"9,600, n, 8, 1" indicates a baud rate of 9,600, with 8 data bits, and no parity check.
There are one host and multiple slaves in RS485 connection mode. The default address of the inverter is 1, which can be set. It supports 255 universal address. When a host and an inverter are connected one to one, 255 can be used to communicate with the inverter. The address that the inverter responds to is the actual address.

3. Data Format

Slave IP Address	Function Code		Data Length or Content	CRC Check
1 byte	1 byte		N bytes	2 bytes
Slave IP address range: 01H to FEH Host IP broadcast address: 0 Universal address: FFH	03H	Reading multiple registers	Command related	Check range: all data from the slave IP address to the CRC check; Transmission order: The CRC calculates the result as 16-bit data. In actual transmission, the low byte is passed first, and the high byte is passed later.
	06H	Writing a single register		
	10H	Writing multiple registers		
	Miscellaneous	Invalid		

3.1 Reading the data frame format

Frame format sent by the host:

Slave IP Address	Function Code	Data Field				CRC Check	
1 byte	1 byte	4 bytes				2 bytes	
Actual address	03H	High byte of register address	Low byte of register address	N high bytes of registers, usually 00H	N low bytes of registers (N<=32)	CRC_L	CRC_H
1	3	02H	00H	00H	20H	45H	AAH

Data frame format returned from the slave IP:

Slave IP Address	Function Code	Data Field						CRC Check	
1 byte	1 byte	(2*N+1) bytes						2 bytes	
		1 byte	1 byte	1 byte	1 byte	1 byte	…		
Actual address	03H	Byte length of the returned data	Returned data					CRC_L	CRC_H
			Register 1 value		Register 2 value		…		
			High	Low	High	Low	…		

Error frame format returned from the slave IP:

Slave IP Address	Function Code	Error Code	CRC Check	
1 byte	1 byte	1 byte	2 bytes	
Actual address	83H	See the error code table.	CRC_L	CRC_H

3.2 Writing multiple data frame formats

Frame format sent by the host:

Slave IP Address	Function Code	Data Field						CRC Check	
1 byte	1 byte	5+2*N bytes						2 bytes	
		1 byte	1 byte	1 byte	1 byte	1 byte	2*N bytes		
Actual address	10H	Register address		Register count		Data Length	For the value of N registers, the high byte precedes the low byte.	CRC_L	CRC_H
		High byte	Low byte	High byte	Low byte	2*N			

Response frame format returned from the slave IP:

Slave IP Address	Function Code	Data length				CRC Check	
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	2 bytes	
Actual address	10H	Register address		Register count			
		High byte	Low byte	High	Low	CRC_L	CRC_H

Error frame format returned from the slave IP:

Slave IP Address	Function Code	Error Code	CRC Check	
1 byte	1 byte	1 byte	2 bytes	
Actual address	90H	See the error code table.	CRC_L	CRC_H

3.3 Writing a single data frame format

Frame format sent by the host:

Slave IP Address	Function Code	Data Field				CRC Check	
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	2 bytes	
Actual address	06H	Register address		Register value		CRC_L	CRC_H
		High byte	Low byte	High byte	Low byte		

Response frame format returned from the slave IP:

Slave IP Address	Function Code	Data Field				CRC Check	
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	2 bytes	
Actual address	06H	Register address		Register value		CRC_L	CRC_H
		High byte	Low byte	High	Low		

Error frame format returned from the slave IP:

Slave IP Address	Function Code	Error Code	CRC Check	
1 byte	1 byte	1 byte	2 bytes	
Actual address	86H	See the error code table.	CRC_L	CRC_H

3.4 Error code table

Code	Name	Meaning
01H	Illegal command	The slave may not support this command.
02H	Illegal data address	The register address requested by the host is out of the legal register address range defined by the slave.
03H	Illegal data value	The register value requested by the host is out of the register value range defined by the slave.
04H	Operation failure	The parameter write operation is invalid for the parameter setting, or the slave does not support the
05H	Password error	The password is error for the address validation.
06H	Data frame error	The length of the data frame sent by the host is incorrect, and the CRC check bit in RTU format is different from that calculated by the slave.
07H	Parameter read-only	Parameters changed during the host write operation are read-only.
08H	Parameters cannot be modified during operation	The parameters that are modified during the host write operation are the those that cannot be changed during running.
09H	Password protection	When the host is reading or writing, the system is reported to be locked if the password is set and locked.
0AH	Length error	The number of read/write registers exceeds the upper limit 32.

0BH	Permission denied	There is no permission to perform this operation

4. CRC Check Computation

The CRC domain verifies the content of the entire frame, that is, all data from the slave IP address to the CRC check. The slave retests the CRC check data and compares it with the check value in the received data stream to determine the validity of the received data. The CRC domain consists of two-byte and 16-bit binary value data. In actual transmission, the low byte is passed first, and the high byte is passed later.
There are three methods to calculate the CRC check value. If the results of the three methods are the same, you can choose them freely according to the actual situation.

Method 1: cycle computation by bit

```
unsigned int crc_cal_value(unsigned char*data_value,unsigned char data_length)
{
   int i;
   unsigned int crc_value=0xffff;
   while(data_length--)
   {
      crc_value^=*data_value++;
      for(i=0;i<8;i++)
      {
        if(crc_value&0x0001)
           crc_value=(crc_value>>1)^0xa001;
        else
           crc_value=crc_value>>1;
      }
   }
   return(crc_value);
}
```

Method 2: byte lookup table

```
/*CRC value of the high byte*/
static unsigned int auchCRCHi[] =
{
 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
  0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
};
```

```
/*CRC value of the low byte*/
static unsigned int auchCRCLo[] =
{
0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06, 0x07, 0xC7, 0x05, 0xC5, 0xC4, 0x04,
0xCC, 0x0C, 0x0D, 0xCD, 0x0F, 0xCF, 0xCE, 0x0E, 0x0A, 0xCA, 0xCB, 0x0B, 0xC9, 0x09, 0x08, 0xC8,
0xD8, 0x18, 0x19, 0xD9, 0x1B, 0xDB, 0xDA, 0x1A, 0x1E, 0xDE, 0xDF, 0x1F, 0xDD, 0x1D, 0x1C, 0xDC,
0x14, 0xD4, 0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3, 0x11, 0xD1, 0xD0, 0x10,
0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3, 0xF2, 0x32, 0x36, 0xF6, 0xF7, 0x37, 0xF5, 0x35, 0x34, 0xF4,
0x3C, 0xFC, 0xFD, 0x3D, 0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A, 0x3B, 0xFB, 0x39, 0xF9, 0xF8, 0x38,
0x28, 0xE8, 0xE9, 0x29, 0xEB, 0x2B, 0x2A, 0xEA, 0xEE, 0x2E, 0x2F, 0xEF, 0x2D, 0xED, 0xEC, 0x2C,
0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26, 0x22, 0xE2, 0xE3, 0x23, 0xE1, 0x21, 0x20, 0xE0,
0xA0, 0x60, 0x61, 0xA1, 0x63, 0xA3, 0xA2, 0x62, 0x66, 0xA6, 0xA7, 0x67, 0xA5, 0x65, 0x64, 0xA4,
0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F, 0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB, 0x69, 0xA9, 0xA8, 0x68,
0x78, 0xB8, 0xB9, 0x79, 0xBB, 0x7B, 0x7A, 0xBA, 0xBE, 0x7E, 0x7F, 0xBF, 0x7D, 0xBD, 0xBC, 0x7C,
0xB4, 0x74, 0x75, 0xB5, 0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73, 0xB1, 0x71, 0x70, 0xB0,
0x50, 0x90, 0x91, 0x51, 0x93, 0x53, 0x52, 0x92, 0x96, 0x56, 0x57, 0x97, 0x55, 0x95, 0x94, 0x54,
0x9C, 0x5C, 0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E, 0x5A, 0x9A, 0x9B, 0x5B, 0x99, 0x59, 0x58, 0x98,
0x88, 0x48, 0x49, 0x89, 0x4B, 0x8B, 0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F, 0x8D, 0x4D, 0x4C, 0x8C,
0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42, 0x43, 0x83, 0x41, 0x81, 0x80, 0x40,
};

/*function returns CRC as an unsigned short*/
 /*parameter puchMsg: the message used to calculate CRC*/
/*parameter usDataLen: the number of bytes in the message*/
unsigned int CRC16(unsigned int * puchMsg,unsigned int usDataLen)
{
   unsigned int uchCRCHi = 0xFF ; /*high byte initialization of CRC*/
   unsigned int uchCRCLo = 0xFF ; /*low byte initialization of CRC*/
   unsigned int uIndex ; /*CRC lookup table index*/
   while (usDataLen--)    /*complete the entire message buffer*/
   {
      uIndex = uchCRCLo ^ *puchMsg++ ; /*CalcCRC*/
      uchCRCLo = uchCRCHi ^ auchCRCHi[uIndex] ;
      uchCRCHi = auchCRCLo[uIndex] ;
   }
   return (uchCRCHi << 8 | uchCRCLo) ;
}
```

Method 3: word lookup table

```
Static unsigned int tblCRC[] =
{
 0x0000,0xC1C0,0x81C1,0x4001,0x01C3,0xC003,0x8002,0x41C2,
 0x01C6,0xC006,0x8007,0x41C7,0x0005,0xC1C5,0x81C4,0x4004,
```

```
0x01CC,0xC00C,0x800D,0x41CD,0x000F,0xC1CF,0x81CE,0x400E,
0x000A,0xC1CA,0x81CB,0x400B,0x01C9,0xC009,0x8008,0x41C8,
0x01D8,0xC018,0x8019,0x41D9,0x001B,0xC1DB,0x81DA,0x401A,
0x001E,0xC1DE,0x81DF,0x401F,0x01DD,0xC01D,0x801C,0x41DC,
0x0014,0xC1D4,0x81D5,0x4015,0x01D7,0xC017,0x8016,0x41D6,
0x01D2,0xC012,0x8013,0x41D3,0x0011,0xC1D1,0x81D0,0x4010,
0x01F0,0xC030,0x8031,0x41F1,0x0033,0xC1F3,0x81F2,0x4032,
0x0036,0xC1F6,0x81F7,0x4037,0x01F5,0xC035,0x8034,0x41F4,
0x003C,0xC1FC,0x81FD,0x403D,0x01FF,0xC03F,0x803E,0x41FE,
0x01FA,0xC03A,0x803B,0x41FB,0x0039,0xC1F9,0x81F8,0x4038,
0x0028,0xC1E8,0x81E9,0x4029,0x01EB,0xC02B,0x802A,0x41EA,
0x01EE,0xC02E,0x802F,0x41EF,0x002D,0xC1ED,0x81EC,0x402C,
0x01E4,0xC024,0x8025,0x41E5,0x0027,0xC1E7,0x81E6,0x4026,
0x0022,0xC1E2,0x81E3,0x4023,0x01E1,0xC021,0x8020,0x41E0,
0x01A0,0xC060,0x8061,0x41A1,0x0063,0xC1A3,0x81A2,0x4062,
0x0066,0xC1A6,0x81A7,0x4067,0x01A5,0xC065,0x8064,0x41A4,
0x006C,0xC1AC,0x81AD,0x406D,0x01AF,0xC06F,0x806E,0x41AE,
0x01AA,0xC06A,0x806B,0x41AB,0x0069,0xC1A9,0x81A8,0x4068,
0x0078,0xC1B8,0x81B9,0x4079,0x01BB,0xC07B,0x807A,0x41BA,
0x01BE,0xC07E,0x807F,0x41BF,0x007D,0xC1BD,0x81BC,0x407C,
0x01B4,0xC074,0x8075,0x41B5,0x0077,0xC1B7,0x81B6,0x4076,
0x0072,0xC1B2,0x81B3,0x4073,0x01B1,0xC071,0x8070,0x41B0,
0x0050,0xC190,0x8191,0x4051,0x0193,0xC053,0x8052,0x4192,
0x0196,0xC056,0x8057,0x4197,0x0055,0xC195,0x8194,0x4054,
0x019C,0xC05C,0x805D,0x419D,0x005F,0xC19F,0x819E,0x405E,
0x005A,0xC19A,0x819B,0x405B,0x0199,0xC059,0x8058,0x4198,
0x0188,0xC048,0x8049,0x4189,0x004B,0xC18B,0x818A,0x404A,
0x004E,0xC18E,0x818F,0x404F,0x018D,0xC04D,0x804C,0x418C,
0x0044,0xC184,0x8185,0x4045,0x0187,0xC047,0x8046,0x4186,
0x0182,0xC042,0x8043,0x4183,0x0041,0xC181,0x8180,0x4040,
};
/*function returns CRC as an unsigned short*/
/*parameter puchMsg: the message used to calculate CRC*/
/*parameter usDataLen: the number of bytes in the message*/
unsigned int CRC16(unsigned int * puchMsg,unsigned int usDataLen)
{
   unsigned int uchCRCHi = 0xFF ; /*high byte initialization of CRC*/
   unsigned int uchCRCLo = 0xFF ; /*low byte initialization of CRC*/
   unsigned int uIndex ; /*CRC lookup table index*/
   unsigned int hi,low;
   while (usDataLen--)    /*complete the entire message buffer*/
   {
      uIndex = uchCRCLo ^ *puchMsg++ ; /*CalcCRC*/
      hi = tblCRC[uIndex] >> 8;
      low = tblCRC[uIndex] & 0xff;
      uchCRCLo = uchCRCHi ^ hi;
      uchCRCHi = low;
   }
   return (uchCRCHi << 8 | uchCRCLo) ;
}
```

4. Unit and Dimension Description

Physical Quantity	Unit	Magnification	Description
Voltage (including AC and DC)	V	10	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 V to 6,553.5 V
Current (including AC and DC)	A	10	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 A to 6,553.5 A 16-bit signed integer ranging from -32,767 to 32,767, corresponding to -3,276.7 A to 3,276.7 A

Frequency	Hz	100	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 Hz to 655.35 Hz
Power (including AC and DC)	W	1	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 W to 65,535 W
Power factor	/	1000	16-bit signed integer ranging from -32,767 to 32,767 (e.g., 998 indicates a power factor of 0.998; and -900 (0×FC7C) indicates a power factor of -0.900.)
AC side capacity	kWh	10	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 kWh to 6,553.5 kWh; 32-bit unsigned integer ranging from 0 to 4,294,967,295, corresponding to 0 kWh to 429,496,729.5 kWh; (e.g., 1 indicates 0.1 kWh and 10 indicates 1 KWH)
Battery side capacity	AH	1	16-bit unsigned integer ranging from 0 to 65,535, corresponding to 0 AH to 65,535 AH; 32-bit unsigned integer ranging from 0 to 4,294,967,295, corresponding to 0 AH to 4,294,967,295 AH
Temperature	°C	10	16-bit signed integer ranging from -32,767 to 32,767, corresponding to -3,276.7°C to 3,276.7°C
Battery set voltage	V	10	All battery set voltages in this protocol are in the unified dimension of 12 V batteries, that is, all battery set voltages are converted to the corresponding voltage of 12 V. If the rated voltage of the battery is 48 V and the actual set voltage is 57.6 V, the set value is 57.6 V/4=14.4 V, and the value converted for the register is 14.4*10=144.

Note: When 32-bit data occupies two registers, the data is stored in the register in small-endian mode, that is, the low bytes of data are in the low address of the register, and the high bytes are in the high address of the register. If the 32-bit data 0×12345678 is stored at 0×0001 and 0×0002, the order in the register table is 0×0001=0×5678 and 0×0002=0×1234.

MODBUS Protocol for Energy Storage Inverter - Register Address Table

Note:
1. The register displayed in gray font is invalid for the energy storage inverter.
2. Magnification refers to the multiple of the actual value than the register value. If the magnification is 0.1, the actual value is the register value multiplied by 0.1.

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
P00 Product Information Area												
A	1	小版本号	MinorVersion	R	1	-	%d	Unsigned				Reserved
B	1	产品类型	MachType	R	1	-	%d	Unsigned				Product type 00 (domestic controller) 01 (controller for street light) 03 (grid-connected inverter) 04 (all-in-one solar charger inverter) 05 (power frequency off-grid)
C	8	保留	ProductInfoReversed01	R	1	-	%s	Unsigned				Reserved
14	2	软件版本	SoftWareVersion	R	1	-	%d	Unsigned				0×0014: APP version (e.g.,100 for V1.00) 0×0015: BOOTLOADER version (e.g.,100 for V1.00), reserved
16	2	硬件版本	HardWareVersion	R	1	-	%d	Unsigned				0×0016: control panel version (e.g.,100 for V1.00) 0×0017: power amplifier board version (e.g.,100 for V1.00), reserved
18	2	保留	ProductInfoReversed02	R	1	-	%x	Unsigned				Reserved
1A	1	控制器、设备地址	Rs485Addr	R	1	-	%d	Unsigned				Rs485 address, which is read-only
1B	1	机型编码	MachModelNum2	R	1	-	%d	Unsigned				
1C	2	RS485协议版本	RS485Version	R	1	-	%x	Unsigned				0×001C: protocol version (e.g.,100 for V1.00) 0×001D: reserved
1E	2	生产日期	ManufactureDate	R	1	-	%x	Unsigned				0×001E: high byte: year, low byte: month 0×001F: high byte: day, low byte: hour
20	1	产地编码	ProductAreaCode	R	1	-	%x	Unsigned				0: Shenzhen 1: Dongguan
21	20	软件编译时间	CpuBuidTime	R	1	-	%s	Unsigned				String format, with the low bytes of each register valid and the high bytes invalid
35	20	产品序列号字符串	ProductSNStr	R	1	-	%s	Unsigned				String format, with the low bytes of each register valid and the high bytes invalid
49	1	保留	ProductInfoReversed03	R	1	-	%x	Unsigned				
P01 DC Data Area												
100	1	蓄电池电量SOC	BatSoc	R	1	-	%d	Unsigned				Percentage of remaining battery power
101	1	蓄电池电压	BatVolt	R	0.1	V	%.1fV	Unsigned				Battery voltage (e.g., 485 for 48.5 V)
102	1	电池电流	ChargeCurr	R	0.1	A	%.1fA	Signed				Battery current (e.g., 500 for 50.0A) Current greater than 0 indicates discharging; and current less than 0 indicates charging.
103	1	电池温度	DeviceBatTemper	R	0.1	°C	%.1f°C	Signed				Battery temperature
104	1	保留	DcDataRevserved00	R	0.1	V	%.1fV	Unsigned				Reserved
105	1	保留	DcDataRevserved01	R	0.01	A	%.2fA	Unsigned				Reserved
106	1	保留	DcDataRevserved02	R	1	W	%d	Unsigned				Reserved
107	1	太阳能板1电压	Pv1Volt	R	0.1	V	%.1fV	Unsigned				Voltage of PV panel 1
108	1	太阳能板1电流	Pv1Curr	R	0.1	A	%.1fA	Unsigned				Current of PV panel 1
109	1	太阳能板1功率	Pv1ChargePower	R	1	W	%d	Unsigned				Power of PV panel 1
10A	1	太阳能板总功率	PvTotalPower	R	1	-	%d	Unsigned				Total PV power
10B	1	电池充电状态	ChargeState	R	1	-	%d	Unsigned				0×0000: Charge off 0×0001: Quick charge 0×0002: Const voltage charge 0×0004: Float charge 0×0005: Reserved 0×0006: Li battery activate 0×0008: Full
10C	2	保留	DcDataRevserved04	R	1	-	%d	Unsigned				Reserved
10E	1	充电总功率	ChargePower	R	1	W	%dW	Unsigned				PV charging power + AC charging power
10F	1	太阳能板2电压	Pv2Volt	R	0.1	V	%.1fV	Unsigned				Voltage of PV panel 2
110	1	太阳能板2电流	Pv2Curr	R	0.1	A	%.1fA	Unsigned				Current of PV panel 2
111	1	太阳能板2功率	Pv2ChargePower	R	1	W	%d	Unsigned				Power of PV panel 2
P02 Inverter Data Area												
200	4	当前故障位	CurrErrReg	R	1	-	%x	Unsigned				Each fault bit represents a fault, with a total of 64 bits. This register is used by the internal debugging.
204	4	当前故障码	CurrFcode	R	1	-	%d	Unsigned				There are four addresses. Each address stores a fault code corresponding to the current fault. Four fault codes can be displayed at the same time. 0 indicates no fault. If there are two faults, battery under-voltage and inverter overload, the following information is displayed: 0×204: 01 0×205: 14 0×206: 00 0×207: 00
208	4	保留	ReservedInvData0	R	2	-	%x	Unsigned				Reserved
20C	3	当前时间	SysDateTime	RW	1	-	%zdt	Unsigned				0×020C: high byte: year, low byte: month 0×020D: high byte: day, low byte: hour 0×020E: high byte: minute, low byte: second The register can be set to adjust the RTC clock.
20F	1	并网倒计时	GridOnRemainTime	R	1	s	%d	Unsigned				

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
210	1	机器当前状态	MachineState	R	1	-	%d	Unsigned				0: Power-on delay 1: Standby state 2: Initialization 3: Soft start 4: AC power operation 5: Inverter operation 6: Inverter to AC power 7: AC power to inverter 8: Battery activation 9: Manual shutdown 10: Fault Split-phase all-in-one machines and European standard single-phase 8~12K machines are as follows: 0: Initialization 1: Standby state 2: AC power operation 3: Inverter operation
211	1	密码保护状态标志	PriorityFlag	R	1	-	%d	Unsigned				0: Users have not entered password 1: The password of users is entered 4: The password of the manufacturer is entered
212	1	总母线电压	BusVoltSum	R	0.1	V	%.1fV	Unsigned				
213	1	电网A相电压	GridVoltA	R	0.1	V	%.1fV	Unsigned				AC power phase-A voltage
214	1	电网A相电流	GridCurrA	R	0.1	A	%.1fA	Unsigned				AC power phase-A current
215	1	电网频率	GridFreq	R	0.01	Hz	%.2fHz	Unsigned				AC power frequency
216	1	逆变A相电压	InvVoltA	R	0.1	V	%.1fV	Unsigned				Inverter phase-A output voltage
217	1	逆变A相电流	InvCurrA	R	0.1	A	%.1fA	Unsigned				Inverter phase-A inductive current
218	1	逆变频率	InvFreq	R	0.01	Hz	%.2fHz	Unsigned				
219	1	负载A相电流	LoadCurrA	R	0.1	A	%.1fA	Unsigned				Load side phase-A current
21A	1	负载PF	LoadPF	R	0.01	-	%.2f	Signed				Unused
21B	1	负载A相有功功率	LoadActivePowerA	R	1	W	%dW	Unsigned				Phase-A load active power
21C	1	负载A相视在功率	LoadApparentPowerA	R	1	VA	%dVA	Unsigned				Phase-A load apparent power
21D	1	逆变直流分量	InvDcVolt	R	1	mV	%dmV	Signed				Unused
21E	1	市电充电电流	LineChgCurr	R	0.1	A	%.1fA	Unsigned				Charging current from the AC power on the battery side
21F	1	A相负载率	LoadRatioA	R	1	%	%d%	Unsigned				Phase-A load ratio
220	1	散热片A温度	Tempera	R	0.1	°C	%.1f°C	Signed				Cooling-fin DC-DC temperature
221	1	散热片B温度	Temperb	R	0.1	°C	%.1f°C	Signed				Cooling-fin DC-AC temperature
222	1	散热片C温度	Temperc	R	0.1	°C	%.1f°C	Signed				Transformer temperature
223	1	环境温度	Temperd	R	0.1	°C	%.1f°C	Signed				Ambient temperature
224	1	PV 充电电流	Ibuck1	R	0.1	A	%.1fA	Unsigned				Charging current from the PV power on the battery side
225	1	并机负载平均电流	ParallCurrRms	R	0.1	A	%.1fA	Unsigned				High-pressure parallel use
226	1	逆变器故障状态(RV)	Invfaultstate	R	1	-	%d	Unsigned				Available for customized models only
227	1	充电状态(RV)	ChargeStatus	R	1	-	%d	Unsigned				Available for customized models only
228	1	正母线电压	PBusVolt	R	0.1	V	%.1fV	Unsigned				Suitable for the split-phase all-in-one machine and European standard machine of 10 kW
229	1	负母线电压	NBusVolt	R	0.1	V	%.1fV	Unsigned				Suitable for the split-phase all-in-one machine and European standard machine of 10 kW
22A	1	电网B相电压	GridVoltB	R	0.1	V	%.1fV	Unsigned				AC power phase-B voltage
22B	1	电网C相电压	GridVoltC	R	0.1	V	%.1fV	Unsigned				AC power phase-C voltage
22C	1	逆变B相电压	InvVoltB	R	0.1	V	%.1fV	Unsigned				Inverter phase-B output voltage
22D	1	逆变C相电压	InvVoltC	R	0.1	V	%.1fV	Unsigned				Inverter phase-C output voltage
22E	1	逆变B相电流	InvCurrB	R	0.1	A	%.1fA	Unsigned				Inverter phase-B inductive current
22F	1	逆变C相电流	InvCurrC	R	0.1	A	%.1fA	Unsigned				Inverter phase-C inductive current
230	1	负载B相电流	LoadCurrB	R	0.1	A	%.1fA	Unsigned				Load side phase-B current
231	1	负载C相电流	LoadCurrC	R	0.1	A	%.1fA	Unsigned				Load side phase-C current
232	1	负载B相有功功率	LoadActivePowerB	R	1	W	%dW	Unsigned				
233	1	负载C相有功功率	LoadActivePowerC	R	1	W	%dW	Unsigned				
234	1	负载B相视在功率	LoadReactivePowerB	R	1	VA	%dVA	Unsigned				
235	1	负载C相视在功率	LoadReactivePowerC	R	1	VA	%dVA	Unsigned				
236	1	B相负载率	LoadRatioB	R	1	%	%d%	Unsigned				Phase-B load ratio
237	1	C相负载率	LoadRatioC	R	1	%	%d%	Unsigned				Phase-C load ratio
238	1	电网B相电流	GridCurrB	R	0.1	A	%.1fA	Unsigned				AC power phase-B current
239	1	电网C相电流	GridCurrC	R	0.1	A	%.1fA	Unsigned				AC power phase-C current
23A	1	A相电网有功功率	GridActivePowerA	R	1	A	%dW	Signed				**Greater than 0 for power of grid connection; Less than 0 for power of grid consumption**
23B	1	B相电网有功功率	GridActivePowerB	R	1	A	%dW	Signed				**Greater than 0 for power of grid connection; Less than 0 for power of grid consumption**
23C	1	C相电网有功功率	GridActivePowerC	R	1	A	%dW	Signed				**Greater than 0 for power of grid connection; Less than 0 for power of grid consumption**
23D	1	A相电网视在功率	GridApparentPowerA	R	1	VA	%dVA	Unsigned				
23E	1	B相电网视在功率	GridApparentPowerB	R	1	VA	%dVA	Unsigned				
23F	1	C相电网视在功率	GridApparentPowerC	R	1	VA	%dVA	Unsigned				
240	1	A相HomeLoad功率	HomeLoadActivePowerA	R	1	W	%dW	Unsigned				
241	1	B相HomeLoad功率	HomeLoadActivePowerB	R	1	W	%dW	Unsigned				
242	1	C相HomeLoad功率	HomeLoadActivePowerC	R	1	W	%dW	Unsigned				
243	1	保留	ReservedInvData2	R	1	W	%dW	Unsigned				
P03 Device Control Area												
DF00	1	开关机控制	CmdPowerOnOff	W	1	-	%x	Unsigned				0: Off 1: on Others: no action
DF01	1	复位控制	CmdMachineReset	W	1	-	%x	Unsigned				1. Reset Others: no action
DF02	1	恢复出厂值	CmdRestoreFactorySetting	W	1	-	%x	Unsigned				0×AA: restoring 0×BB: clear the statistics (power statistics) 0×CC: clearing the fault history Others: no action Restore factory set values to clear all cumulative data and restore parameters to the default state, and restart to take effect.
DF03	1	保留	CmdReserved00	W	1	-	%x	Unsigned				Reserved
DF04	1	保留	CmdReserved01	W	1	-	%x	Unsigned				Reserved
DF05	1	保留	CmdReserved02	W	1	-	%x	Unsigned				Reserved
DF06	2	固件升级命令	UpgradeCmd	W	1	-	%x	Unsigned				Firmware upgrade command
DF08	1	保留	CmdReserved03	W	1	-	%x	Unsigned				Reserved
DF09	3	保留	CmdReserved04	W	1	-	%x	Unsigned				Reserved
DF0C	1	保留	CmdReserved05	W	1	-	%x	Unsigned				Reserved
DF0D	1	立即均衡充电指令	BattEqualChgImmediate	W	1		%d	Unsigned				0: disabled 1: enabled

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
P05 Setting Area for Battery-related Parameters												
E000	1	保留	BatParmReserved0	RW	1	-	%d	Unsigned	0	1	0	
E001	1	光伏最大充电电流设置	PvChgCurrSet	RW	0.1	A	%dA	Unsigned	0	150	80	PV charging current limit. Generation-1 machine: 50 A, generation-2 machine: 60 A, and generation-3 machine: 80 A–100 A
E002	1	蓄电池标称容量	BatRateCap	RW	1	AH	%dAH	Unsigned	0	400	100	
E003	1	电池额定电压（只读）	BatRateVolt	RW	1	V	%dV	Unsigned	12	255	48	12: 12 V 24: 24 V 36: 36 V 48: 48 V
E004	1	蓄电池类型	BatTypeSet	RW	1	-	%d	Unsigned	0	14	6	0: User define 1: SLD 2: FLD 3: GEL 4: Lithium iron phosphate x 14 5: Lithium iron phosphate x 15 6: Lithium iron phosphate x 16 7: Lithium iron phosphate x 7 8: Lithium iron phosphate x 8 9: Lithium iron phosphate x 9 10: Ternary lithium x 7 11: Ternary lithium x 8 12: Ternary lithium x 13 13: Ternary lithium x 14
E005	1	超压电压	BatOverVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	15.5	Battery charging over-voltage protection point (converted to the voltage corresponding to 12 V, followed by the same battery voltage)
E006	1	充电限制电压	BatChgLimitVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	14.4	Over-charging protection voltage
E007	1	均衡充电电压	BatConstChgVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	14.4	Equalizing charging voltage
E008	1	提升充电电压/过充电压	BatImprovChgVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	14.4	Lead-acid battery is prohibited from boost charge, and lithium battery is prohibited from over-charging voltage.
E009	1	浮充充电电压	BatFloatChgVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	14	For lead-acid battery
E00A	1	提升充电返回电压	BatImprovChgBackVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	13.2	After the battery enters floating charging, the battery voltage is lower than the judged point again, and the battery enters boost charge again.
E00B	1	过放返回电压	BatOverDischgBackVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	12.6	After the battery is protected from over-discharge and under-voltage, it is returned to the discharged state.
E00C	1	欠压警告电压	BatUnderVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	11	Alarming of low battery voltage without load cut-off
E00D	1	过放电压	BatOverDischgVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	12.2	Alarming of low battery voltage with load cut-off
E00E	1	放电限制电压	BatDischgLimitVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	11.2	During the battery over-discharge delay, the battery voltage is lower than the judged point, and then the load is off at once.
E00F	1	放电截止SOC	BatStopSOC	RW	1	-	%d%	Unsigned	0	100	5	Discharge cut-off SOC
E010	1	过放延时时间	BatOverDischgDelayTime	RW	1	S	%dS	Unsigned	0	120	60	
E011	1	均衡充电时间	BatConstChgTime	RW	1	Min	%dmin	Unsigned	0	900	120	
E012	1	提升充电时间	BatImprovChgTime	RW	1	Min	%dmin	Unsigned	10	900	120	
E013	1	均衡充电间隔	BatConstChgGapTime	RW	1	day	%dDay	Unsigned	0	255	30	
E014	1	温度补偿系数	CoeffTemperCompen	RW	1	mV/°C/2	%d	Signed	0	10	5	Invalid
E015	1	充电上限温度	ChgMaxTemper	RW	1	°C	%d	Signed	-40	100	60	Invalid
E016	1	充电下限温度	ChgMinTemper	RW	1	°C	%d	Signed	-40	100	-30	Invalid
E017	1	放电上限温度	DisChgMaxTemper	RW	1	°C	%d	Signed	-40	100	60	Invalid
E018	1	放电下限温度	DisChgMinTemper	RW	1	°C	%d	Signed	-40	100	-30	Invalid
E019	1	加热启动温度	HeatBatStartTemper	RW	1	°C	%d	Signed	-40	100	0	Invalid
E01A	1	加热停止温度	HeatBatStopTemper	RW	1	°C	%d	Signed	-40	100	5	Invalid
E01B	1	市电切换电压	BatSwitchDcVolt	RW	0.1	V	%.1fV	Unsigned	9	15.5	11.5	The load is switched to the AC power when the battery voltage falls below this judged point.
E01C	1	停止充电电流	StopChgCurrSet	RW	0.1	A	%.1fA	Unsigned	0	10	2	Only the lithium battery is effective, and when the current of constant-voltage charging state is lower than this value, the charging is stopped.
E01D	1	停止充电容量	StopChgSocSet	RW	1	%	%d	Unsigned	0	100	100	When the SOC capacity is greater than or equal to this value, charging is stopped, and it is valid for BMS communication.
E01E	1	SOC低告警	BatSocLowAlarm	RW	1	%	%d	Unsigned	0	100	15	With the alarming of low SOC capacity, it is valid for BMS communication.
E01F	1	切换市电SOC容量点	BatSocSwToLine	RW	1	%	%d	Unsigned	0	100	10	In SBU mode, the AC power is applied when the SOC capacity is less than or equal to the value.
E020	1	切换电池SOC容量点	BatSocSwToBatt	RW	1	%	%d	Unsigned	1	100	100	In SBU mode, the inverter is applied when the SOC capacity is greater than or equal to the value.
E021	1	保留	BatParmReserved1	RW	1	-	%d	Unsigned				
E022	1	逆变切换电压	BattVoltSwToInv	RW	0.1	V	%.1fV	Unsigned	9	15.5	14	When the battery voltage is higher than the judged point, the inverter is switched back.
E023	1	均衡充电超时时间	BattEqualChgTimeout	RW	1	min	%dmin	Unsigned	5	900	240	Increment+5
E024	1	锂电池激活电流	LiBattActiveCurrSet	RW	0.1	A	%.1fA	Unsigned	0	20	8	
E025	1	BMS充电限流模式设置	BMSChgLCMode	RW	1		%d	Unsigned	0	2	1	
E026	**1**	1段开始充电时间	ChargeStartTime1	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E027	**1**	1段结束充电时间	ChargeEndTime1	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E028	**1**	2段开始充电时间	ChargeStartTime2	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E029	**1**	2段结束充电时间	ChargeEndTime2	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E02A	**1**	3段开始充电时间	ChargeStartTime3	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E02B	**1**	3段结束充电时间	ChargeEndTime3	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E02C	**1**	分段充电使能	OnTimeChargeEn	RW	1	-	%d	Unsigned	0	1	0	0: disabled; 1: enabled
E02D	**1**	1段开始放电时间	DischgStartTime1	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E02E	**1**	1段结束放电时间	DischgEndTime1	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E02F	**1**	2段开始放电时间	DischgStartTime2	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E030	**1**	2段结束放电时间	DischgEndTime2	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E031	**1**	3段开始放电时间	DischgStartTime3	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E032	**1**	3段结束放电时间	DischgEndTime3	RW	1	h/m	%d	Unsigned	0	5947	0	Hours and minutes: 23*256+59=5,947
E033	**1**	分段放电使能	OnTimeDischgEn	RW	1	-	%d	Unsigned	0	1	0	0: disabled; 1: enabled
E034	**3**	保留	BatParmReserved2	RW	1	-	%d	Unsigned	0	-	0	
E037	**1**	**工作模式**	**InvToGridEn**	**RW**	**1**	**-**	**%d**	**Unsigned**	**0**	**3**	**0**	**0: off-grid mode (banned) 1: grid-connected mode 2: ACout anti-reverse flow 3: ACin anti-reverse flow**
E038	**1**	漏电流检测使能	LeakageCurrDtcEn	RW	1	-	%d	Unsigned	0	1	0	0: disabled; 1: enabled

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
E039	1	PV输出优先级设置	PvPowerPrioritySet	RW	1		%d	Unsigned	0	2	0	0: charging priority 1: load priority
E03A	1	电池温度补偿使能	BattTemperCompEn	RW	1	-	%d	Unsigned	0	1	0	0: disabled 1: enabled
E03B	1	充电时段1停止充电SOC	TimedChg1StopSOC	RW	1	%	%d	Unsigned	0	100	100	During charging period, the charging is stopped when SOC is greater than the specified value.
E03C	1	充电时段2停止充电SOC	TimedChg2StopSOC	RW	1	%	%d	Unsigned	0	100	100	
E03D	1	充电时段3停止充电SOC	TimedChg3StopSOC	RW	1	%	%d	Unsigned	0	100	100	
E03E	1	放电时段1停止放电SOC	TimedDchg1StopSOC	RW	1	%	%d	Unsigned	0	100	80	During discharging period, the discharging is stopped when SOC is less than the specified value.
E03F	1	放电时段2停止放电SOC	TimedDchg2StopSOC	RW	1	%	%d	Unsigned	0	100	60	
E040	1	放电时段3停止放电SOC	TimedDchg3StopSOC	RW	1	%	%d	Unsigned	0	100	10	
E041	1	充电时段1停止充电电压	TimedChg1StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	52.0V	1,200: 12,000 W
E042	1	充电时段2停止充电电压	TimedChg2StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	54.0V	
E043	1	充电时段3停止充电电压	TimedChg3StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	57.6V	
E044	1	放电时段1停止放电电压	TimedDchg1StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	50.0V	
E045	1	放电时段2停止放电电压	TimedDchg2StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	48.0V	
E046	1	放电时段3停止放电电压	TimedDchg3StopVolt	RW	0.1	W	%.1fV	Unsigned	40.0V	59.5V	46.0V	
E047	1	定时放电时段1最大放电功率W	TimedDchg1MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E048	1	定时放电时段2最大放电功率W	TimedDchg2MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E049	1	定时放电时段3最大放电功率W	TimedDchg3MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E04A	1	定时放电时段1最大充电功率W	TimedChg1MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E04B	1	定时放电时段2最大充电功率W	TimedChg2MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E04C	1	定时放电时段3最大充电功率W	TimedChg3MaxPower	RW	10	W	%d	Unsigned	0	12000	6000	
E04D	1	定时充电能量来源选择	TimedChgSource	RW	1		%d	Unsigned	0	7	0	Bit00: AC power during the charging period 1, 0: disabled, 1: enabled Bit01: electric generator during the charging period 1, 0: disabled, 1: enabled Bit02: AC power during the charging period 2, 0: disabled, 1: enabled Bit03: electric generator during the charging period 2, 0: disabled, 1: enabled Bit04: AC power during the charging period 3, 0: disabled, 1: enabled Bit05: electric generator during the charging period 3, 0: disabled, 1: enabled
P07 User Setting Area for Inverter Parameters												
E200	1	逆变器485地址设置	Rs485AddrSet	RW	1	-	%d	Unsigned	1	254	1	Integer (1 to 254)
E201	1	并机模式	ParallMode	RW	1	-	%d	Unsigned	0	7	0	0: single machine 1: single-phase parallel 2: two-phase parallel 3: two-phase parallel 120 4: two-phase parallel 180 5: three-phase A 6: three-phase B 7: three-phase C
E202	1	用户密码设置值	PassWordSet	W	1	-	%d	Unsigned	0	65535	0	The password consists of four decimal digits. If the parameter is 0, there is no password. Keyboard passwords can be changed by keyboard and communication.
E203	1	密码输入	PassWordInput	W	1	-	%d	Unsigned	0	65535	0	
E204	1	输出优先级	OutputPriority	RW	1	-	%d	Unsigned	0	2	1	0: solar 1: line 2: sbu
E205	1	市电充电电流限制	IbattLineChgLimit	RW	0.1	A	%.1fA	Unsigned	0	200	60	Maximum charging current limit for AC power charging
E206	1	均衡充电使能	BattEqualChgEnable	RW	1	V	%d	Unsigned	0	1	0	
E207	1	NPE地线短接功能使能	N_G_FuncEn	RW	1		%d	Unsigned	0	1	0	N and PE ground cable short circuit enabled (only available on some models)
E208	1	输出电压（默认220V）	OutputVoltSet	RW	0.1	V	%.1fV	Unsigned	100	264	120	
E209	1	输出频率（默认50Hz）	OutputFreqSet	RW	0.01	Hz	%.2fHz	Unsigned	45	65	50	
E20A	1	最大充电电流	MaxChgCurr	RW	0.1	A	%.1fA	Unsigned	0	200	80	
E20B	1	AC输入范围	AcVoltRange	RW	1		%d	Unsigned	0	1	1	0: wide band (APL) 1: narrow band (UPS)
E20C	1	节能模式	PowerSavingMode	RW	1		%d	Unsigned	0	1	0	0: disabled 1: enabled
E20D	1	过载自动重启	AutoRestartOvLoad	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E20E	1	过温自动重启	AutoRestartOvTemper	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E20F	1	充电优先级	ChgSourcePriority	RW	1		%d	Unsigned	0	3	2	0: PV priority (AC power charging available when PV fails) 1: AC power priority (PV charging available when AC power fails) 2: hybrid mode (AC power and PV charging at the same time, with PV priority) 3: PV only
E210	1	告警控制	AlarmEnable	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E211	1	输入源中断时告警使能	AlarmEnWhenSourceLoss	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E212	1	过载旁路使能	BypEnableWhenOvLoad	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E213	1	记录故障码	RecordFaultEnable	RW	1		%d	Unsigned	0	1	1	0: disabled 1: enabled
E214	1	BMS故障停机使能	BmsErrStopEnable	RW	1		%d	Unsigned	0	1	0	0: disabled 1: enabled
E215	1	BMS使能	BmsCommEnable	RW	1		%d	Unsigned	0	2	0	0: disabled 1: 485-BMS enabled 2: CAN-BMS enabled
E216	1	直流负载控制	DcLoadSwitch	RW	1		%d	Unsigned	0	1	0	0: off, 1: on
E217	1	保留	InvParamSetReserved01	RW	1		%d	Unsigned	0	0	0	Reserved
E218	1	机器降额功率	DeratePower	RW	1		%.001fW	Unsigned	1000	15000	0	Reduction of machine power rating
E219	1	保留	InvParamSetReserved02	R	1		%d	Unsigned	0	1	0	

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
E21A	**1**	**发电机启动充电禁止**	**GeneratorChgDisable**	**R**	**1**		**%d**	**Unsigned**	**0**	**1**	**0**	**Generator charging by default (can be disabled)**
E21B	1	BMS协议	Rs485BmsProtocol	RW	1		%d	Unsigned	0	30	7	
E21C	1	旁路最大输入电流	MaxLineCurrent	RW	0.1		%.1fA	Unsigned	0	100	40	Only for some custom models (ancient style ship of
E21D	**1**	**旁路最大输入功率**	**MaxLinePower**	**RW**	**1**		**%d**	**Unsigned**	**0**	**65535**	**50**	**Peak clipping power of grid 50: 500 W**
E21E	**1**	**单机分相AC接线类型**	**OutputPhaseSet**	**RW**	**1**		**%d**	**Unsigned**	**0**	**2**	**0**	**Only for single split-phase machine; 0: single-phase connection, 1: three-phase connection, 2: split-phase connection**
E21F	1	柴油机工作模式	GenWorkMode	RW	1		%d	Unsigned	0	1	0	
E220	1	柴油机充电电流	GenChgMaxCurr	RW	0.1	A	%.1fA	Unsigned	0	100	40	
E221	**1**	**柴油机额定功率**	**GenRatePower**	**RW**	**1**		**%d**	**Unsigned**	**0**	**65535**	**6000**	
P08 Setting Area for Inverter Grid-connection Parameters												
E400	1	并网有功功率设置	GridActivePowerSet	RW	1	W	%d	Unsigned	0	65000	0	
E401	1	并网功率因数设置	GridPfSet	RW	0.001		%.3f	Signed	-1	1	1	Only suitable for models supporting grid-connection, with the adjustment range of -80~100 and 80~100
E402	1	并网无功功率设置	GridQset	RW	1	%	%d	Signed	-100	100	0	Grid-connection reactive power setting
E403	1	并网标准设置	GridStandard	RW	1		%d	Signed	0	100	100	Grid-connection standard setting
E404	1	电网欠压保护点1	GridUVLevel1	RW	0.1	V	%.1f	Unsigned	0	270	184	
E405	1	电网欠压保护点1延迟时间	GridUVTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E406	1	电网欠压保护恢复点1	GridUVResumLevel1	RW	0.1	V	%.1f	Unsigned	0	270	198	
E407	1	电网欠压保护恢复点1延迟时间	GridUVResumTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E408	1	电网欠压保护点2	GridUVLevel2	RW	0.1	V	%.1f	Unsigned	0	270	184	
E409	1	电网欠压保护点2延迟时间	GridUVTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E40A	1	电网欠压保护恢复点2	GridUVResumLevel2	RW	0.1	V	%.1f	Unsigned	0	270	198	
E40B	1	电网欠压保护恢复点2延迟时间	GridUVResumTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E40C	1	电网过压保护点1	GridOVLevel1	RW	0.1	V	%.1f	Unsigned	0	270	280	
E40D	1	电网过压保护点1延迟时间	GridOVTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E40E	1	电网过压保护恢复点1	GridOVResumLevel1	RW	0.1	V	%.1f	Unsigned	0	320	270	
E40F	1	电网过压保护恢复点1延迟时间	GridOVResumTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E410	1	电网过压保护点2	GridOVLevel2	RW	0.1	V	%.1f	Unsigned	0	320	280	
E411	1	电网过压保护点2延迟时间	GridOVTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E412	1	电网过压保护恢复点2	GridOVResumLevel2	RW	0.1	V	%.1f	Unsigned	0	320	270	
E413	1	电网过压保护恢复点2延迟时间	GridOVResumTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E414	1	电网欠频保护点1	GridUFLevel1	RW	0.01	Hz	%.2f	Unsigned	0	65	47	
E415	1	电网欠频保护点1延迟时间	GridUFTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E416	1	电网欠频保护恢复点1	GridUFResumLevel1	RW	0.01	Hz	%.2f	Unsigned	0	65	48	
E417	1	电网欠频保护恢复点1延迟时间	GridUFResumTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E418	1	电网欠频保护点2	GridUFLevel2	RW	0.01	Hz	%.2f	Unsigned	0	65	47	
E419	1	电网欠频保护点2延迟时间	GridUFTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E41A	1	电网欠频保护恢复点2	GridUFResumLevel2	RW	0.01	Hz	%.2f	Unsigned	0	65	48	
E41B	1	电网欠频保护恢复点2延迟时间	GridUFResumTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E41C	1	电网过频保护点1	GridOFLevel1	RW	0.01	Hz	%.2f	Unsigned	0	65	52.5	
E41D	1	电网过频保护点1延迟时间	GridOFTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E41E	1	电网过频保护恢复点1	GridOFResumLevel1	RW	0.01	Hz	%.2f	Unsigned	0	65	51	
E41F	1	电网过频保护恢复点1延迟时间	GridOFResumTime1	RW	20	mS	%d	Unsigned	20	600000	120	
E420	1	电网过频保护点2	GridOFLevel2	RW	0.01	Hz	%.2f	Unsigned	0	65	52.5	
E421	1	电网过频保护点2延迟时间	GridOFTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E422	1	电网过频保护恢复点2	GridOFResumLevel2	RW	0.01	Hz	%.2f	Unsigned	0	65	51	
E423	1	电网过频保护恢复点2延迟时间	GridOFResumTime2	RW	20	mS	%d	Unsigned	20	600000	120	
E424	1	并网重启动时间，单位秒	ReConnectGridTime	RW	1	S	%d	Unsigned	0	600	60	
E425	1	绝缘阻抗检测使能	IsoCheckEn	RW	1		%d	Unsigned	0	1	1	
E426	1	绝缘阻抗检测阈值	IsoProtectPoint	RW	1		%d	Unsigned	10	65535	15	
E427	1	电网功能位使能	GridFuncEnable	RW	1		%d	Unsigned	0	65535	0	
E428	1	用户模式	GridStandUserMode	RW	1		%d	Unsigned	0	1	0	
E429	1	参数自检步骤	Cei021AutoTestStep	RW	1		%d	Unsigned	0	65535	0	
E42A	1	电池参与并网使能	BattForGridPowerEn	RW	1		%d	Unsigned	0	3	0	0: Battery is not discharged. 1: Battery discharges to UPS loads. 2: Battery discharges to home loads. 3: Grid connection participates in electricity sales.
E42B	1	CT变比	ExCtRatio	RW	1		%d	Unsigned	0	5000	1000	
E42C	1	防逆流误差功率	ZeroExportPower	RW	1	W	%d	Unsigned	0	500	20	When it is in the anti-reverse current function, the input target power is set for the grid.
E42D	**1**	**并网重连功率上升速率**	**ReConnPowerRamp**	**RW**	**1**	**S**	**%d**	**Unsigned**	**0**	**1000**	**60**	**Rising rate of reconnection power**
E42E	**1**	**有功-PF使能**	**WattPFCurveEnable**	**RW**	**1**		**%d**	**Unsigned**	**0**	**1**	**0**	
E42F	**1**	**高低压穿越**	**HLVRTEnable**	**RW**	**1**		**%d**	**Unsigned**	**0**	**1**	**0**	
E430	**1**	**参数自检启动命令**	**Cei021AutoTestStart**	**RW**	**1**		**%d**	**Unsigned**	**0**	**1**	**0**	
E431	**1**	**AFCI使能**	**AfciEnable**	**RW**	**1**		**%d**	**Unsigned**	**0**	**1**	**0**	
E432	**1**	**正常连接延时时间**	**NormalConnDlyTsec**	**RW**	**1**	**S**	**%d**	**Signed**	**0**	**1000**	**30**	
E433	**1**	**正常连接功率上升速率**	**NormalConnPwrRampTsec**	**RW**	**1**	**S**	**%d**	**Unsigned**	**0**	**1000**	**30**	
E434	**1**	**并网连接最低电压**	**ConnVoltLow**	**RW**	**0.1**	**V**	**%.1f**	**Unsigned**	**0**	**320**	**110**	
E435	**1**	**并网连接最高电压**	**ConnVoltHigh**	**RW**	**0.1**	**V**	**%.1f**	**Unsigned**	**0**	**320**	**140**	
E436	**1**	**并网连接最低频率**	**ConnFreqLow**	**RW**	**0.01**	**Hz**	**%.2f**	**Unsigned**	**40**	**70**	**60**	
E437	**1**	**并网连接最高频率**	**ConnFreqHigh**	**RW**	**0.01**	**Hz**	**%.2f**	**Unsigned**	**40**	**70**	**60**	
P09 Power Statistics Historical Data												
F000	7	PV发电量最近7天历史数据	PVEnergyLast7day	R	0.1	kWh	%.1fkWh	Unsigned				The power data for each day occupies one register, so for example, if today is September 27, the PV power generation data for the last 7 days is as follows: F000: power generation on September 26 (yesterday) F001: power generation on September 25 (two days ago) F002: power generation on September 24
F007	7	电池充电电量最近7天历史数据	BatChgEnergyLast7day	R	1	AH	%dAH	Unsigned				
F00E	7	电池放电电量最近7天历史数据	BatDisChgEnergyLast7day	R	1	AH	%dAH	Unsigned				
F015	7	市电充电电量最近7天历史数据	LineChgEnergyLast7day	R	1	AH	%dAH	Unsigned				
F01C	7	负载消耗电量最近7天历史数据	LoadConsumLast7day	R	0.1	kWh	%.1fkWh	Unsigned				
F023	7	负载从市电消耗电量最近7天历史数	LoadConsumFromLineLast7day	R	0.1	kWh	%.1fkWh	Unsigned				
F02A	2	最近一天日期记录	EnergyStatisticsDay	R	0.1	kWh	%.1fkWh	Unsigned				
F02C	1	当天并网电量	GeneratEnergyToGridToday	R	0.1	kWh	%.1fkWh	Unsigned				
F02D	1	电池当天充电安时数	BatChgAHToday	R	1	AH	%d	Unsigned				Total battery charging for the day (AH)
F02E	1	电池当天放电安时数	BatDischgAHToday	R	1	AH	%d	Unsigned				Total battery discharging for the day (AH)
F02F	1	当天PV发电量	GeneratEnergyToday	R	0.1	kWh	%.1fkWh	Unsigned				Total PV power generation of the day
F030	1	负载当天用电量	UsedEnergyToday	R	0.1	kWh	%.1fkWh	Unsigned				Total load power consumption for the day

Address	Length	Name	English Name	R/W	Magnification	Unit	Display Format	Signed/Unsigned	Minimum	Maximum	Default	Remark
F031	1	总运行天数	WorkDaysTotal	R	1	d	%d	Unsigned				
F032	2	累计并网电量	GridEnergyTotal	R	0.1	kWh	%.1fkWh	Unsigned				Cumulative value of power generated to the grid
F034	2	蓄电池累计充电安时数	BatChgAHTotal	R	1	AH	%d	Unsigned				
F036	2	蓄电池累计放电安时数	BatDischgAHTotal	R	1	AH	%d	Unsigned				
F038	2	PV累计发电量	GeneratEnergyTotal	R	0.1	kWh	%.1fkWh	Unsigned				
F03A	2	负载累计用电量	UsedEnergyTotal	R	0.1	kWh	%.1fkWh	Unsigned				
F03C	1	市电当天充电电量	LineChgEnergyTday	R	1	AH	%d	Unsigned				AC charging power (AH) for the day
F03D	1	负载当天从市电消耗电量	LoadConsumLineTday	R	0.1	kWh	%.1fkWh	Unsigned				
F03E	1	逆变当天工作时间	InvWorkTimeToday	R	1	min	%dmin	Unsigned				
F03F	1	旁路当天工作时间	LineWorkTimeTodya	R	1	min	%dmin	Unsigned				
F040	3	开机时间	PowerOnTime	R	1		%d	Unsigned				Refer to the time register for the current time format.
F043	3	上次均衡充电完成时间	LastEquaChgTime	R	1		%d	Unsigned				Refer to the time register for the current time format.
F046	2	市电累计充电量	LineChgEnergyTotal	R	1	AH	%d	Unsigned				
F048	2	负载累计从市电消耗电量	LoadConsumLineTotal	R	0.1	kWh	%.1fkWh	Unsigned				Cumulative load power consumed from the battery side
F04A	1	逆变累计工作时间	InvWorkTimeTotal	R	1	h	%dh	Unsigned				
F04B	1	旁路累计工作时间	LineWorkTimeTotal	R	1	h	%dh	Unsigned				
F04C	1	市电充电电量kwh	LineChgKwHTday	R	1		%d	Unsigned				
F04D	1	保留	EnergyReserved3	R	1		%d	Unsigned				
P10 Fault Record												
F800	16	故障记录0	FaultHistoryRecord00	RW	1		%d	Unsigned				Each fault record occupies 16 addresses, storing a total of 16 fault records. Internal data format definition for fault record: (defined by internal offset address) **0x00:** Fault code**;** see the instruction **m**anual for specific definition of fault code. If the fault code is 0, it means that the fault record is invalid. **0x01−0x03:** The time when the fault code occurs (there is no time for generation-1 machines). **0x04−0x0F:** Data packets captured when a fault occurs, with a total of 12 data.
F810	16	故障记录1	FaultHistoryRecord01	RW	1		%d	Unsigned				
F820	16	故障记录2	FaultHistoryRecord02	RW	1		%d	Unsigned				
F830	16	故障记录3	FaultHistoryRecord03	RW	1		%d	Unsigned				
F840	16	故障记录4	FaultHistoryRecord04	RW	1		%d	Unsigned				
F850	16	故障记录5	FaultHistoryRecord05	RW	1		%d	Unsigned				
F860	16	故障记录6	FaultHistoryRecord06	RW	1		%d	Unsigned				
F870	16	故障记录7	FaultHistoryRecord07	RW	1		%d	Unsigned				
F880	16	故障记录8	FaultHistoryRecord08	RW	1		%d	Unsigned				
F890	16	故障记录9	FaultHistoryRecord09	RW	1		%d	Unsigned				
F8A0	16	故障记录10	FaultHistoryRecord10	RW	1		%d	Unsigned				
F8B0	16	故障记录11	FaultHistoryRecord11	RW	1		%d	Unsigned				
F8C0	16	故障记录12	FaultHistoryRecord12	RW	1		%d	Unsigned				
F8D0	16	故障记录13	FaultHistoryRecord13	RW	1		%d	Unsigned				
F8E0	16	故障记录14	FaultHistoryRecord14	RW	1		%d	Unsigned				
F8F0	16	故障记录15	FaultHistoryRecord15	RW	1		%d	Unsigned				
F900	16	故障记录16	FaultHistoryRecord16	RW	1		%d	Unsigned				
F910	16	故障记录17	FaultHistoryRecord17	RW	1		%d	Unsigned				
F920	16	故障记录18	FaultHistoryRecord18	RW	1		%d	Unsigned				
F930	16	故障记录19	FaultHistoryRecord19	RW	1		%d	Unsigned				
F940	16	故障记录20	FaultHistoryRecord20	RW	1		%d	Unsigned				
F950	16	故障记录21	FaultHistoryRecord21	RW	1		%d	Unsigned				
F960	16	故障记录22	FaultHistoryRecord22	RW	1		%d	Unsigned				
F970	16	故障记录23	FaultHistoryRecord23	RW	1		%d	Unsigned				
F980	16	故障记录24	FaultHistoryRecord24	RW	1		%d	Unsigned				
F990	16	故障记录25	FaultHistoryRecord25	RW	1		%d	Unsigned				
F9A0	16	故障记录26	FaultHistoryRecord26	RW	1		%d	Unsigned				
F9B0	16	故障记录27	FaultHistoryRecord27	RW	1		%d	Unsigned				
F9C0	16	故障记录28	FaultHistoryRecord28	RW	1		%d	Unsigned				
F9D0	16	故障记录29	FaultHistoryRecord29	RW	1		%d	Unsigned				
F9E0	16	故障记录30	FaultHistoryRecord30	RW	1		%d	Unsigned				
F9F0	16	故障记录31	FaultHistoryRecord31	RW	1		%d	Unsigned				
FA00	16	意大利参数测试记录	AutoTestRecord	RW	1		%d	Unsigned				
FA10	1	保留	RecordReserved0	R	1		%d	Unsigned				
FA11	1	保留	RecordReserved1	R	1		%d	Unsigned				
END												

Note: The 0×0438−0×439 is the online upgrade command entry address.

MODBU

Start Address	End Address	Length	Area
000AH	00FFH	00F6H	Product parameter information area
0100H	01FFH	0100H	Device live message data area
0200H	02FFH	0100H	Device live message data area
0300H	6FFFH	6D00H	Reserve area
7000H	7FFFH	1000H	Device live message data area
8000H	DFFFH	6000H	Reserve area
DF00H	DF1FH	0020H	Device control area
DF20H	DFFFH	00E0H	Debug data area
E000H	E0FFH	0100H	User setting area for controller parameters
E100H	E1FFH	0100H	Factory setting area for inverter parameters
E200H	E2FFH	0100H	User setting area for inverter parameters
E300H	E3FFH	0100H	Factory setting area for controller parameters
E800H	E8FFH	0100H	Grid-connected product parameter information area
E900H	E97FH	0080H	User setting area for grid-connected inverter parameters
E980H	EA7FH	00FFH	Factory setting area for grid-connected inverter parameters
EA80H	EAFFH	0080H	Factory setting area for energy storage inverter parameters
F000H	F7FFH	0800H	Historical data
F800H	FFFFH	0800H	Historical data

Data Area of Grid-connecte

Grid-connected inverter data area: 0x7000−0x70FF (

Energy storage inverter data area: 0x7100−0x717F (1

Reserve area: 0x7180−0xDEFF (28,032 W)

Device control area: 0xDF00−0xDF1F (32 W)

Debug data area: 0xDF20−0xDFFF (224 W)
Area occupied by other devices: 0xE000−0xE7FF (2,(
Product parameter information area: 0xE800−0xE8F
User parameter setting area: 0xE900−0xE97F (128 W
Grid-connected inverter parameter area: 0xE980−0x
Energy storage inverter parameter area: 0xEA80−0x
Reserve area: 0xEB00−0xEFFF (1,280 W)
Area occupied by other devices: 0xF000−0xE7FF (2,(
Historical record of grid-connected/energy storage in

US Register Area

Device Type
Domestic controller, all-in-one solar charger inverter, off-grid inverter, street light controller
Domestic controller, all-in-one solar charger inverter, street light controller
All-in-one solar charger inverter, off-grid inverter
Reserved (lithium battery&BMS)
Grid-connected/Energy storage inverter
Grid-connected/Energy storage inverter
General
General
Domestic controller, all-in-one solar charger inverter, off-grid inverter, street light controller
All-in-one solar charger inverter, off-grid inverter
All-in-one solar charger inverter, off-grid inverter
Domestic controller, street light controller
Grid-connected/Energy storage inverter
Grid-connected/Energy storage inverter
Grid-connected inverter
Energy storage inverter
Domestic controller
Grid-connected/Off-grid/Energy storage inverter

d/Off-grid/Energy Storage Inverter
256 W)
128 W)

)48 W)
F (256 W)
/)
EA7F (256 W)
EAFF (128 W)
)48 W)
verter: 0xF800–0xFFFF