**MODBUS RTU** йPhase energy storage communication regulations

(⡸Right To The Office$，翻⡸ Must be investigated

# 3

Change 1/2 record

|  |  |  |  |
| --- | --- | --- | --- |
| ⡸ Benª | Change the content | Responsible person | Change the date |
| V100 | Initial ⡸ | Liu Shengli | 2020.09.16 |
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# overview

The co-operative for ᡁNoй phase energy storage inverse ਈокƒ machine monitoring and communication between DSP co-assay ° adopts MODBUS RTU

Pass "gauge㓖° Ben Xie 䇞可ԕ real-time reading of the operation information of the inverse ਆ inverse ਈ apparatus and control operation of the inverse ਈ˚

# Physical interface

* 1. 采用 **RS485/RS232**，ѪAsynchronous sending and receiving mode，▲From the mode, fixed baud rate˚

----baud rate:9600bps

----Paritiesƒ:Nono

----dataƒ:8

----stop‡ƒ:1

* 1. ᑗInterval time required

# Data ᑗ format

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

**Slave Address** Domain: is the corresponding slave address，Must be and the slave address of the inverse३ Match˚ **Function code** region:࣏Energy code, currently only open 03Hǃ 10H࣏Energy code˚

|  |  |  |  |
| --- | --- | --- | --- |
| **Function code(Hex)** | Chinese Q | The address of the register | ࣏Yes |
| 02H | Read openޣ input status |  | Read the contents of the fault message register |
| 03H | Read hold registers | 0~59/500~2000 | Read the contents of the setting register |
| 04H | Read input registers |  | Read the inverse ਈ device information content |
| 05H | Write অ coils |  | On the machine settings ࣏ can |
| 06H | Write অ hold registers |  | Set অᆇ section ࣏ can |
| 10AM | Write multiple hold registers | 60-499 | Set multi-section࣏ can |

**Data** region:Includes the starting register address，The length of the data，The number of data ᆇ sections，Data content˚All are high in the front，

№Section ᆇ inਾ˚

**CRC Check** 域: CRC Check the table validation mode，№The ᆇ section is in front of the high ᆇ sectionਾ˚

# Handling of error messages and data

Reply from the machine(16 䘋制):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Slave Address** | **Function code** | **Error code** | **CRC Check** | |
| Xx | xx|0x80 | Xx | NoSection | High ᆇ section |
| Xx | Xx |

When the "Inverter Pass" module detects an error other than the CRC code error ԕ, it must return the message to the ▲ machine, ࣏ the highest ƒ of the code Ѫ 1, ণ in ▲The basis of the ࣏energy code of the machine hair࣐ 128 ˚

The Inverse Pass module responds to the error code back:

0x01 Illegal ࣏Codes Serve࣑Deviceн Understand/Codes

0x02 Illegal data address о request $ޣ

0x03 Illegal data value о request $ޣ

0x04 Service ࣑ Fault Inverter " module cannot produce data failures during execution

# Detailed co-description

0-59 Register address Ѫ readable register type, **0x03** ࣏ code °

60-499 Register address Ѫ readable and writable register type, **0x10** 囯code°

500-2000 ᆈ Address Ѫ Readable Register Type, **0x03** ࣏ Code°

**5.1. 03** Read solid$attribute; , corresponding to the ࣏code **0x03, the** address range **is 0~59**

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| --- | --- | --- | --- | --- | --- |
| Addr | Register meaning | R/W | data range | unit | note |
|  | | | | | |
| 000 | Device type  Device type | R |  |  | 0X0200 set of serial inverter 0X0300 অ phase energy storage machine hybird  0X0400 micro-inverse machine MI microinverter  0X0500 й phase energy storage machine phase3 hybird |
| 001 | Modbus address | R | [1,247] |  |  |
| 002 | Pass the " Co- ⡸ Ben  Communication protocol version | R | ‘0’~’9’;  'A'~'Z' |  | Firmware obeys the ⡸of the association, such as 0x 0102  ԓ Table 1.2 ⡸ |
| 003 | SN byte 01 | R | ‘0’~’9’;  'A'~'Z' |  | The serial number is ten ASCII characters, If "AH12345678",  Byte 01 is 0x41 (A),  The 02nd byte is 0x48 (H),  ……  The 09th byte is 0x37 (7), The tenth byte is 0x38 (8). |
| SN byte 02 |
| 004 | SN byte 03 | R | ‘0’~’9’;  'A'~'Z' |  |
| SN byte 04 |
| 005 | SN byte 05 | R | ‘0’~’9’;  'A'~'Z' |  |
| SN byte 06 |
| 006 | SN byte 07 | R | ‘0’~’9’;  'A'~'Z' |  |
| SN byte 08 |
| 007 | SN byte 09 | R | ‘0’~’9’;  'A'~'Z' |  |
| SN byte 10 |
| 008 | ࣏Rate etc. 3/4  Rated Power | R | 0x0000 |  |  |
| 009 | Reserved ᆇ  undefined | R | 0x0000 |  |  |
| 010 | Reserved ᆇ  undefined | R |  |  |  |
| 011 | Control board auxiliary ࣙঅƒ machine software  ⡸ Benª  Assistant program version | R | 0XFFFF |  | Bit0-7 Bootloader software Bit8-15 auxiliary program Assistant program |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Control board start ࣘprogram ⡸本ª  bootloader software version |  |  |  |  |
| 012 | obligate  undefine | R |  |  |  |
| 013 | obligate  undefine | R |  |  |  |
| 014 | Control board firmware ⡸本-ᆇder 2  Control panel firmware version-2 | R |  |  |  |
| 015 | Control board firmware ⡸本**-**▲⡸本  Control panel firmware master version | R |  |  |  |
| 016 | Pass"Board Firmware ⡸ Ben-ᆇ Segment 1 Comm panel firmware  version-1 | R |  |  |  |
| 017 | Pass" board firmware ⡸ben-ᆇ paragraph 2  Comm panel firmware version-2 | R |  |  |  |
| 018 | Pass" board firmware ⡸本**-**▲⡸本  Comm panel firmware master version | R |  |  |  |
| 019 | Safety type  Safety type | R |  |  |  |
| 020 | Rated ࣏ rate Noᆇ  Rated power low word | R |  | 0.1W |  |
| 021 | High rated ࣏ rateᆇ  Rated power high word | R |  | 0.1W |  |
| 022 | Number of MPPT circuits and phases  MPPT number and phases | R | [1,8]/[1,3] |  | MI 0x0503: five-mppts three-phase |
| 023 | Grid-connected voltage, etc. 3/4/Rated Grid  Voltage | R | [0-3] |  | 0: 127/220V 1: 220/380V |
| 024 |  |  |  |  |  |
| 025 | Reserved SN byte 01 |  |  |  |  |
| Reserved SN byte 02 |
| 026 | Reserved SN byte 03 |  |  |  |  |
| Reserved SN byte 04 |
| 027 | Reserved SN byte 05 |  |  |  |  |
| Reserved SN byte 06 |
| 028 | Reserved SN byte 07 |  |  |  |  |
| Reserved SN byte 08 |
| 029 | Reserved SN byte 09 |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Reserve SN byte 10 |  |  |  |  |
| 030 |  |  |  |  |  |
| 031 |  |  |  |  |  |
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|  |  |  |  |  |  |
| 059 |  |  |  |  |  |
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* 1. **10** readable and writable properties; , the corresponding ࣏ energy code is **0x10**°

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| Addr | Register meaning | | R/W | data range | unit | | note |
|  | | | | | | | |
| 60 | t程䬱定 enable  Remote Lock | | R/W |  |  | | 0x0002 ޣ机 turn off  0x0000 power on turn on |
| 61 | POST time  self-check time | | R/W | [0,1000] | S | | MI (was -1) |
| 62 | System Time Section 1 ᆇ  system time byte 01 | | R/W | [0,255] | ᒤ  Year | | MI ԕ 20 00 ᒤѪ base value  Based on the year 2000 |
| System Time Section 2 ᆇ  system time byte 02 | | R/W | [1,12] | $  Month | |
| 63 | System Time Section 3 ᆇ  system time byte 03 | | R/W | [1,31] | day  Day | |
| System Time Section 4 ᆇ  system time byte 04 | | R/W | [0,23] | time  Hour | |
| 64 | System Time Section 5 ᆇ  system time byte 05 | | R/W | [0,59] | ࠶ Minute | |
| System Time Section 6 ᆇ  system time byte 06 | | R/W | [0,59] | second  Sec | |
| 65 | Insulation impedance л limit | insulation | R/W | [100,20000] | 0.1KΩ | |  |
| Minimum |
| impedance | |
|  | |  |  |  |  |  |
| 66 | obligate  Undefine | |  |  |  | |  |
| 67 | obligate  Undefine | |  |  |  | |  |
| 68 | obligate  Undefine | |  |  |  | |  |

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| --- | --- | --- | --- | --- | --- |
| 69 | obligate  Undefine |  |  |  |  |
| 70 | obligate  Undefine |  |  |  |  |
| 71 | obligate  Undefine |  |  |  |  |
| 72 | obligate  Undefine |  |  |  |  |
| 73 | obligate  Undefine |  |  |  |  |
| 74 | Pass" address  Communication address | R | 0x0000 | - |  |
| 75 | Pass" baud rate  Communication baud rate MI:Zigbee or PLC | R | 0x0000 | - |  |
| 76 | obligate  Undefine | R/W |  |  |  |
| 77 | $࣏࣏rate adjustment  Active power regulation | R/W | [0,1200] | 0.1%/1% | For example , 800 indicates that it is adjusted to 80.0% MI  If 800, adjust to 80.0% |
| 78 | No ࣏࣏ rate adjustment  Reactive power regulation | R/W | [0,1200] | 0.1% | For example , 800 indicates that it is adjusted to 80.0%.  If 800, adjust to 80.0% |
| 79 | Apparent ࣏ rate adjustment  Apparent power regulation | R/W | [0,1200] | 0.1% | For example , 800 indicates that it is adjusted to 80.0%.  If 800, adjust to 80.0% |
| 80 | On the machine enables  Switch on and off enable | R/W | [0,1] | - | 0:ޣ Machine 1: Boot MI 2:ޣ Machine  0: power off 1: power on |
| 81 | Factory-enabled  Factory reset enable | R/W | [0,1] |  | 0: disable 1: enable |
| 82 | Self-test time  Self-checking time | R/W | [0,1] | - | 0-360 seconds |
| 83 | Island Security enables  Island protection enable | R/W | [0,1] |  | 0: disable 1: enable |
| 84 | MPPT number of MPPT circuits | R/W | [0,1] | - | 0: disable 1: enable |
| 85 | GFDI enables  GFDI enable | R/W | [0,1] |  | 0: disable 1: enable |
| 86 |  |  |  |  |  |
| 87 | RISO enable  RISO enable | R/W | [0,1] |  | 0: disable 1: enable |
| 88 | Grid-connected standards  GridStandard | R/W | [0,20] |  | 1, China  2, Brazil  3, India |

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|  |  |  |  |  | 4， EN50438  5, other |
| 89 |  |  |  |  |  |
| 90 | No pressure cross enable  Low voltage across enable |  |  |  | 0: disable 1: enable |
| 91 | The control board EEPROM is initially enabled  MCU-EEPROM initial  enabled | R/W | [0,2] | - | 0: ↓ often work normal  1: Initialize the control board EEPROM init mcu eeprom |
| 92 | Pass" board EEPROM initial enable  Comm-EEPROM initial  enabled | R/W |  |  | 0:↓常 work normal  1: Initialize the pass "board EEPROM init comm eeprom |
| 93 | Control board test control refers to ÷  Factory only |  |  |  | Bit0 open test enable (enables only $ effect of the 䘉ਾ side) Test enable=1 if use later bit  Bit1 inverse ਈ all fans open all fan  Bit4 turns on gen messaging ª relay open Gen singal relay |
| 94 | Pass" board test control refers to ÷  Factory only | R/W | [0,3] | - | Bit0 open test enable (enables only $ effect of the 䘉ਾ side) Test enable=1 if use later bit  Bit2 flash display board of the $LED, honey device, back ݹ, display red, yellow and blue  Flash display board for all LEDs, honey maker, backlight, display red, yellow and blue  Bit3 open D battery interface test Open lithium battery interface test Bit5 restart LCD program  Restart lcd |
| 95 |  |  |  |  |  |
| 96 | Power generation repair ↓ coefficient  PowerWH Factor | R/W |  | -0.01 | 100 mean 1  111 mean 1.11 |
| 97 | Solar enters ѪSPU  TEST MODE |  |  |  |  |
| 98 | Battery charging type  Control Mode | R/W | - | - | 0x0000 Lead-Battery, four-stage charging method  0x0001 Lithium battery |
| 99 | Equalization V | R/W | [3800,6100] | 0.01V | 1480 means 14.8v |
| 100 | Absorption V | R/W | [3800,6100] | 0.01V | 1440 means 14.4v |
| 101 | Float V | R/W | [3800,6100] | 0.01V | 1440 means 14.4v |
| 102 | Battery capacity  Batt Capacity | R/W | [0,2000] | 1 Ah | 200 means 200AH |
| 103 | Empty\_v | R/W |  | 0.01V |  |

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| --- | --- | --- | --- | --- | --- |
| 104 | The minimum limit plays a role࣏ rate  ZeroExport power | R/W |  |  |  |
| 105 | A balanced charge is performed for a few days one 1/9  Equalization day cycle | R/W | [0 90] | Day |  |
| 106 | Equilibrium charge execution time  Equalization time | R/W | [0 20] | 0.5Hour | ࠶Discernment 0.5 hours Resolution 0.5 h  [0-20] Corresponds to 0-10 hours  But the hair MCU is [0-100]. |
| 107 | Temperature compensation value  TEMPCO | R/W | [0,50] | 1mV/℃ | ᑖ$↓negative int type Signed int |
| 108 | Maximum battery charge current  Max A Charge | R/W | [0,185] | 1A | 0-185A |
| 109 | The maximum discharge current of the battery  Max A discharge | R/W | [0,185] | 1A | 0-185A |
| 110 | retain  undefined | R/W |  |  |  |
| 111 | The battery works according to the voltage is the capacity  battery operates according  to voltage or capacity | R/W |  |  | According to the voltage According to the voltage  According to the capacity  2 no $ battery no battery |
| 112 | D Battery wake sign ƒ  Lithium battery wake up sign bit | R/W |  |  | 1. enabled 2. Disable |
| 113 | The resistance in the battery  battery resistance value | R/W | [0,6000] | mΩ |  |
| 114 | Battery charging efficiency  Battery charging efficiency | R/W | [0-100] | 0.1% | 983 represents 98.3%.  983 is 98.3% |
| 115 | Battery capacity ShutDown  battery capacity ShutDown | R/W | [0,100] | 1% | No capacity cut‡point  Low capacity cutoff point |
| 116 | Battery capacity Restart  battery capacityRestart | R/W | [0,100] | 1% | Guaranteed ᣔ recovery point  Protection recovery point |
| 117 | Battery capacity LowBatt  battery capacityLowBatt | R/W | [0,100] | 1% |  |
| 118 | Battery voltage ShutDown  battery voltageShutDown | R/W | [3800,6100] | 0.01V | No warranty ᣔ point cutoff 41V  Low protection point cutoff 41V |
| 119 | Battery voltage Restart  battery voltageRestart | R/W | [3800,6100] | 0.01V | Reboot /recover 52V |
| 120 | Battery voltage LowBatt  battery voltageLowBatt | R/W | [3800,6100] | 0.01V | Discharge depth 46V Discharge  depth 46V |
| 121 | Maximum generator operating time  Maximum operating time of generator |  |  | 0.1 hours | 120 means 12 hours 120 is 12 hours |
| 122 | Generator cold K time  Generator cooling time |  |  | 0.1 hours | 120 means 12 hours  120 is 12 hours |

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| --- | --- | --- | --- | --- | --- |
| 123 | Generator charging starts ࣘ voltage point  Generator charging Starting voltage point | R/W | [0000 6300] | 0.01V | The battery voltage is less than the value of the generator to start charging  The battery voltage is less than this value |
| 124 | Generator charging start ࣘ capacity point  Generator charging starting capacity point | R/W | [0000 6300] | 1% | The battery capacity is less than the value of the generator to start charging  The battery capacity is less than this value |
| 125 | Generator charges the battery current  Generator charges the battery current | R/W | [0000 185] | 1A | Generator charges the battery current  The generator charges the battery |
| 126 | Mains charging starts ࣘ voltage point  Grid charging Start voltage point o | R/W | [0000 6300] | 0.01V |  |
| 127 | Mains charging starts ࣘ capacity point  Grid charging start capacity point | R/W | [0000 6300] | 1% |  |
| 128 | Mains charge current to the battery  Grid charge the battery current | R/W | [0000 185] | 1A | Mains charge current to the battery  Grid charge the battery current |
| 129 | Generator charging enable  Generator is charged to enable | R/W |  |  |  |
| 130 | Mains charge enable  Grid is charged to enable | R/W |  |  |  |
| 131 | AC couple frequency к limit setting | R/W | 5000-6500 |  | 5000-6500 |
| 132 | Forced to turn on the generator as Ѫ load  ࣏Yes  Force on generator as load function | R/W |  |  | The premise is that the 235ª parasitic ᆈ has been enabled 1  The premise is that register 234 has enabled 1   1. н强制 Do not force 2. Forceforce |
| 133 | The generator input is acted as Ѫ load output enable  generator input is enabled  as the load output | R/W |  |  | 1. Only Ѫ generator input only Gen use 2. Smart load output only smart load output 3. Enable only microinverter input as Ѫ inverse ਈ input |
| 134 | Generator load OFF voltage  SmartLoad OFF batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 135 | Generator load OFF power  SmartLoad OFF batt | R/W | [0000 100] | 1% |  |
| 136 | Generator load ON voltage  SmartLoad ON batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 137 | Generator load ON power  SmartLoad ON batt | R/W | [0000 100] | 1% |  |
| 138 | The output voltage is set 3/4 | R/W |  |  | 0 means 220V means 220V |

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| --- | --- | --- | --- | --- | --- |
|  | Output voltage level setting |  |  |  | 1. Represents 230V means 230V 2. Represents 240V means 240V 3. 表示120V means 120V 4 133VAC |
| 139 | The minimum solar࣏ rate for turning on the generator  minimum solar power  required to start a generator | R/W | [0,8000] | 1W |  |
| 140 | Generator and network informationª  Gen\_Grid\_Signal On |  |  |  |  |
| 141 | Energy management model |  |  |  | Bit0-1 10 Battery Premium] mode battery first mode  11 Load Excellent] mode load first mode Bit2-3 indicates that the ࣘ grid connection ࣏ rate ᒣ balance ࣏ Can Retire passive grid-connected power balance function   1. н Open colse 2. Open   Bit4-5 表示▲ ࣘ 并网࣏ 率ᒣ 衡࣏ 能Represents active grid-connection power balance function   1. н Open close 2. Open |
| 142 | limit control ࣏can  limit control function | R/W |  | 0/1 | 0x00 Enable আ electricity  sell electricity enabled  0x01 enable built-in enabled 0x02 enables external  extraposition enabled |
| 143 | Limit the maximum power output of the grid  connection | R/W | [0,8000] | 1W | ԓ table total࣏ rate  Represents total power |
| 144 | External current sensor direction External current sensor clamp phase | R/W | [xx,00] | 1W | [11][12] |
| 145 | ݹ volts আ electricity  Solar sell | R/W |  |  | 0x00ݹ伏нআ电 solar Don't sell 0x01ݹ  Volt আ electric solar sell |
| 146 | High 3/4 peak shaving and valley filling࣏ enables Time of Use Selling enabled | R/W |  |  | Bit0 0 disable  1 enable  Bit1 Monday  0-disable 1-enable Bit2 Tuesday |

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| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | ……  Bit7 Sunday |
| 147 | й phase ABC grid phase sequence setting  Grid Phase | R/W |  |  | 0 0 120 240  1 0 240 120 |
| 148 | আElectrical mode time point 1  Sell mode time point 1 | R/W | [0000 2359] |  | 2359 represents time 23:59  2359 means time 23:59 |
| 149 | আElectrical mode time point 2 Sell mode time point 2 | R/W | [0000 2359] |  | Time |
| 150 | আElectrical mode time point 3  Sell mode time point 3 | R/W | [0000 2359] |  |  |
| 151 | আElectrical mode time point 4  Sell mode time point 4 | R/W | [0000 2359] |  |  |
| 152 | আElectrical mode time point 5  Sell mode time point5 | R/W | [0000 2359] |  |  |
| 153 | আElectrical mode time point 6  Sell mode time point6 | R/W | [0000 2359] |  |  |
| 154 | আElectrical mode time point 1࣏ rate  Sell mode time point 1 | R/W | [0000 8000] | 1W | ਇ To battery maximum discharge࣏ rate affected by the maximum discharge power of the battery |
| 155 | আ Electrical mode time point 2࣏ rate  Sell mode time point 2 | R/W | [0000 8000] | 1W | Power |
| 156 | আ Electrical mode time point 3 ࣏ rate  Sell mode time point 3 | R/W | [0000 8000] | 1W |  |
| 157 | আ Electrical mode time point 4 ࣏ rate  Sell mode time point 4 | R/W | [0000 8000] | 1W |  |
| 158 | আ Electrical mode time point 5 ࣏ rate  Sell mode time point 5 | R/W | [0000 8000] | 1W |  |
| 159 | আ Electrical mode time point 6 ࣏ rate  Sell mode time point 6 | R/W | [0000 8000] | 1W |  |
| 160 | আ Electrical mode time point 1 voltage  Sell mode time point 1 | R/W | [0000 6300] | 0.01V | ਇ To the effect of battery voltage  Is affected by the battery voltage |
| 161 | আ Electrical mode time point 2 voltage  Sell mode time point 2 | R/W | [0000 6300] | 0.01V | Voltage |
| 162 | আ Electrical mode time point 3 voltage  Sell mode time point 3 | R/W | [0000 6300] | 0.01V |  |

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| --- | --- | --- | --- | --- | --- |
| 163 | আ Electrical mode time point 4 voltage  Sell mode time point 4 | R/W | [0000 6300] | 0.01V |  |
| 164 | আ Electrical mode time point 5 voltage  Sell mode time point 5 | R/W | [0000 6300] | 0.01V |  |
| 165 | আ Electrical mode time point 6 voltage  Sell mode time point 6 | R/W | [0000 6300] | 0.01V |  |
| 166 | 1 capacity 1 capacity | R/W | [0,100] | 1% | Soc |
| 167 | 2 Capacity 2 capacity | R/W | [0,100] | 1% |  |
| 168 | 3 Capacity 3 capacity | R/W | [0,100] | 1% |  |
| 169 | 4 Capacity 4 capacity | R/W | [0,100] | 1% |  |
| 170 | 5 Capacity 5 capacity | R/W | [0,100] | 1% |  |
| 171 | 6 Capacity 6 capacity | R/W | [0,100] | 1% |  |
| 172 | Time point 1 charging enable  Time point 1 charge enable | R/W | [0,1] |  | Bit0 means grid charging enable grid charging enable  Bit1 indicates generator charging enable gen charging  enable |
| 173 | Time point 2 charging enable  Time point 2 charge enable | R/W | [0,1] |  | Nok |
| 174 | Time point 3 charging enabled  Time point 3 charge enable | R/W | [0,1] |  | Nok |
| 175 | Time point 4 charging enabled  Time point 4 charge enable | R/W | [0,1] |  | Nok |
| 176 | Time point 5 charging enable  Time point 5 charge enable | R/W | [0,1] |  | Nok |
| 177 | Time point 6 charging enable  Time point 6 charge enable | R/W | [0,1] |  | Nok |

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| --- | --- | --- | --- | --- | --- |
| 178 | Control board special ࣏can ƒ 1 Microinverter export to grid cutoff | R/W | [0,1] |  | All need to be changed ᡀ twoƒ control need two bits control  -00 No ࣘDo-01 No ࣘDo-10 Disable-11 Enable  -00Nowork-01Nowork-10Disable-11Ena ble  Bit0-1 10:Disable  11:enable  Bit2-3 10:Gen peak-shaving disable 11:Gen peak-shaving enable  Bit4- 5: 10:Grid peak-shaving disable 11:Grid peak-shaving enable  Bit6-7 10:On Grid always on disable 11:On Grid always on enable  Bit8-9 10:external relay disable 11:external relay disable  Bit10-11 10: D电池丢失故障 disable Loss of lithium battery report fault disable  11: D电池丢失故障 enable Loss of lithium battery report fault enable |
| 179 | Control board special ࣏ energy ƒ 2  1, external CT from ࣘ detection direction  2, forced off the net | R/W | [0,1] |  | Bit0-1 10: External CT detects direction disable Externl ct direction check disable disable  11:enable  Bit2-3 10: Forced off-grid work disable Forced off-grid work disable  11:enable |

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| 180 | Restore grid-connected time  Restore connection time | R/W | [10 300] |  |  |
| 181 | Solar Arc Fault mode turns on Solar Arc Fault Mode | R/W | [0 1] |  | 0x00 ޣclosure Close 0x01 open |
| 182 | Grid-connected standards  Grid Mode | R/W | [0 1 ] |  | 0=Common Standard general standard 1= UL1741&IEE1547  2= CPUC RULE21  3= SRD-UL1741  …… |
| 183 | Grid frequency settings  Grid Frequency | R/W | [0 1] |  | 0x00 50HZ  0x01 60hz |
| 184 | Grid type settings  Grid Type  ⧠ In the й phase, invalid | R/W | [0 3 ] |  | 0x00 অ phase defaults to 220V  Single-phase 240 v / 230 v / 220 v 0x01 表示两相120V/240V Stands for two-phase 120V/240V  0x02 表示й相系统208V 120度120V Represents the three-phase system 208V 120 degrees 120V  0X03 120V Single Phase |
| 185 | Grid high voltage guarantee ᣔ point  Grid Vol High | R/W | [1800 2700] | 0.1V |  |
| 186 | Grid No voltage protection ᣔ point  Grid Vol Low | R/W | [1800 2700] | 0.1V |  |
| 187 | Grid frequency is high guaranteed ᣔ points  Grid Hz High | R/W | [4500 6500] | 0.01Hz |  |
| 188 | Grid frequency No guarantee ᣔ point  Grid Hz Low | R/W | [4500 6500] | 0.01Hz |  |
| 189 | The generator is connected to the grid input  The generator is connected to the grid input | R/W | [1 0] |  | 1. disable 2. enabled |
| 190 | GEN peak shaving Power | R/W | [0 16000] | 1w |  |
| 191 | GRID peak shaving Power | R/W | [0 16000] | 1w |  |
| 192 | Smart Load Open Delay | R/W | [1 120] | 1Minute |  |
| 193 | Output PF value setting ($࣏adjusted  Output PF value Settings | R/W | [800 1200] |  | 800 indicates adjustment to 80% 1200 identification adjusted to 120%.  800 for 80%, 1200 for 120% |
| 194 | External relay ƒ  External relay bit | R/W | [0 0xFFFF] |  | Bit0-8 corresponds to 8 relays ƒ  Bit0-8 corresponds to 8 relay bits |
| 195 | ARC\_facTory\_B high ƒ  ARC\_facTory\_B high word | R/W | [0,65535] |  | Combination of high ƒ and ground ƒ, ԕ numerical display ণ is ok  High and status combination, with numerical |

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|  |  |  |  |  | display can be |
| 196 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 197 | ARC\_facTory\_I high ƒ  ARC\_facTory\_I high word | R/W | [0,65535] |  |
| 198 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 199 | ARC\_facTory\_F high ƒ  ARC\_facTory\_F high word | R/W | [0,65535] |  |  |
| 200 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 201 | ARC\_facTory\_D high ƒ  ARC\_facTory\_D high word | R/W | [0,65535] |  |  |
| 202 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 203 | ARC\_facTory\_T high ƒ  ARC\_facTory\_T high word | R/W | [0,65535] |  |  |
| 204 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 205 | ARC\_facTory\_C high ƒ  ARC\_facTory\_C high word | R/W | [0,65535] |  |  |
| 206 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 207 | ARC\_facTory\_Frz high ƒ  ARC\_facTory\_Frz high word | R/W | [0,65535] |  |  |
| 208 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 209 | Ups\_delay time | R/W |  | 1S | 1. Ѫ default 2. 1S |
| 210 | Charging voltage  charging voltage | R/W |  | 0.01V |  |
| 211 | Discharge voltage  discharge voltage | R/W |  | 0.01V |  |
| 212 | Charge current limit  charging current limiting | R/W |  | 1A |  |
| 213 | Discharge current limit  Discharge current limiting | R/W |  | 1A |  |
| 214 | The current capacity  real time Capacity | R/W |  | 1% |  |
| 215 | The current voltage  real time voltage | R/W |  | 0.01V |  |
| 216 | Current current | R/W |  | 1A |  |

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|  | real time current |  |  |  |  |
| 217 | The current temperature  real time temp | R/W |  | 0.1C | 1000 corresponds to 0 degrees 1200 means 20.0 degrees 800 represents  -20.0C  1000 corresponds to 0 degrees  1200 means 20.0 degrees  800 means -20.0C |
| 218 | Off-grid charging current limit Maximum  Maximum charge current limit | R/W |  | 1A |  |
| 219 | Off-grid discharge current limit Maximum  Maximum discharge current limiting | R/W |  |  |  |
| 220 | D Battery Alarm ƒ  Lithium battery alarm position | R/W |  |  | 0x0001 |
| 221 | D battery fault ƒ  Lithium battery fault location | R/W | [0,65535] |  |  |
| 222 | D Battery Logo 2  Lithium battery symbol 2 | R/W | [0,65535] |  | Bit0 vacancy Vacancy  Bit1 Strong ߢ Logo Strong impact marks |
| 223 | D Battery type  Lithium battery type | R/W |  |  | 0x0000 ޤ Paineng Delangen D  PYLON SOLAX  Universal CAN co-operative  0x0001 Tianbangda RS485modbus co-operative  0x0002 KOK  0x0003 Keith 0X0004 Tuopai  0X0005 Paineng 485 Concord  0X0006 485 co-editor  0X0007 Xinwanda 485 co-choreography  0X0008 Xinruineng 485 co-choreography  0X0009 Tianbangda 485 concord  0X000A Shenggao Electric can co-advise |
| 224 | D Battery SOH  Lithium battery SOH |  |  |  |  |
| 225 |  |  |  |  |  |
| 226 |  |  |  |  |  |
| 227 | Upgrade LCD test | R/W | [0,1] |  |  |
| 228 | Pass " board settings ࣏ can  Comm board setting function | R/W |  |  | Bit0-1 time calibration time  Bit2-3 beep  Bit4-5 AM/PM |

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|  |  |  |  |  | Bit6-7 Auto dim  -00无ࣘ作 no work  -01无ࣘ作 no work  -10 disable disable  -11 enable enable |
| 229 |  |  |  |  |  |
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| 239 |  |  |  |  |  |
| 240 | Enter the preliminary test procedure in the factory | R/W |  |  | =12345 䘋入 |
| 241 |  |  |  |  |  |
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| 267 |  |  |  |  |  |
| 268 |  |  |  |  |  |
| 269 | Grid1\_I |  |  |  |  |
| 270 | Grid2\_I |  |  |  |  |
| 271 | Grid3\_I |  |  |  |  |
| 272 | Grid\_V\_L1 |  |  |  |  |
| 273 | Grid\_V\_L2 |  |  |  |  |
| 274 | Grid\_V\_L3 |  |  |  |  |
| 275 | Limit1\_I |  |  |  |  |
| 276 | Limit2\_I |  |  |  |  |
| 277 | Limit3\_I |  |  |  |  |
| 278 | PV1\_V |  |  |  |  |
| 279 | PV1\_I |  |  |  |  |
| 280 | PV2\_V |  |  |  |  |
| 281 | PV2\_I |  |  |  |  |
| 282 | INV\_A\_I |  |  |  |  |
| 283 | INV\_B\_I |  |  |  |  |
| 284 | INV\_C\_I |  |  |  |  |
| 285 | INV\_A\_V |  |  |  |  |
| 286 | INV\_B\_V |  |  |  |  |
| 287 | INV\_C\_V |  |  |  |  |
| 288 | BAT\_I |  |  |  |  |
| 289 | BAT\_V |  |  |  |  |
| 290 |  |  |  |  |  |
| 291 |  |  |  |  |  |
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| 310 | Solar does Wind input enable  Solar makes Wind input enable | R/W | [0,1] |  | Bit0 Solar1  Bit1 Solar2 |
| 311 | Voltage 1 | R/W | [500,5000] | 0.1V |  |
| 312 | Voltage 2 | R/W |  | 0.1V |  |
| 313 | Voltage 3 | R/W |  | 0.1V |  |
| 314 | Voltage 4 | R/W |  | 0.1V |  |
| 315 | Voltage 5 | R/W |  | 0.1V |  |
| 316 | Voltage 6 | R/W |  | 0.1V |  |
| 317 | Voltage 7 | R/W |  | 0.1V |  |
| 318 | Voltage 8 | R/W |  | 0.1V |  |
| 319 | Voltage 9 | R/W |  | 0.1V |  |
| 320 | Voltage 10 | R/W |  | 0.1V |  |
| 321 | Voltage 11 | R/W |  | 0.1V |  |
| 322 | Voltage 12 | R/W |  | 0.1V |  |
| 323 | Current 1 | R/W | [0-200] | 0.1A |  |
| 324 | Current 2 | R/W |  | 0.1A |  |
| 325 | Current 3 | R/W |  | 0.1A |  |
| 326 | Current 4 | R/W |  | 0.1A |  |
| 327 | Current 5 | R/W |  | 0.1A |  |
| 328 | Current 6 | R/W |  | 0.1A |  |
| 329 | Current 7 | R/W |  | 0.1A |  |
| 330 | Current 8 | R/W |  | 0.1A |  |
| 331 | Current 9 | R/W |  | 0.1A |  |
| 332 | Current 10 | R/W |  | 0.1A |  |
| 333 | Current 11 | R/W |  | 0.1A |  |
| 334 | Current 12 | R/W |  | 0.1A |  |
| 335 | obligate  Undefine |  |  |  |  |
| 336 | Parallel **1**  Parallel-1 |  |  |  |  |
| 337 | Parallel 2  Parallel-2 |  |  |  |  |
| 338 | obligate  Undefine |  |  |  |  |
| 339 | obligate  Undefine |  |  |  |  |
| 340 | ݹ volt maximum আ electrical࣏ rate  Max Solar Sell Power |  | R/W | 1W |  |
| 341 | obligate  Undefine |  |  |  |  |
| 342 | obligate  Undefine |  |  |  |  |

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| 343 | obligate  Undefine |  |  |  |  |
| 344 | Grid information monitoring methods  Grid check from Meter or CT | R/W |  |  | BIT00:  0:CT  1:MandTandR  BIT01: -BIT15: undefine |
| 345 |  |  |  |  |  |
| 346 |  |  |  |  |  |
| 347 | External CTਈ ratio  CT ratio | R/W |  | 30<-->  30:1 | U16 |
| 348 | 外置Meter CTਈ比Meter CT ratio | R/W |  | 30<-->  30:1 | U16 |
| 349 |  |  |  |  |  |
| 350 | Input slope control for Charge⧟  ↓ Number | R/W | [0-500] | In | Cycle-by-cycle ࣏ rateਈ  Cycle by cycle power variation |
| 351 | Input slope control for Charge⧟  negative number | R/W | [0-500] | In | Cycle-by-cycle ࣏ rateਈ  Cycle by cycle power variation |
|  |  |  |  |  |  |
| 359 | Off-grid overload Voltage is less than 180V  duration |  |  |  |  |
| 360 |  |  |  |  |  |
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| 380 | ࣐ State No Pressure High Pressure Penetration CA\_LHVRT enable California low pressure high pressure through  CA\_LHVRT enable | R/W | [0,1] |  | 0: disable 1: enable |
| 381 | CA\_HV2 | R/W | [1000,3000] |  |  |
| 382 | CA\_HV1 | R/W |  |  |  |
| 383 | CA\_LV1 | R/W |  |  |  |
| 384 | CA\_LV2 | R/W |  |  |  |
| 385 | CA\_LV3 | R/W |  |  |  |
| 386 | CA\_HV2\_Time | R/W | [0,300] |  | 0 is 0.16S |
| 387 | CA\_HV1\_Time | R/W |  |  |  |
| 388 | CA\_LV1\_Time | R/W |  |  |  |
| 389 | CA\_LV2\_Time | R/W |  |  |  |
| 390 | CA\_LV3\_Time | R/W |  |  |  |
| 391 | ࣐ State No Frequency High Frequency Cross CA\_LHFRT enable California low frequency high frequency traverses  CA\_LHFRT enable | R/W |  |  |  |
| 392 | CA\_HF2 | R/W | [4500,6500] | 0.01Hz |  |

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| --- | --- | --- | --- | --- | --- |
| 393 | CA\_HF1 | R/W |  |  |  |
| 394 | CA\_LF1 | R/W |  |  |  |
| 395 | CA\_LF2 | R/W |  |  |  |
| 396 | CA\_HF2\_Time | R/W | [0,300] |  |  |
| 397 | CA\_HF1\_Time | R/W |  |  |  |
| 398 | CA\_LF1\_Time |  |  |  |  |
| 399 | CA\_LF2\_Time |  |  |  |  |
| 400 | ࣐ State CA\_QV enabled  California CA\_QV enable |  |  |  |  |
| 401 | CA\_QV\_V1 |  | [1000,3000] |  |  |
| 402 | CA\_QV\_V2 |  |  |  |  |
| 403 | CA\_QV\_V3 |  |  |  |  |
| 404 | CA\_QV\_V4 |  | [-44,+44] | 0.01 |  |
| 405 | CA\_QV\_Q1 |  |  |  |  |
| 406 | CA\_QV\_Q2 |  |  |  |  |
| 407 | CA\_QV\_Q3 |  |  |  |  |
| 408 | CA\_QV\_Q4 |  |  |  |  |
| 409 | ࣐ State CA\_FW enabled  California CA\_FW enable |  |  |  |  |
| 410 | CA\_Fstart |  |  |  |  |
| 411 | CA\_Fstop |  |  |  |  |
| 412 | ࣐ State CA\_VW enabled  California CA\_VW enable |  |  |  |  |
| 413 | CA\_Vstart |  |  |  |  |
| 414 | CA\_Vstop |  |  |  |  |
| 415 | ↓ к liter slope  Normal upward slope | R/W | [1 100] | 1% |  |
| 416 | Soft start ࣘк liter rate  Soft start rise rate | R/W | [1 100] | 1% |  |
| 417 | QV Response time | R/W | [0,90] | S |  |
| 418 | VW Response time | R/W | [0,60] | S |  |
| 419 | FW Response time |  |  |  |  |

* 1. **03** Read-only real-time properties; , the corresponding ࣏energy code is **0x03**°

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| Addr | Register meaning | R/W | data range | unit | note |
|  | | | | | |
| 500 | The health status  run state | R | [0,5] | - | 0000 standby  0001 self-check selfcheck  0002 ↓常 normal  0003 alarm alarm  0004 Fault fault |

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| 501 | The retrograde grid side $࣏ of power generation on the same day  active power generation of  today | R | [-32768,32767] | 0.1kWh |  |
| 502 | There is no ࣏ generation capacity on the grid side of the inverter on the same day  reactive power generation of  today | R | [-32768,32767] | 0.1kVarh |  |
| 503 | Grid connection time on the day  Grid connection time of today | R | [0,65535] | S |  |
| 504 | Total power generation on the grid side of the inverter ࣏  No  active power generation of total low byte | R | [0,0xFFFFFFFF] | 0.1kWh |  |
| 505 | Total $堛 power generation on the grid side of the inverter is highᆇ  active power generation of  total high byte | R |
| 506 | There is always no ࣏generation capacity on the grid side of the inverter  No  reactive power generation of total low byte |  |  |  |  |
| 507 | There is always no ࣏on the grid side of the inverter ࣏ high power generation ᆇ  reactive power generation of  total high byte |  |  |  |  |
| 508 | ~~Inverse ਈ device state ƒ1~~ | R |  |  | **Debug only** for debugging, meaningless  Bit0: Internal fan ᆈ in Ƒ: 1$ 0 Without Bit1: External fan ᆈ in Ƒ: 1$ 0 None |
| 509 | ~~Inverse ਈ device state ƒ1~~ | R |  |  | **Debug only** for debugging, meaningless |
| 510 |  |  |  |  |  |
| 511 |  |  |  |  |  |
| 512 |  |  |  |  |  |
| 513 |  |  |  |  |  |
| 514 | The amount of battery charged on the day  Today charge of the battery |  |  | 0.1kwh |  |
| 515 | The battery is discharged on the same day  Today discharge of the battery |  |  | 0.1kwh |  |
| 516 | The cumulative charge of the battery is Noᆇ  Total charge of the battery low byte |  |  | 0.1kwh |  |
| 517 | The cumulative charge of the battery is high ᆇ  Total charge of the battery |  |  | 0.1kwh |  |

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|  | high byte |  |  |  |  |
| 518 | The battery is accumulated and discharged Noᆇ  Total discharge of the battery low byte |  |  | 0.1kwh |  |
| 519 | The cumulative discharge of the battery is highᆇ  Total discharge of the battery high byte |  |  | 0.1kwh |  |
| 520 | Grid purchase of electricity on the same day  Day\_GridBuy\_Power Wh |  |  | 0.1kwh |  |
| 521 | The power of the grid on the day of the day আ  Day\_GridSell\_Power Wh |  |  | 0.1kwh |  |
| 522 | The grid has accumulated no electricity purchases Noᆇ  Total\_GridBuy\_Power Wh\_low word |  |  | 0.1kwh |  |
| 523 | The cumulative purchase of electricity in the power grid is highᆇ  Total\_GridBuy\_Power Wh\_high word |  |  | 0.1kwh |  |
| 524 | The grid accumulates আ electricity Noᆇ  Total\_GridSell\_Power Wh\_low word |  |  | 0.1kwh |  |
| 525 | The cumulative power of the power grid is highᆇ  Total\_GridSell\_Power Wh\_high word |  |  | 0.1kwh |  |
| 526 | Electricity consumption for the day  Day\_Load\_Power Wh |  |  | 0.1kwh |  |
| 527 | Cumulative electricity consumption Noᆇ  Total\_Load\_Power Wh\_low word |  |  | 0.1kwh |  |
| 528 | Cumulative electricity consumption is highᆇ  Total\_Load\_Power Wh\_high word |  |  | 0.1kwh |  |
| 529 | Total PV generation on the day  Day\_PV\_Power Wh | R | [0,65535] | 0.1kWh |  |
| 530 | PV-1 power generation on the same day  Day\_PV-1\_Power Wh |  |  | 0.1kWh |  |
| 531 | PV-2 power generation on the same day  Day\_PV-2\_Power Wh |  |  | 0.1kWh |  |
| 532 | PV-3 power generation on the same day  Day\_PV-3\_Power Wh |  |  | 0.1kWh |  |
| 533 | PV-4 power generation on the same day  Day\_PV-4\_Power Wh |  |  | 0.1kWh |  |
| 534 | Historical PV power generation Noᆇ  Total PV\_power Wh\_low word | R |  | 0.1kWh |  |

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| --- | --- | --- | --- | --- | --- |
| 535 | Historical PV power generation is highᆇ  Total PV\_power Wh\_high word | R |  | 0.1kWh |  |
| 536 |  |  |  |  |  |
| 537 |  |  |  |  |  |
| 538 |  |  |  |  |  |
| 539 | Generator day working hours  Generator working hours per  day |  |  | 0.1h |  |
| 540 | DCਈpressor temperature (DCTransformer.)  temperature) | R | [0,3000] | 0.1℃ | Offset 1000 |
| 541 | Heat dissipation ƒ temperature  Heat sink temperature |  | [0,3000] | 0.1℃ |  |
| 542 | Reserve temperature 1 undefine |  | [0,3000] | 0.1℃ |  |
| 543 | Reserve temperature 2 undefine | R | [0,3000] | 0.1℃ |  |
| 544 | Reserved temperature 3  undefine | R | [0,3000] | 0.1℃ |  |
| 545 |  |  |  |  |  |
| 546 |  |  |  |  |  |
| 547 |  |  |  |  |  |
| 548 | Pass the failure status of the board  Failure status of  communication board | R | [0,0xFFFF] |  | Bit0 Flash chip error Bit1 time error  Bit2 EEPROM error |
| 549 | MCU test flag ƒ MCU test flag |  |  |  | Bit0 pulls the arc communication sign  Bit1 can be paralleled to "Parallel CAN"  communication |
| 550 | LCD test flag ƒ LCD test flag | R | 0x0000 |  | Bit8 D电接口RS485 Lithium electric interface RS485  Bit9 D电接口CAN Lithium electric interface CAN  Bit10 button 1234 key1234  Bit11 LCD interrupt status lcd interrupt  status |
| 551 | On the machine status  Turn off/on status | R |  |  | No4ƒ means open ޣ letter ª  0000 ޣ机 power off  0001 Power on |
| 552 | AC side relay status AC realy status | R |  |  | 1. off 2. on   Bit0 INV relay INV relay  Bit1 Load Relay Reserved undefine Bit2 Grid Relay grid relay  Bit3 generator relay gen relay  Bit4 grid-powered relay grid give power to relay |

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| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Bit5 ç contact Dry contact |
| 553 | Alarm Information No. 1 ᆇ  Warning message word 1 | R | [0,65535] |  | Bit0: reserved  Bit1: Fan failure FAN\_WARN  Bit2: Grid phase ƒ fault grid phase wrong  Bit3: |
| 554 | Alarm information No. 2 ᆇ  Warning message word 2 | R | [0,65535] |  |  |
| 555 | Fault information no. 1ᆇ  Fault information word 1 | R | [0,65535] |  | See Fault Information Coding Table |
| 556 | Fault information no. 2ᆇ  Fault information word 2 | R | [0,65535] |  |
| 557 | Fault information no. 3 ᆇ  Fault information word 3 | R | [0,65535] |  |
| 558 | Fault information No. 4 ᆇ  Fault information word 4 | R | [0,65535] |  |
| 559 | obligate |  |  |  |  |
| 560 | obligate |  |  |  |  |
| 561 | Debug data  Debug Data |  |  |  |  |
|  | 561-583 totals 23 tones  Try the data |  |  |  |  |
| 583 | Debug data  Debug Data | R | 0x0000 |  |  |
| 584 | obligate  undefine |  |  |  |  |
| 585 | obligate  undefine |  |  |  |  |
| 586 | Battery temperature  battery temperature | R 0 | [0,3000] | 0.1℃ |  |
| 587 | Battery voltage  battery voltage | R 1 |  | 0.01V |  |
| 588 | Battery level  battery capacity | R 2 | [0,100] | 1% |  |
| 589 | retain  undefined | R 3 |  |  |  |
| 590 | Battery output࣏ rate  Battery output power | R4 |  | 1W | S16 |
| 591 | Battery output current  Battery output current | R5 |  | 0.01A | S16 |
| 592 | The capacity of the battery school ↓ ਾ  Corrected\_AH | 6 | [0,3000] | 1AH | 100 is 100AH |
| 593 |  | 7 |  |  |  |
| 594 |  | 8 |  |  |  |

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| 595 |  | 9 |  |  |  |
| 596 |  | 10 |  |  |  |
| 597 |  | 11 |  |  |  |
| 598 | Grid-side phase voltage A Grid phase voltage A | R12 |  | 0.1V |  |
| 599 | Grid side phase voltage B Grid phase voltage B | R13 |  | 0.1V |  |
| 600 | Grid-side phase voltage C Grid phase voltage C | R14 |  | 0.1V |  |
| 601 | Grid side voltage AB Grid line voltage AB | R15 |  | 0.1V | obligate |
| 602 | Grid side line voltage BC  Grid line voltage BC | R16 |  | 0.1V |  |
| 603 | Grid side voltage CA Grid line voltage CA | R17 |  | 0.1V |  |
| 604 | The A-phase࣏ rate on the inner side of the grid side  A phase power on the inner  side of the grid | R18 |  | 1W | S16 |
| 605 | The B-phase࣏ rate on the inner side of the grid  B phase power on the inner  side of the grid | R19 |  | 1W | S16 |
| 606 | The C-phase࣏ rate on the inside of the grid side  C phase power on the inner  side of the grid | R20 |  | 1W | S16 |
| 607 | 电网侧-内侧总$࣏࣏率Total active power from side to side of the grid | R21 |  | 1W |  |
| 608 | Grid side-inside total apparent at ࣏ rate  Grid side - inside total  apparent power | R22 |  | 1W | obligate |
| 609 | Grid-side frequencies  Grid-side frequency | 23 |  |  |  |
| 610 | Grid side internal current A  grid side inner current A | R24 |  | 0.01A | S16 |
| 611 | Grid side inner current B  grid side inner current B | R25 |  | 0.01A | S16 |
| 612 | Grid side inner current C  grid side inner current C | R26 |  | 0.01A | S16 |
| 613 | Grid external - current A  Out-of-grid - current A | R27 |  | 0.01A | S16 |
| 614 | Grid external - current B  Out-of-grid - current B | R28 |  | 0.01A | S16 |
| 615 | Grid external - current C  Out-of-grid - current C | R29 |  | 0.01A | S16 |
| 616 | 电网外置-࣏率A Out-of-grid -power A | R30 |  | 1W | S16 |
| 617 | Grid external - ࣏ rate B  Out-of-grid -power B | R31 |  | 1W | S16 |
| 618 | 电网外置-࣏率C Out-of-grid -power C | R32 |  | 1W | S16 |
| 619 | Grid External - Total $࣏࣏ rate  Out-of-grid –total power | R33 |  | 1W | S16 |
| 620 | Grid External - Total Apparent ࣏ rate | R34 |  | 1VA | S16 |

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|  | Out-of-grid –total apparent power |  |  |  |  |
| 621 | Grid-tied࣏ rate factor PF  Grid-connected power factor PF | R35 | R/W | [0,1000] | True value\*1000 |
| 622 | Grid-side A-phase ࣏ rate  Grid side A-phase power | 36 |  | 1W | ԕлй parasitizersᆈ areਈ according to the built-in external settings  The following three registers vary according to the built-in and external Settings |
| 623 | Grid-side B-phase ࣏ rate  Grid side B-phase power | 37 |  | 1W |  |
| 624 | Grid-side C-phase࣏ rate  Grid side C-phase power | 38 |  | 1W |  |
| 625 | Grid side - total $࣏࣏ rate  Grid side total power | 39 |  | 1W |  |
| 626 |  | 40 |  |  |  |
| 627 | The inverter outputs phase voltage A  Inverter output phase voltage A | R41 |  | 0.1V |  |
| 628 | The inverter outputs phase voltage B  Inverter output phase voltage B | R42 |  | 0.1V |  |
| 629 | The inverter outputs phase voltage C  Inverter output phase voltage C | R43 |  | 0.1V |  |
| 630 | The inverter outputs phase current A  Inverter output phase current A | 44 |  | 0.01A | S16 |
| 631 | Inverter output phase B Inverter output phase  current B | 45 |  | 0.01A | S16 |
| 632 | Inverter output phase current C Inverter output phase current C | 46 |  | 0.01A | S16 |
| 633 | Inverter output phase࣏ rate A Inverter output phase  power A | R47 |  | 1W | S16 |
| 634 | Inverter output phase࣏ rate B Inverter output phase  power B | R48 |  | 1W | S16 |
| 635 | The inverter outputs the phase࣏rate C Inverter output phase  power C | 49 |  | 1W | S16 |
| 636 | The total inverse ਈ output is $࣏࣏ rate  Inverter output total  power | R50 |  | 1W | S16 |
| 637 | The inverse output is always at the ࣏ rate  Inverter output total  apparent power | 51 |  | 1W | S16 |

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| 638 | Inverter frequency  Inverter frequency | 52 |  | 0.01Hz | U16 |
| 639 |  | 53 |  |  |  |
| 640 | UPS load side phase ࣏ rate A  UPS load-side phase power  A | 54 |  | 1W | U16 |
| 641 | UPS load side phase ࣏ rate B  UPS load-side phase power  B | 55 |  | 1W | U16 |
| 642 | UPS load side phase ࣏ rate C  UPS load-side phase power  C | 56 |  | 1W | U16 |
| 643 | UPS load side total ࣏ rate C UPS load-sidetotal power | 57 |  | 1W | U16 |
| 644 | Load phase voltage A Load phase voltage A | R58 |  | 0.1V | U16 |
| 645 | Load phase measurement voltage B Load phase voltage B | R59 |  | 0.1V | U16 |
| 646 | Load phase measurement voltage C Load phase voltage C | 60 |  | 0.1V | U16 |
| 647 | The load measurement current A is invalid  Load phase current A no use | R61 |  | 0.01A | S16 |
| 648 | Load measurement current B is invalid  Load phase current B no use | R62 |  | 0.01A | S16 |
| 649 | The load measurement current C is invalid  Load phase current C no use | R63 |  | 0.01A | S16 |
| 650 | 负载侧相࣏率A Load phase power A | R64 |  | 1W | S16 |
| 651 | Load side phase ࣏rate B Load phase power B | R65 |  | 1W | S16 |
| 652 | Load side phase ࣏ rate C  Load phase power C | R66 |  | 1W | S16 |
| 653 | Total load side $࣏࣏ rate  Load totalpower | R67 |  | 1W | S16 |
| 654 | Load side total viewing at ࣏ rate reserved  Load phase apparent power  undefine | R68 |  | 1W | S16 |
| 655 | Load frequency  Load frequency | R69 |  | 0.01Hz |  |
| 656 |  | 70 |  |  |  |
| 657 |  | 71 |  |  |  |
| 658 |  | 72 |  |  |  |
| 659 |  | 73 |  |  |  |
| 660 |  | 74 |  |  |  |
| 661 | Phase voltage A of the Gen port  Phase voltage of Gen port A | 75 |  | 0.1V |  |
| 662 | Phase voltage B of the Gen port  Phase voltage of Gen port B | 76 |  | 0.1V |  |
| 663 | Phase voltage C for gen port  Phase voltage of Gen port C | 77 |  | 0.1V |  |
| 664 | The ࣏ rate A of the Gen port  Phase power of Gen port A | R78 |  | 1W |  |

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| 665 | The ࣏ rate B of the Gen port  Phase power of Gen port B | 79 |  | 1W |  |
| 666 | The ࣏ rate C for the Gen port  Phase power of Gen port C | 80 |  | 1W |  |
| 667 | The total ࣏ rate of gen ports  total power of Gen port | 81 |  | 1W |  |
| 668 |  | 82 |  |  |  |
| 669 |  | 83 |  |  |  |
| 670 |  | 84 |  |  |  |
| 671 |  | 85 |  |  |  |
| 672 | PV1 input࣏ rate  PV1 input power | R86 |  | 1W |  |
| 673 | PV2 input࣏ rate  PV2 input power | R87 |  | 1W |  |
| 674 | PV3 input࣏ rate  PV3 input power | R88 |  | 1W |  |
| 675 | PV4 input࣏ rate  PV4 input power | R89 |  | 1W |  |
| 676 | DC voltage 1  Dc voltage 1 | R90 | [0,65535] | 0.1V |  |
| 677 | DC current 1  Dc current 1 | R91 | [0,65535] | 0.1A |  |
| 678 | DC voltage 2  Dc voltage 2 | R92 | [0,65535] | 0.1V |  |
| 679 | DC current 2  Dc current 2 | R93 | [0,65535] | 0.1A |  |
| 680 | DC voltage 3  Dc voltage 3 | R94 | [0,65535] | 0.1V |  |
| 681 | DC current 3  Dc current 3 | R95 | [0,65535] | 0.1A |  |
| 682 | DC voltage 4  Dc voltage 4 | R96 | [0,65535] | 0.1V |  |
| 683 | DC current 4  Dc current 4 | R97 | [0,65535] | 0.1A |  |
|  | obligate |  |  |  |  |
|  | obligate |  |  |  |  |
|  | obligate |  |  |  |  |
| 1000 | Grid information monitoring methods  Grid power check mode | R |  |  | BIT00:  0:CT  1:Meter  BIT01-BIT15: undefine |
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* 1. **03** Battery read only;

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| Addr | Register meaning | | R/W | data range | unit | note |
| 2000-2999 ѪD Battery Register | | | | | | |
|  | Battery ID | |  |  |  |  |
|  | Shenyang battery |  |  |  |  |  |
| 500 | 1st 1st ᆇ1 | | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 1st 2 nd ᆇ | |
| 501 | 1st 3rd ᆇ | | R |  |  |  |
| 1st 4th ᆇ | |
| 502 | 1st 5th ᆇ1st | |  |  |  |  |
| 1st 6th ᆇ | |
| 503 | 1st 7th ᆇ | |  |  |  |  |
| 1st 8th ᆇ | |
| 504 | 1st 9th ᆇ | |  |  |  |  |
| 1st 10th ᆇ10 | |
| 505 | 1st 11th ᆇ | |  |  |  |  |
| 1st 12th ᆇ12 | |
| 506 | 2nd 1st ᆇ | | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 2nd 2nd ᆇ | |
| 507 | 2rd 3rd ᆇ | | R |  |  |  |
| 2nd 4th ᆇ | |
| 508 | 2nd 5th ᆇ | |  |  |  |  |
| 2nd 6th ᆇ | |

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| 509 | 2nd 7th ᆇ |  |  | | |  |  |
| 2nd 8th ᆇ |
| 510 | 2nd 9th ᆇ |  |  | | |  |  |
| 2nd 10th ᆇ |
| 511 | 2nd 11th ᆇ |  |  | | |  |  |
| 2nd 12th ᆇ |
| 512 | 3rd 1ᆇ1 | R | ‘0’-  'Z' | ‘9’ | ‘A’- |  | ASCII 符 |
| 3rd 2nd ᆇ |
| 513 | 3rd 3rd ᆇ | R |  | | |  |  |
| 3rd 4th ᆇ |
| 514 | 3rd 5th ᆇ |  |  | | |  |  |
| 3rd 6th ᆇ |
| 515 | 3rd 7th ᆇ |  |  | | |  |  |
| 3rd 8th ᆇ |
| 516 | 3rd 9th ᆇ |  |  | | |  |  |
| 3rd 10th ᆇ10 |
| 517 | 3rd 11th ᆇ |  |  | | |  |  |
| 3rd 12th ᆇ |
| 518 | 4th 1 ᆇ | R | ‘0’-  'Z' | ‘9’ | ‘A’- |  | ASCII 符 |
| 4th 2nd ᆇ |
| 519 | 4th 3rd ᆇ | R |  | | |  |  |
| 4th 4th ᆇ |
| 520 | 4th 5th ᆇ |  |  | | |  |  |
| 4th 6th ᆇ |
| 521 | 4th 7th ᆇ |  |  | | |  |  |
| 4th 8th ᆇ |
| 522 | 4th 9th ᆇ |  |  | | |  |  |
| 4th 10th ᆇ |
| 523 | 4th 11ᆇ |  |  | | |  |  |
| 4th 12th ᆇ12 |
| 524 | 5th 1 ᆇ1 | R | ‘0’-  'Z' | ‘9’ | ‘A’- |  | ASCII 符 |
| 5th 2 ᆇ |
| 525 | 5th 3rd ᆇ | R |  | | |  |  |
| 5th 4th ᆇ1st |
| 526 | 5th 5th ᆇ |  |  | | |  |  |
| 5th 6th ᆇ |
| 527 | 5th 7th ᆇ |  |  | | |  |  |
| 5th 8th ᆇ |
| 528 | 5th 9th ᆇ |  |  | | |  |  |
| 5th 10th ᆇ |
| 529 | 5th 11th ᆇ |  |  | | |  |  |
| 5th 12th ᆇ12 |
| 530 | 6th 1ᆇ1 | R | ‘0’- | ‘9’ | ‘A’- |  | ASCII 符 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 6th 2nd ᆇ |  | 'Z' |  |  |
| 531 | 6th 3rd ᆇ | R |  |  |  |
| 6th 4th ᆇ |
| 532 | 6th 5th ᆇ |  |  |  |  |
| 6th 6th ᆇ |
| 533 | 6th 7th ᆇ |  |  |  |  |
| 6th 8th ᆇ |
| 534 | 6th 9th ᆇ |  |  |  |  |
| 6th 10th ᆇ |
| 535 | 6th 11th ᆇ |  |  |  |  |
| 6th 12th ᆇ12 |
| 536 | 7th 1 ᆇ | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 7th 2 ᆇ |
| 537 | 7th 3rd ᆇ | R |  |  |  |
| 7th 4th ᆇ |
| 538 | 7th 5th ᆇ |  |  |  |  |
| 7th 6th ᆇ |
| 539 | 7th 7th ᆇ |  |  |  |  |
| 7th 8th ᆇ |
| 540 | 7th 9th ᆇ |  |  |  |  |
| 7th 10th ᆇ10 |
| 541 | 7th 11th ᆇ1 |  |  |  |  |
| 7th 12th ᆇ12 |
| 542 | 8th 1 ᆇ | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 8th 2ᆇ |
| 543 | 8th 3rd ᆇ | R |  |  |  |
| 8th 4th ᆇ |
| 544 | 8th 5th ᆇ |  |  |  |  |
| 8th 6th ᆇ |
| 545 | 8th 7th ᆇ |  |  |  |  |
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| 546 | 8th 9th ᆇ |  |  |  |  |
| 8th 10th ᆇ |
| 547 | 8th 11th ᆇ |  |  |  |  |
| 8th 12th ᆇ12 |
| 548 | 9th 1ᆇ1 | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 9th 2ᆇ |
| 549 | 9th 3rd ᆇ | R |  |  |  |
| 9th 4th ᆇ |
| 550 | 9th 5th ᆇ |  |  |  |  |
| 9th 6th ᆇ |
| 551 | 9th 7th ᆇ |  |  |  |  |
| 9th 8th ᆇ |

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| 552 | 9th 9th ᆇ |  |  |  |  |
| 9th 10th ᆇ10 |
| 553 | 9th 11th ᆇ |  |  |  |  |
| 9th 12th ᆇ12 |
| 554 | 10th 1 ᆇ | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 10th 2ᆇ |
| 555 | 10th 3rd ᆇ | R |  |  |  |
| 10th 4th ᆇ |
| 556 | 10th 5th ᆇ |  |  |  |  |
| 10th 6th ᆇ |
| 557 | 10th 7th ᆇ |  |  |  |  |
| 10th 8th ᆇ |
| 558 | 10th 9th ᆇ |  |  |  |  |
| 10th 10th ᆇ10 |
| 559 | 10th 11th ᆇ11 |  |  |  |  |
| 10th 12th ᆇ1 |
| 560 | 11th 1ᆇ1 | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 11th 2nd ᆇ |
| 561 | 11th 3rd ᆇ | R |  |  |  |
| 11th 4th ᆇ |
| 562 | 11th 5th ᆇ |  |  |  |  |
| 11th 6th ᆇ |
| 563 | 11th 7th ᆇ1st 7 |  |  |  |  |
| 11th 8th ᆇ |
| 564 | 11th 9th ᆇ |  |  |  |  |
| 11th 10th ᆇ10 |
| 565 | 11th 11th ᆇ1 |  |  |  |  |
| 11th 12th ᆇ12 |
| 566 | 12th 1ᆇ1 | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 12th 2nd ᆇ |
| 567 | 12th 3rd ᆇ | R |  |  |  |
| 12th 4th ᆇ |
| 568 | 12th 5th ᆇ |  |  |  |  |
| 12th 6th ᆇ |
| 569 | 12th 7th ᆇ1st 7 |  |  |  |  |
| 12th 8th ᆇ |
| 570 | 12th 9th ᆇ |  |  |  |  |
| 12th 10th ᆇ10 |
| 571 | 12th 11th ᆇ11 |  |  |  |  |
| 12th 12th ᆇ12 |
| 572 | 13th 1ᆇ1 | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 13th 2 ᆇ |
| 573 | 13th 3rd ᆇ | R |  |  |  |

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|  | 13th 4th ᆇ | |  |  |  |  |
| 574 | 13th 5th ᆇ | |  |  |  |  |
| 13th 6th ᆇ | |
| 575 | 13th 7th ᆇ | |  |  |  |  |
| 13th 8th ᆇ | |
| 576 | 13th 9th ᆇ | |  |  |  |  |
| 13th 10th ᆇ10 | |
| 577 | 13th 11th ᆇ1 | |  |  |  |  |
| 13th 12th ᆇ12 | |
| 578 | 14th 1ᆇ1 | | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 14th 2ᆇ1 | |
| 579 | 14th 3rd ᆇ | | R |  |  |  |
| 14th 4th ᆇ | |
| 580 | 14th 5th ᆇ | |  |  |  |  |
| 14th 6th ᆇ | |
| 581 | 14th 7th ᆇ | |  |  |  |  |
| 14th 8th ᆇ | |
| 582 | 14th 9th ᆇ | |  |  |  |  |
| 14th 10th ᆇ10 | |
| 583 | 14th 11th ᆇ11 | |  |  |  |  |
| 14th 12th ᆇ12 | |
| 584 | 15th 1 ᆇ1 | | R | ‘0’- ‘9’ ‘A’-  'Z' |  | ASCII 符 |
| 15th 2 nd ᆇ | |
| 585 | 15th 3rd ᆇ | | R |  |  |  |
| 15th 4th ᆇ | |
| 586 | 15th 5th ᆇ | |  |  |  |  |
| 15th 6th ᆇ | |
| 587 | 15th 7th ᆇ | |  |  |  |  |
| 15th 8th ᆇ | |
| 588 | 15th 9th ᆇ | |  |  |  |  |
| 15th 10th ᆇ | |
| 589 | 15th 11th ᆇ11 | |  |  |  |  |
| 15th 12th ᆇ12 | |
|  |  | |  |  |  |  |
| 600 | PACK1 | Module  Voltage |  |  | 0.01V |  |
| 601 | Module  Current |  |  | 0.1A |  |
| 602 | Temperater  -AVE |  |  |  | 1250 mean 25.0℃ |
| 603 | SOC |  |  | 0.1 |  |
| 604 | Remain  Capacity |  |  | 0.1AH |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 605 |  | Total  Capacity |  |  | 0.1AH |  |
| 606 | Charge  Voltage |  |  | 0.01V |  |
| 607 | Charge  Current |  |  | 0.1A |  |
| 608 | Discharge  Current |  |  | 0.1A |  |
| 609 | Max Cell V |  |  | 0.01V |  |
| 610 | Min Cell V |  |  | 0.01V |  |
| 611 | Cycle  number |  |  | 1 |  |
| 612 | Warming |  |  | -- |  |
| 613 | Fault |  |  | -- |  |
| 614 | PACK2 | Module  Voltage |  |  |  |  |
| 615 | Module  Current |  |  |  |  |
| 616 | Temperater  -AVE |  |  |  |  |
| 617 | SOC |  |  |  |  |
| 618 | Remain  Capacity |  |  |  |  |
| 619 | Total  Capacity |  |  |  |  |
| 620 | Charge  Voltage |  |  |  |  |
| 621 | Charge  Current |  |  |  |  |
| 622 | Discharge  Current |  |  |  |  |
| 623 | Max Cell V |  |  |  |  |
| 624 | Min Cell V |  |  |  |  |
| 625 | Cycle  number |  |  |  |  |
| 626 | Warming |  |  |  |  |
| 627 | Fault |  |  |  |  |
| 628 | PACK3 | Module  Voltage |  |  |  |  |
| 629 | Module  Current |  |  |  |  |
| 630 | Temperater  -AVE |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 631 |  | SOC |  |  |  |  |
| 632 | Remain  Capacity |  |  |  |  |
| 633 | Total  Capacity |  |  |  |  |
| 634 | Charge  Voltage |  |  |  |  |
| 635 | Charge  Current |  |  |  |  |
| 636 | Discharge  Current |  |  |  |  |
| 637 | Max Cell V |  |  |  |  |
| 638 | Min Cell V |  |  |  |  |
| 639 | Cycle  number |  |  |  |  |
| 640 | Warming |  |  |  |  |
| 641 | Fault |  |  |  |  |
| 642 | PACK4 | Module  Voltage |  |  |  |  |
| 643 | Module  Current |  |  |  |  |
| 644 | Temperater  -AVE |  |  |  |  |
| 645 | SOC |  |  |  |  |
| 646 | Remain  Capacity |  |  |  |  |
| 647 | Total  Capacity |  |  |  |  |
| 648 | Charge  Voltage |  |  |  |  |
| 649 | Charge  Current |  |  |  |  |
| 650 | Discharge  Current |  |  |  |  |
| 651 | Max Cell V |  |  |  |  |
| 652 | Min Cell V |  |  |  |  |
| 653 | Cycle  number |  |  |  |  |
| 654 | Warming |  |  |  |  |
| 655 | Fault |  |  |  |  |
| 656 | PACK5 | Module  Voltage |  |  |  |  |
| 657 | Module |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Current |  |  |  |  |
| 658 | Temperater  -AVE |  |  |  |  |
| 659 | SOC |  |  |  |  |
| 660 | Remain  Capacity |  |  |  |  |
| 661 | Total  Capacity |  |  |  |  |
| 662 | Charge  Voltage |  |  |  |  |
| 663 | Charge  Current |  |  |  |  |
| 664 | Discharge  Current |  |  |  |  |
| 665 | Max Cell V |  |  |  |  |
| 666 | Min Cell V |  |  |  |  |
| 667 | Cycle  number |  |  |  |  |
| 668 | Warming |  |  |  |  |
| 669 | Fault |  |  |  |  |
| 670 | PACK6 | Module  Voltage |  |  |  |  |
| 671 | Module  Current |  |  |  |  |
| 672 | Temperater  -AVE |  |  |  |  |
| 673 | SOC |  |  |  |  |
| 674 | Remain  Capacity |  |  |  |  |
| 675 | Total  Capacity |  |  |  |  |
| 676 | Charge  Voltage |  |  |  |  |
| 677 | Charge  Current |  |  |  |  |
| 678 | Discharge  Current |  |  |  |  |
| 679 | Max Cell V |  |  |  |  |
| 680 | Min Cell V |  |  |  |  |
| 681 | Cycle  number |  |  |  |  |
| 682 | Warming |  |  |  |  |
| 683 | Fault |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 684 | PACK7 | Module  Voltage |  |  |  |  |
| 685 | Module  Current |  |  |  |  |
| 686 | Temperater  -AVE |  |  |  |  |
| 687 | SOC |  |  |  |  |
| 688 | Remain  Capacity |  |  |  |  |
| 689 | Total  Capacity |  |  |  |  |
| 690 | Charge  Voltage |  |  |  |  |
| 691 | Charge  Current |  |  |  |  |
| 692 | Discharge  Current |  |  |  |  |
| 693 | Max Cell V |  |  |  |  |
| 694 | Min Cell V |  |  |  |  |
| 695 | Cycle  number |  |  |  |  |
| 696 | Warming |  |  |  |  |
| 697 | Fault |  |  |  |  |
| 698 | PACK8 | Module  Voltage |  |  |  |  |
| 699 | Module  Current |  |  |  |  |
| 700 | Temperater  -AVE |  |  |  |  |
| 701 | SOC |  |  |  |  |
| 702 | Remain  Capacity |  |  |  |  |
| 703 | Total  Capacity |  |  |  |  |
| 704 | Charge  Voltage |  |  |  |  |
| 705 | Charge  Current |  |  |  |  |
| 706 | Discharge  Current |  |  |  |  |
| 707 | Max Cell V |  |  |  |  |
| 708 | Min Cell V |  |  |  |  |
| 709 | Cycle |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | number |  |  |  |  |
| 710 | Warming |  |  |  |  |
| 711 | Fault |  |  |  |  |
| 712 | PACK9 | Module  Voltage |  |  |  |  |
| 713 | Module  Current |  |  |  |  |
| 714 | Temperater  -AVE |  |  |  |  |
| 715 | SOC |  |  |  |  |
| 716 | Remain  Capacity |  |  |  |  |
| 717 | Total  Capacity |  |  |  |  |
| 718 | Charge  Voltage |  |  |  |  |
| 719 | Charge  Current |  |  |  |  |
| 720 | Discharge  Current |  |  |  |  |
| 721 | Max Cell V |  |  |  |  |
| 722 | Min Cell V |  |  |  |  |
| 723 | Cycle  number |  |  |  |  |
| 724 | Warming |  |  |  |  |
| 725 | Fault |  |  |  |  |
| 726 | PACK10 | Module  Voltage |  |  |  |  |
| 727 | Module  Current |  |  |  |  |
| 728 | Temperater  -AVE |  |  |  |  |
| 729 | SOC |  |  |  |  |
| 730 | Remain  Capacity |  |  |  |  |
| 731 | Total  Capacity |  |  |  |  |
| 732 | Charge  Voltage |  |  |  |  |
| 733 | Charge  Current |  |  |  |  |
| 734 | Discharge  Current |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 735 |  | Max Cell V |  |  |  |  |
| 736 | Min Cell V |  |  |  |  |
| 737 | Cycle  number |  |  |  |  |
| 738 | Warming |  |  |  |  |
| 739 | Fault |  |  |  |  |
| 740 | PACK11 | Module  Voltage |  |  |  |  |
| 741 | Module  Current |  |  |  |  |
| 742 | Temperater  -AVE |  |  |  |  |
| 743 | SOC |  |  |  |  |
| 744 | Remain  Capacity |  |  |  |  |
| 745 | Total  Capacity |  |  |  |  |
| 746 | Charge  Voltage |  |  |  |  |
| 747 | Charge  Current |  |  |  |  |
| 748 | Discharge  Current |  |  |  |  |
| 749 | Max Cell V |  |  |  |  |
| 750 | Min Cell V |  |  |  |  |
| 751 | Cycle  number |  |  |  |  |
| 752 | Warming |  |  |  |  |
| 753 | Fault |  |  |  |  |
| 754 | PACK12 | Module  Voltage |  |  |  |  |
| 755 | Module  Current |  |  |  |  |
| 756 | Temperater  -AVE |  |  |  |  |
| 757 | SOC |  |  |  |  |
| 758 | Remain  Capacity |  |  |  |  |
| 759 | Total  Capacity |  |  |  |  |
| 760 | Charge  Voltage |  |  |  |  |
| 761 | Charge |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Current |  |  |  |  |
| 762 | Discharge  Current |  |  |  |  |
| 763 | Max Cell V |  |  |  |  |
| 764 | Min Cell V |  |  |  |  |
| 765 | Cycle  number |  |  |  |  |
| 766 | Warming |  |  |  |  |
| 767 | Fault |  |  |  |  |
| 768 | PACK13 | Module  Voltage |  |  |  |  |
| 769 | Module  Current |  |  |  |  |
| 770 | Temperater  -AVE |  |  |  |  |
| 771 | SOC |  |  |  |  |
| 772 | Remain  Capacity |  |  |  |  |
| 773 | Total  Capacity |  |  |  |  |
| 774 | Charge  Voltage |  |  |  |  |
| 775 | Charge  Current |  |  |  |  |
| 776 | Discharge  Current |  |  |  |  |
| 777 | Max Cell V |  |  |  |  |
| 778 | Min Cell V |  |  |  |  |
| 779 | Cycle  number |  |  |  |  |
| 780 | Warming |  |  |  |  |
| 781 | Fault |  |  |  |  |
| 782 | PACK14 | Module  Voltage |  |  |  |  |
| 783 | Module  Current |  |  |  |  |
| 784 | Temperater  -AVE |  |  |  |  |
| 785 | SOC |  |  |  |  |
| 786 | Remain  Capacity |  |  |  |  |
| 787 | Total  Capacity |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 788 |  | Charge  Voltage |  |  |  |  |
| 789 | Charge  Current |  |  |  |  |
| 790 | Discharge  Current |  |  |  |  |
| 791 | Max Cell V |  |  |  |  |
| 792 | Min Cell V |  |  |  |  |
| 793 | Cycle  number |  |  |  |  |
| 794 | Warming |  |  |  |  |
| 795 | Fault |  |  |  |  |
| 796 | PACK15 | Module  Voltage |  |  |  |  |
| 797 | Module  Current |  |  |  |  |
| 798 | Temperater  -AVE |  |  |  |  |
| 799 | SOC |  |  |  |  |
| 800 | Remain  Capacity |  |  |  |  |
| 801 | Total  Capacity |  |  |  |  |
| 802 | Charge  Voltage |  |  |  |  |
| 803 | Charge  Current |  |  |  |  |
| 804 | Discharge  Current |  |  |  |  |
| 805 | Max Cell V |  |  |  |  |
| 806 | Min Cell V |  |  |  |  |
| 807 | Cycle  number |  |  |  |  |
| 808 | Warming |  |  |  |  |
| 809 | Fault |  |  |  |  |

* 1. Inner ᆈ1/2 recording table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Inner ᆈ1/2 recording table | | | | | |
| Addr. | Parasite meaning | R/W | Range | Unit | note |
| 1000 | Inverter fault information | R |  |  | The length range is 500 |
| …… |  | R |  |  |  |
| …… |  | R |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1499 |  | R |  |  |  |
|  |  |  |  |  |  |

* 1. Fault ԓ code

Alarm ԓ code

|  |  |  |
| --- | --- | --- |
| Error code | Description /Description | Solutions/解ߣscheme |
| W01 | Fan failure |  |
| W02 | Phase ƒ error |  |

故障ԓ码:Fault Code

|  |  |  |
| --- | --- | --- |
| Error code | Description /Description | Solutions/解ߣscheme |
| F07 | DC/DC\_Softsart\_Fault DC/DC soft-fail | DC/DC softstart fault   1. Check the battery fuse; 2. Restart and check whether it is in normal; 3. Seek help from us, if can’t go back to noarmal state |
| F10 | AuxPowerBoard\_Failure  Auxiliary ࣙ Power failure | Auxiliary power supply failure   1. Wait for minutes then check; 2. Remove wifi plug or other communicator; 3. Seek help from us, if can’t go back to noarmal state |
| F13 | Working mode change  Mode ࠷ change | Inverter work mode changed   1. wait for a minute and check; 2. Seek help from us, if can't go back to normal state. |
| F18 | AC over current fault of hardware  Hardware AC overcurrent | AC side over current fault   1. Please check whether the backup load power and common load power are within the range; 2. Restart and check whether it is in normal; 3. Seek help from us, if can not go back to normal state. |
| F20 | DC over current fault of the hardware  Hardware DC overcurrent | DC side over current fault   1. Check PV module connect and battery connect; 2. Turn off the DC switch and AC switch and then wait one minute,then turn on the DC/AC switch again; 3. Seek help from us, if can not go back to normal state. |
| F22 | Tz\_EmergSStop\_Fault  Sudden stop fault (逆ਈ器被䬱定3 | Tz\_EmergSStop\_Fault  Seek help from us,This failure hardly happens. |
| F23 | AC leakage current is transient over current instantaneous leakage current fault | Leakage current fault   1. Check the cable of PV module and inverter; 2. Restart inverter; 3. Seek help from us, if can not go back to normal state. |

|  |  |  |
| --- | --- | --- |
| F24 | DC insulation impedance failure  Phalanx insulation impedance failure | PV isolation resistance is too low   1. Check the connection of PV panels and inverter is firmly and correctly; 2. Check whether the PE cable of inverter is connected to ground; 3. Seek help from us, if can not go back to normal state. |
| F26 | The DC busbar is unbalanced  DC bus нᒣ scale | 1. Please wait for a while and check whether it is normal; 2. If still same, and turn off the DC switch and AC switch and wait for one minute and then turn on the DC/AC switch; 3. Seek help from us, if can not go back to normal state. |
| F29 | Parallel\_CANBus\_Fault  Parallel connection" failure | This fualt only for inverters working in parallel mode   1. Check the parallel setting according to the instructions; 2. Check the connection of the CANBus; 3. Seek help from us |
| F35 | No AC grid  No mains power | No Utility   1. Please confirm grid is lost or not; 2. Check the grid connection is good or not; 3. Check the switch between inverter and grid is on or not; 4. Seek help from us, if can not go back to normal state. |
| F41 | Parallel\_system\_Stop  Parallel system downtime failure | In parallel system,due to other inverter faults.   1. Wait for minutes then check all inverters in this parallel system; 2. If inverter can’t go back to normal state, record fault codes of all   inverters, then seek help from us. |
| F42 | AC line low voltage  Line voltage over No fault | Grid voltage fault   1. Check the AC voltage is in the range of standard voltage in specification; 2. Check whether grid AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state. |
| F46/F49 | Bcakup\_Battery\_Fault  Backup battery failure | Backup battery fault.   1. Check the battery capacity; 2. Check the connection between batteries and inverters; 3. If inverter can’t go back to normal after load reduction, seek help   from us |
| F47 | AC over frequency  AC over-frequency | Grid frequency out of range   1. Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state. |
| F48 | AC lower frequency  AC c frequency | Grid frequency out of range   1. Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. Seek help from us, if can not go back to normal state. |

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| --- | --- | --- |
| F56 | DC busbar voltage is too low  The busbar voltage is over No | Battery voltage low   1. Check whether battery voltage is too low; 2. If the battery voltage is too low, using PV or grid to charge the battery; 3. Seek help from us, if can not go back to normal state. |
| F58 | BMS communication fault  BMS Pass" failure |  |
| F63 | ARC fault  Pull arc fault | 1. ARC fault detection is only for US market; 2. Check PV module cable connection and clear the fault; 3. Seek help from us, if can not go back to normal state. |
| F64 | Heat sink high temperature  failure  The radiator temperature is too high | Heat sink temperature is too high   1. Check whether the work environment temperature is too high; 2. Turn off the inverter for 10mins and restart; 3. Seek help from us, if can not go back to normal state. |

# appendix

* 1. Appendix I:
  2. Appendix II:
  3. Appendix й:
  4. Appendix IV
  5. Appendix V: