**MODBUS RTU** йPhase energy storage communication regulations

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

# 3

Change 1/2 record

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| --- | --- | --- | --- |
| ⡸ 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**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Addr | Register meaning | R/W | data range | unit | note |
|  |
| 000 | Device typeDevice type | R |  |  | 0X0200 set of serial inverter 0X0300 অ phase energy storage machine hybird0X0400 micro-inverse machine MI microinverter0X0500 й phase energy storage machine phase3 hybird |
| 001 | Modbus address | R | [1,247] |  |  |
| 002 | Pass the " Co- ⡸ BenCommunication protocol version | R | ‘0’~’9’;'A'~'Z' |  | Firmware obeys the ⡸of the association, such as 0x 0102ԓ 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. 3/4Rated Power | R | 0x0000 |  |  |
| 009 | Reserved ᆇundefined | R | 0x0000 |  |  |
| 010 | Reserved ᆇundefined | R |  |  |  |
| 011 | Control board auxiliary ࣙঅƒ machine software⡸ BenªAssistant program version | R | 0XFFFF |  |  Bit0-7 Bootloader software Bit8-15 auxiliary program Assistant program  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Control board start ࣘprogram ⡸本ªbootloader software version |  |  |  |  |
| 012 | obligateundefine | R |  |  |  |
| 013 | obligateundefine | R |  |  |  |
| 014 | Control board firmware ⡸本-ᆇder 2Control 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 firmwareversion-1 | R |  |  |  |
| 017 | Pass" board firmware ⡸ben-ᆇ paragraph 2Comm panel firmware version-2 | R |  |  |  |
| 018 | Pass" board firmware ⡸本**-**▲⡸本Comm panel firmware master version | R |  |  |  |
| 019 | Safety typeSafety type | R |  |  |  |
| 020 | Rated ࣏ rate NoᆇRated power low word | R |  | 0.1W |  |
| 021 | High rated ࣏ rateᆇRated power high word | R |  | 0.1W |  |
| 022 |  Number of MPPT circuits and phasesMPPT number and phases | R | [1,8]/[1,3] |  | MI 0x0503: five-mppts three-phase |
| 023 | Grid-connected voltage, etc. 3/4/Rated GridVoltage | 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 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 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 enableRemote Lock | R/W |  |  | 0x0002 ޣ机 turn off0x0000 power on turn on |
| 61 | POST timeself-check time | R/W | [0,1000] | S | MI (was -1) |
| 62 | System Time Section 1 ᆇsystem time byte 01 | R/W | [0,255] | ᒤYear | MI ԕ 20 00 ᒤѪ base valueBased on the year 2000 |
| System Time Section 2 ᆇsystem time byte 02 | R/W | [1,12] | $Month |
| 63 | System Time Section 3 ᆇsystem time byte 03 | R/W | [1,31] | dayDay |
| System Time Section 4 ᆇsystem time byte 04 | R/W | [0,23] | timeHour |
| 64 | System Time Section 5 ᆇsystem time byte 05 | R/W | [0,59] | ࠶ Minute |
| System Time Section 6 ᆇsystem time byte 06 | R/W | [0,59] | secondSec |
| 65 | Insulation impedance л limit | insulation | R/W | [100,20000] | 0.1KΩ |  |
| Minimum |
| impedance |
|  |  |  |  |  |  |
| 66 | obligateUndefine |  |  |  |  |
| 67 | obligateUndefine |  |  |  |  |
| 68 | obligateUndefine |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| 69 | obligateUndefine |  |  |  |  |
| 70 | obligateUndefine |  |  |  |  |
| 71 | obligateUndefine |  |  |  |  |
| 72 | obligateUndefine |  |  |  |  |
| 73 | obligateUndefine |  |  |  |  |
| 74 | Pass" addressCommunication address | R | 0x0000 | - |  |
| 75 | Pass" baud rateCommunication baud rate MI:Zigbee or PLC | R | 0x0000 | - |  |
| 76 | obligateUndefine | R/W |  |  |  |
| 77 | $࣏࣏rate adjustmentActive power regulation | R/W | [0,1200] | 0.1%/1% | For example , 800 indicates that it is adjusted to 80.0% MIIf 800, adjust to 80.0% |
| 78 | No ࣏࣏ rate adjustmentReactive 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 adjustmentApparent 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 enablesSwitch on and off enable | R/W | [0,1] | - | 0:ޣ Machine 1: Boot MI 2:ޣ Machine0: power off 1: power on |
| 81 | Factory-enabledFactory reset enable | R/W | [0,1] |  | 0: disable 1: enable |
| 82 | Self-test timeSelf-checking time | R/W | [0,1] | - | 0-360 seconds |
| 83 | Island Security enablesIsland 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 enablesGFDI enable | R/W | [0,1] |  | 0: disable 1: enable |
| 86 |  |  |  |  |  |
| 87 | RISO enableRISO enable | R/W | [0,1] |  | 0: disable 1: enable |
| 88 | Grid-connected standardsGridStandard | R/W | [0,20] |  | 1, China2, Brazil3, India |

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|  |  |  |  |  | 4， EN504385, other |
| 89 |  |  |  |  |  |
| 90 | No pressure cross enableLow voltage across enable |  |  |  | 0: disable 1: enable |
| 91 | The control board EEPROM is initially enabledMCU-EEPROM initialenabled | R/W | [0,2] | - | 0: ↓ often work normal1: Initialize the control board EEPROM init mcu eeprom |
| 92 | Pass" board EEPROM initial enableComm-EEPROM initialenabled | R/W |  |  | 0:↓常 work normal1: 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 bitBit1 inverse ਈ all fans open all fanBit4 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 bitBit2 flash display board of the $LED, honey device, back ݹ, display red, yellow and blueFlash display board for all LEDs, honey maker, backlight, display red, yellow and blueBit3 open D battery interface test Open lithium battery interface test Bit5 restart LCD programRestart lcd |
| 95 |  |  |  |  |  |
| 96 | Power generation repair ↓ coefficientPowerWH Factor | R/W |  | -0.01 | 100 mean 1111 mean 1.11 |
| 97 | Solar enters ѪSPUTEST MODE |  |  |  |  |
| 98 | Battery charging typeControl Mode | R/W | - | - | 0x0000 Lead-Battery, four-stage charging method0x0001 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 capacityBatt 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 rateZeroExport power | R/W |  |  |  |
| 105 | A balanced charge is performed for a few days one 1/9Equalization day cycle | R/W | [0 90] | Day |  |
| 106 | Equilibrium charge execution timeEqualization time | R/W | [0 20] | 0.5Hour | ࠶Discernment 0.5 hours Resolution 0.5 h[0-20] Corresponds to 0-10 hoursBut the hair MCU is [0-100]. |
| 107 | Temperature compensation valueTEMPCO | R/W | [0,50] | 1mV/℃ | ᑖ$↓negative int type Signed int |
| 108 | Maximum battery charge currentMax A Charge | R/W | [0,185] | 1A | 0-185A |
| 109 | The maximum discharge current of the batteryMax A discharge | R/W | [0,185] | 1A | 0-185A |
| 110 | retainundefined | R/W |  |  |  |
| 111 | The battery works according to the voltage is the capacitybattery operates accordingto voltage or capacity | R/W |  |  | According to the voltage According to the voltageAccording to the capacity2 no $ battery no battery |
| 112 | D Battery wake sign ƒLithium battery wake up sign bit | R/W |  |  | 1. enabled
2. Disable
 |
| 113 | The resistance in the batterybattery resistance value | R/W | [0,6000] | mΩ |  |
| 114 | Battery charging efficiencyBattery charging efficiency | R/W | [0-100] | 0.1% | 983 represents 98.3%.983 is 98.3% |
| 115 | Battery capacity ShutDownbattery capacity ShutDown | R/W | [0,100] | 1% | No capacity cut‡pointLow capacity cutoff point |
| 116 | Battery capacity Restartbattery capacityRestart | R/W | [0,100] | 1% | Guaranteed ᣔ recovery pointProtection recovery point |
| 117 | Battery capacity LowBattbattery capacityLowBatt | R/W | [0,100] | 1% |  |
| 118 | Battery voltage ShutDownbattery voltageShutDown | R/W | [3800,6100] | 0.01V | No warranty ᣔ point cutoff 41VLow protection point cutoff 41V |
| 119 | Battery voltage Restartbattery voltageRestart | R/W | [3800,6100] | 0.01V | Reboot /recover 52V |
| 120 | Battery voltage LowBattbattery voltageLowBatt | R/W | [3800,6100] | 0.01V | Discharge depth 46V Dischargedepth 46V |
| 121 | Maximum generator operating timeMaximum operating time of generator |  |  | 0.1 hours | 120 means 12 hours 120 is 12 hours |
| 122 | Generator cold K timeGenerator cooling time |  |  | 0.1 hours | 120 means 12 hours120 is 12 hours |

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| --- | --- | --- | --- | --- | --- |
| 123 | Generator charging starts ࣘ voltage pointGenerator charging Starting voltage point | R/W | [0000 6300] | 0.01V | The battery voltage is less than the value of the generator to start chargingThe battery voltage is less than this value |
| 124 | Generator charging start ࣘ capacity pointGenerator charging starting capacity point | R/W | [0000 6300] | 1% | The battery capacity is less than the value of the generator to start chargingThe battery capacity is less than this value |
| 125 | Generator charges the battery currentGenerator charges the battery current | R/W | [0000 185] | 1A | Generator charges the battery currentThe generator charges the battery |
| 126 | Mains charging starts ࣘ voltage pointGrid charging Start voltage point o | R/W | [0000 6300] | 0.01V |  |
| 127 | Mains charging starts ࣘ capacity pointGrid charging start capacity point | R/W | [0000 6300] | 1% |  |
| 128 | Mains charge current to the batteryGrid charge the battery current | R/W | [0000 185] | 1A | Mains charge current to the batteryGrid charge the battery current |
| 129 | Generator charging enableGenerator is charged to enable | R/W |  |  |  |
| 130 | Mains charge enableGrid 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 load࣏YesForce on generator as load function | R/W |  |  | The premise is that the 235ª parasitic ᆈ has been enabled 1The premise is that register 234 has enabled 11. н强制 Do not force
2. Forceforce
 |
| 133 | The generator input is acted as Ѫ load output enablegenerator input is enabledas 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 voltageSmartLoad OFF batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 135 | Generator load OFF powerSmartLoad OFF batt | R/W | [0000 100] | 1% |  |
| 136 | Generator load ON voltageSmartLoad ON batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 137 | Generator load ON powerSmartLoad 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 generatorminimum solar powerrequired to start a generator | R/W | [0,8000] | 1W |  |
| 140 | Generator and network informationªGen\_Grid\_Signal On |  |  |  |  |
| 141 |  Energy management model |  |  |  | Bit0-1 10 Battery Premium] mode battery first mode11 Load Excellent] mode load first mode Bit2-3 indicates that the ࣘ grid connection ࣏ rate ᒣ balance ࣏ Can Retire passive grid-connected power balance function1. н Open colse
2. Open

Bit4-5 表示▲ ࣘ 并网࣏ 率ᒣ 衡࣏ 能Represents active grid-connection power balance function1. н Open close
2. Open
 |
| 142 | limit control ࣏canlimit control function | R/W |  | 0/1 | 0x00 Enable আ electricitysell electricity enabled0x01 enable built-in enabled 0x02 enables externalextraposition enabled |
| 143 | Limit the maximum power output of the gridconnection | R/W | [0,8000] | 1W | ԓ table total࣏ rateRepresents total power |
| 144 | External current sensor direction External current sensor clamp phase | R/W | [xx,00] | 1W | [11][12] |
| 145 | ݹ volts আ electricitySolar sell | R/W |  |  | 0x00ݹ伏нআ电 solar Don't sell 0x01ݹVolt আ electric solar sell |
| 146 | High 3/4 peak shaving and valley filling࣏ enables Time of Use Selling enabled | R/W |  |  | Bit0 0 disable1 enableBit1 Monday0-disable 1-enable Bit2 Tuesday |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | ……Bit7 Sunday |
| 147 | й phase ABC grid phase sequence settingGrid Phase | R/W |  |  | 0 0 120 2401 0 240 120 |
| 148 | আElectrical mode time point 1Sell mode time point 1 | R/W | [0000 2359] |  | 2359 represents time 23:592359 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 3Sell mode time point 3 | R/W | [0000 2359] |  |  |
| 151 | আElectrical mode time point 4Sell mode time point 4 | R/W | [0000 2359] |  |  |
| 152 | আElectrical mode time point 5Sell mode time point5 | R/W | [0000 2359] |  |  |
| 153 | আElectrical mode time point 6Sell mode time point6 | R/W | [0000 2359] |  |  |
| 154 | আElectrical mode time point 1࣏ rateSell 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 rateSell mode time point 2 | R/W | [0000 8000] | 1W | Power |
| 156 | আ Electrical mode time point 3 ࣏ rateSell mode time point 3 | R/W | [0000 8000] | 1W |  |
| 157 | আ Electrical mode time point 4 ࣏ rateSell mode time point 4 | R/W | [0000 8000] | 1W |  |
| 158 | আ Electrical mode time point 5 ࣏ rateSell mode time point 5 | R/W | [0000 8000] | 1W |  |
| 159 | আ Electrical mode time point 6 ࣏ rateSell mode time point 6 | R/W | [0000 8000] | 1W |  |
| 160 | আ Electrical mode time point 1 voltageSell mode time point 1 | R/W | [0000 6300] | 0.01V | ਇ To the effect of battery voltageIs affected by the battery voltage |
| 161 | আ Electrical mode time point 2 voltageSell mode time point 2 | R/W | [0000 6300] | 0.01V | Voltage |
| 162 | আ Electrical mode time point 3 voltageSell mode time point 3 | R/W | [0000 6300] | 0.01V |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 163 | আ Electrical mode time point 4 voltageSell mode time point 4 | R/W | [0000 6300] | 0.01V |  |
| 164 | আ Electrical mode time point 5 voltageSell mode time point 5 | R/W | [0000 6300] | 0.01V |  |
| 165 | আ Electrical mode time point 6 voltageSell 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 enableTime point 1 charge enable | R/W | [0,1] |  | Bit0 means grid charging enable grid charging enableBit1 indicates generator charging enable gen chargingenable |
| 173 | Time point 2 charging enableTime point 2 charge enable | R/W | [0,1] |  | Nok |
| 174 | Time point 3 charging enabledTime point 3 charge enable | R/W | [0,1] |  | Nok |
| 175 | Time point 4 charging enabledTime point 4 charge enable | R/W | [0,1] |  | Nok |
| 176 | Time point 5 charging enableTime point 5 charge enable | R/W | [0,1] |  | Nok |
| 177 | Time point 6 charging enableTime 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 bleBit0-1 10:Disable11:enableBit2-3 10:Gen peak-shaving disable 11:Gen peak-shaving enableBit4- 5: 10:Grid peak-shaving disable 11:Grid peak-shaving enableBit6-7 10:On Grid always on disable 11:On Grid always on enableBit8-9 10:external relay disable 11:external relay disableBit10-11 10: D电池丢失故障 disable Loss of lithium battery report fault disable11: D电池丢失故障 enable Loss of lithium battery report fault enable |
| 179 | Control board special ࣏ energy ƒ 21, external CT from ࣘ detection direction2, forced off the net | R/W | [0,1] |  | Bit0-1 10: External CT detects direction disable Externl ct direction check disable disable11:enableBit2-3 10: Forced off-grid work disable Forced off-grid work disable11:enable |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 180 | Restore grid-connected timeRestore 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 standardsGrid Mode | R/W | [0 1 ] |  | 0=Common Standard general standard 1= UL1741&IEE15472= CPUC RULE213= SRD-UL1741…… |
| 183 | Grid frequency settingsGrid Frequency | R/W | [0 1] |  | 0x00 50HZ0x01 60hz |
| 184 | Grid type settingsGrid Type⧠ In the й phase, invalid | R/W | [0 3 ] |  | 0x00 অ phase defaults to 220VSingle-phase 240 v / 230 v / 220 v 0x01 表示两相120V/240V Stands for two-phase 120V/240V0x02 表示й相系统208V 120度120V Represents the three-phase system 208V 120 degrees 120V0X03 120V Single Phase |
| 185 | Grid high voltage guarantee ᣔ pointGrid Vol High | R/W | [1800 2700] | 0.1V |  |
| 186 | Grid No voltage protection ᣔ pointGrid Vol Low | R/W | [1800 2700] | 0.1V |  |
| 187 | Grid frequency is high guaranteed ᣔ pointsGrid Hz High | R/W | [4500 6500] | 0.01Hz |  |
| 188 | Grid frequency No guarantee ᣔ pointGrid Hz Low | R/W | [4500 6500] | 0.01Hz |  |
| 189 | The generator is connected to the grid inputThe 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 ($࣏adjustedOutput 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 ƒExternal relay bit | R/W | [0 0xFFFF] |  | Bit0-8 corresponds to 8 relays ƒBit0-8 corresponds to 8 relay bits |
| 195 | ARC\_facTory\_B high ƒARC\_facTory\_B high word | R/W | [0,65535] |  | Combination of high ƒ and ground ƒ, ԕ numerical display ণ is okHigh and status combination, with numerical |

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

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| --- | --- | --- | --- | --- | --- |
|  | real time current |  |  |  |  |
| 217 | The current temperaturereal time temp | R/W |  | 0.1C | 1000 corresponds to 0 degrees 1200 means 20.0 degrees 800 represents-20.0C1000 corresponds to 0 degrees1200 means 20.0 degrees800 means -20.0C |
| 218 | Off-grid charging current limit MaximumMaximum charge current limit | R/W |  | 1A |  |
| 219 | Off-grid discharge current limit MaximumMaximum discharge current limiting | R/W |  |  |  |
| 220 | D Battery Alarm ƒLithium battery alarm position | R/W |  |  | 0x0001 |
| 221 | D battery fault ƒLithium battery fault location | R/W | [0,65535] |  |  |
| 222 | D Battery Logo 2Lithium battery symbol 2 | R/W | [0,65535] |  | Bit0 vacancy VacancyBit1 Strong ߢ Logo Strong impact marks |
| 223 | D Battery typeLithium battery type | R/W |  |  | 0x0000 ޤ Paineng Delangen DPYLON SOLAXUniversal CAN co-operative0x0001 Tianbangda RS485modbus co-operative0x0002 KOK0x0003 Keith 0X0004 Tuopai0X0005 Paineng 485 Concord0X0006 485 co-editor0X0007 Xinwanda 485 co-choreography0X0008 Xinruineng 485 co-choreography0X0009 Tianbangda 485 concord0X000A Shenggao Electric can co-advise |
| 224 | D Battery SOHLithium battery SOH |  |  |  |  |
| 225 |  |  |  |  |  |
| 226 |  |  |  |  |  |
| 227 | Upgrade LCD test | R/W | [0,1] |  |  |
| 228 | Pass " board settings ࣏ canComm board setting function | R/W |  |  | Bit0-1 time calibration timeBit2-3 beepBit4-5 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 |  |  |  |  |  |
| 230 |  |  |  |  |  |
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| 238 |  |  |  |  |  |
| 239 |  |  |  |  |  |
| 240 | Enter the preliminary test procedure in the factory | R/W |  |  | =12345 䘋入 |
| 241 |  |  |  |  |  |
| 242 |  |  |  |  |  |
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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 enableSolar makes Wind input enable | R/W | [0,1] |  | Bit0 Solar1Bit1 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 | obligateUndefine |  |  |  |  |
| 336 | Parallel **1**Parallel-1 |  |  |  |  |
| 337 | Parallel 2Parallel-2 |  |  |  |  |
| 338 | obligateUndefine |  |  |  |  |
| 339 | obligateUndefine |  |  |  |  |
| 340 | ݹ volt maximum আ electrical࣏ rateMax Solar Sell Power |  | R/W | 1W |  |
| 341 | obligateUndefine |  |  |  |  |
| 342 | obligateUndefine |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| 343 | obligateUndefine |  |  |  |  |
| 344 | Grid information monitoring methodsGrid check from Meter or CT | R/W |  |  | BIT00:0:CT1:MandTandRBIT01: -BIT15: undefine |
| 345 |  |  |  |  |  |
| 346 |  |  |  |  |  |
| 347 | External CTਈ ratioCT 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 ࣏ rateਈCycle by cycle power variation |
| 351 | Input slope control for Charge⧟negative number | R/W | [0-500] | In | Cycle-by-cycle ࣏ rateਈCycle by cycle power variation |
|  |  |  |  |  |  |
| 359 | Off-grid overload Voltage is less than 180Vduration |  |  |  |  |
| 360 |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 380 | ࣐ State No Pressure High Pressure Penetration CA\_LHVRT enable California low pressure high pressure throughCA\_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 traversesCA\_LHFRT enable | R/W |  |  |  |
| 392 | CA\_HF2 | R/W | [4500,6500] | 0.01Hz |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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 enabledCalifornia 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 enabledCalifornia CA\_FW enable |  |  |  |  |
| 410 | CA\_Fstart |  |  |  |  |
| 411 | CA\_Fstop |  |  |  |  |
| 412 | ࣐ State CA\_VW enabledCalifornia CA\_VW enable |  |  |  |  |
| 413 | CA\_Vstart |  |  |  |  |
| 414 | CA\_Vstop |  |  |  |  |
| 415 | ↓ к liter slopeNormal upward slope | R/W | [1 100] | 1% |  |
| 416 | Soft start ࣘк liter rateSoft 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 statusrun state | R | [0,5] | - | 0000 standby 0001 self-check selfcheck0002 ↓常 normal0003 alarm alarm0004 Fault fault |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 501 | The retrograde grid side $࣏ of power generation on the same dayactive power generation oftoday | R | [-32768,32767] | 0.1kWh |  |
| 502 | There is no ࣏ generation capacity on the grid side of the inverter on the same dayreactive power generation oftoday | R | [-32768,32767] | 0.1kVarh |  |
| 503 | Grid connection time on the dayGrid connection time of today | R | [0,65535] | S |  |
| 504 | Total power generation on the grid side of the inverter ࣏Noactive power generation of total low byte | R | [0,0xFFFFFFFF] | 0.1kWh |  |
| 505 | Total $堛 power generation on the grid side of the inverter is highᆇactive power generation oftotal high byte | R |
| 506 | There is always no ࣏generation capacity on the grid side of the inverterNoreactive power generation of total low byte |  |  |  |  |
| 507 | There is always no ࣏on the grid side of the inverter ࣏ high power generation ᆇreactive power generation oftotal high byte |  |  |  |  |
| 508 | ~~Inverse ਈ device state ƒ1~~ | R |  |  | **Debug only** for debugging, meaninglessBit0: Internal fan ᆈ in Ƒ: 1$ 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 dayToday charge of the battery |  |  | 0.1kwh |  |
| 515 | The battery is discharged on the same dayToday discharge of the battery |  |  | 0.1kwh |  |
| 516 | The cumulative charge of the battery is NoᆇTotal charge of the battery low byte |  |  | 0.1kwh |  |
| 517 | The cumulative charge of the battery is high ᆇTotal charge of the battery |  |  | 0.1kwh |  |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 535 | Historical PV power generation is highᆇTotal PV\_power Wh\_high word | R |  | 0.1kWh |  |
| 536 |  |  |  |  |  |
| 537 |  |  |  |  |  |
| 538 |  |  |  |  |  |
| 539 | Generator day working hoursGenerator working hours perday |  |  | 0.1h |  |
| 540 | DCਈpressor temperature (DCTransformer.)temperature) | R | [0,3000] | 0.1℃ | Offset 1000 |
| 541 | Heat dissipation ƒ temperatureHeat 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 3undefine | R | [0,3000] | 0.1℃ |  |
| 545 |  |  |  |  |  |
| 546 |  |  |  |  |  |
| 547 |  |  |  |  |  |
| 548 | Pass the failure status of the boardFailure status ofcommunication board | R | [0,0xFFFF] |  | Bit0 Flash chip error Bit1 time errorBit2 EEPROM error |
| 549 | MCU test flag ƒ MCU test flag |  |  |  | Bit0 pulls the arc communication signBit1 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 RS485Bit9 D电接口CAN Lithium electric interface CANBit10 button 1234 key1234Bit11 LCD interrupt status lcd interruptstatus |
| 551 | On the machine statusTurn off/on status | R |  |  | No4ƒ means open ޣ letter ª0000 ޣ机 power off0001 Power on |
| 552 | AC side relay status AC realy status | R |  |  | 1. off
2. on

Bit0 INV relay INV relayBit1 Load Relay Reserved undefine Bit2 Grid Relay grid relayBit3 generator relay gen relayBit4 grid-powered relay grid give power to relay |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Bit5 ç contact Dry contact |
| 553 | Alarm Information No. 1 ᆇWarning message word 1 | R | [0,65535] |  | Bit0: reservedBit1: Fan failure FAN\_WARNBit2: Grid phase ƒ fault grid phase wrongBit3: |
| 554 | Alarm information No. 2 ᆇWarning message word 2 | R | [0,65535] |  |  |
| 555 | Fault information no. 1ᆇFault information word 1 | R | [0,65535] |  | See Fault Information Coding Table |
| 556 | Fault information no. 2ᆇFault information word 2 | R | [0,65535] |  |
| 557 | Fault information no. 3 ᆇFault information word 3 | R | [0,65535] |  |
| 558 | Fault information No. 4 ᆇFault information word 4 | R | [0,65535] |  |
| 559 | obligate |  |  |  |  |
| 560 | obligate |  |  |  |  |
| 561 | Debug dataDebug Data |  |  |  |  |
|  | 561-583 totals 23 tonesTry the data |  |  |  |  |
| 583 | Debug dataDebug Data | R | 0x0000 |  |  |
| 584 | obligateundefine |  |  |  |  |
| 585 | obligateundefine |  |  |  |  |
| 586 | Battery temperaturebattery temperature | R 0 | [0,3000] | 0.1℃ |  |
| 587 | Battery voltagebattery voltage | R 1 |  | 0.01V |  |
| 588 | Battery levelbattery capacity | R 2 | [0,100] | 1% |  |
| 589 | retainundefined | R 3 |  |  |  |
| 590 | Battery output࣏ rateBattery output power | R4 |  | 1W | S16 |
| 591 | Battery output currentBattery 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 BCGrid 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 sideA phase power on the innerside of the grid | R18 |  | 1W | S16 |
| 605 | The B-phase࣏ rate on the inner side of the gridB phase power on the innerside of the grid | R19 |  | 1W | S16 |
| 606 | The C-phase࣏ rate on the inside of the grid sideC phase power on the innerside 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 ࣏ rateGrid side - inside totalapparent power | R22 |  | 1W | obligate |
| 609 | Grid-side frequenciesGrid-side frequency | 23 |  |  |  |
| 610 | Grid side internal current Agrid side inner current A | R24 |  | 0.01A | S16 |
| 611 | Grid side inner current Bgrid side inner current B | R25 |  | 0.01A | S16 |
| 612 | Grid side inner current Cgrid side inner current C | R26 |  | 0.01A | S16 |
| 613 | Grid external - current AOut-of-grid - current A | R27 |  | 0.01A | S16 |
| 614 | Grid external - current BOut-of-grid - current B | R28 |  | 0.01A | S16 |
| 615 | Grid external - current COut-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 BOut-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 $࣏࣏ rateOut-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 PFGrid-connected power factor PF | R35 | R/W | [0,1000] | True value\*1000 |
| 622 | Grid-side A-phase ࣏ rateGrid side A-phase power | 36 |  | 1W | ԕлй parasitizersᆈ areਈ according to the built-in external settingsThe following three registers vary according to the built-in and external Settings |
| 623 | Grid-side B-phase ࣏ rateGrid side B-phase power | 37 |  | 1W |  |
| 624 | Grid-side C-phase࣏ rateGrid side C-phase power | 38 |  | 1W |  |
| 625 | Grid side - total $࣏࣏ rateGrid side total power | 39 |  | 1W |  |
| 626 |  | 40 |  |  |  |
| 627 | The inverter outputs phase voltage AInverter output phase voltage A | R41 |  | 0.1V |  |
| 628 | The inverter outputs phase voltage BInverter output phase voltage B | R42 |  | 0.1V |  |
| 629 | The inverter outputs phase voltage CInverter output phase voltage C | R43 |  | 0.1V |  |
| 630 | The inverter outputs phase current AInverter output phase current A | 44 |  | 0.01A | S16 |
| 631 | Inverter output phase B Inverter output phasecurrent 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 phasepower A | R47 |  | 1W | S16 |
| 634 | Inverter output phase࣏ rate B Inverter output phasepower B | R48 |  | 1W | S16 |
| 635 | The inverter outputs the phase࣏rate C Inverter output phasepower C | 49 |  | 1W | S16 |
| 636 | The total inverse ਈ output is $࣏࣏ rateInverter output totalpower | R50 |  | 1W | S16 |
| 637 | The inverse output is always at the ࣏ rateInverter output totalapparent power | 51 |  | 1W | S16 |

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| --- | --- | --- | --- | --- | --- |
| 638 | Inverter frequencyInverter frequency | 52 |  | 0.01Hz | U16 |
| 639 |  | 53 |  |  |  |
| 640 | UPS load side phase ࣏ rate AUPS load-side phase powerA | 54 |  | 1W | U16 |
| 641 | UPS load side phase ࣏ rate BUPS load-side phase powerB | 55 |  | 1W | U16 |
| 642 | UPS load side phase ࣏ rate CUPS load-side phase powerC | 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 invalidLoad phase current A no use | R61 |  | 0.01A | S16 |
| 648 | Load measurement current B is invalidLoad phase current B no use | R62 |  | 0.01A | S16 |
| 649 | The load measurement current C is invalidLoad 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 CLoad phase power C | R66 |  | 1W | S16 |
| 653 | Total load side $࣏࣏ rateLoad totalpower | R67 |  | 1W | S16 |
| 654 | Load side total viewing at ࣏ rate reservedLoad phase apparent powerundefine | R68 |  | 1W | S16 |
| 655 | Load frequencyLoad frequency | R69 |  | 0.01Hz |  |
| 656 |  | 70 |  |  |  |
| 657 |  | 71 |  |  |  |
| 658 |  | 72 |  |  |  |
| 659 |  | 73 |  |  |  |
| 660 |  | 74 |  |  |  |
| 661 | Phase voltage A of the Gen portPhase voltage of Gen port A | 75 |  | 0.1V |  |
| 662 | Phase voltage B of the Gen portPhase voltage of Gen port B | 76 |  | 0.1V |  |
| 663 | Phase voltage C for gen portPhase voltage of Gen port C | 77 |  | 0.1V |  |
| 664 | The ࣏ rate A of the Gen portPhase power of Gen port A | R78 |  | 1W |  |

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| 665 | The ࣏ rate B of the Gen portPhase power of Gen port B | 79 |  | 1W |  |
| 666 | The ࣏ rate C for the Gen portPhase power of Gen port C | 80 |  | 1W |  |
| 667 | The total ࣏ rate of gen portstotal power of Gen port | 81 |  | 1W |  |
| 668 |  | 82 |  |  |  |
| 669 |  | 83 |  |  |  |
| 670 |  | 84 |  |  |  |
| 671 |  | 85 |  |  |  |
| 672 | PV1 input࣏ ratePV1 input power | R86 |  | 1W |  |
| 673 | PV2 input࣏ ratePV2 input power | R87 |  | 1W |  |
| 674 | PV3 input࣏ ratePV3 input power | R88 |  | 1W |  |
| 675 | PV4 input࣏ ratePV4 input power | R89 |  | 1W |  |
| 676 | DC voltage 1Dc voltage 1 | R90 | [0,65535] | 0.1V |  |
| 677 | DC current 1Dc current 1 | R91 | [0,65535] | 0.1A |  |
| 678 | DC voltage 2Dc voltage 2 | R92 | [0,65535] | 0.1V |  |
| 679 | DC current 2Dc current 2 | R93 | [0,65535] | 0.1A |  |
| 680 | DC voltage 3Dc voltage 3 | R94 | [0,65535] | 0.1V |  |
| 681 | DC current 3Dc current 3 | R95 | [0,65535] | 0.1A |  |
| 682 | DC voltage 4Dc voltage 4 | R96 | [0,65535] | 0.1V |  |
| 683 | DC current 4Dc current 4 | R97 | [0,65535] | 0.1A |  |
|  | obligate |  |  |  |  |
|  | obligate |  |  |  |  |
|  | obligate |  |  |  |  |
| 1000 | Grid information monitoring methodsGrid power check mode | R |  |  | BIT00:0:CT1:MeterBIT01-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 |  |  |  |  |
|  8th 8th ᆇ |
| 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 |  |  |  |  |
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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 | ModuleVoltage |  |  | 0.01V |  |
| 601 | ModuleCurrent |  |  | 0.1A |  |
| 602 | Temperater-AVE |  |  |  | 1250 mean 25.0℃ |
| 603 | SOC |  |  | 0.1 |  |
| 604 | RemainCapacity |  |  | 0.1AH |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 605 |  | TotalCapacity |  |  | 0.1AH |  |
| 606 | ChargeVoltage |  |  | 0.01V |  |
| 607 | ChargeCurrent |  |  | 0.1A |  |
| 608 | DischargeCurrent |  |  | 0.1A |  |
| 609 | Max Cell V |  |  | 0.01V |  |
| 610 | Min Cell V |  |  | 0.01V |  |
| 611 | Cyclenumber |  |  | 1 |  |
| 612 | Warming |  |  | -- |  |
| 613 | Fault |  |  | -- |  |
| 614 | PACK2 | ModuleVoltage |  |  |  |  |
| 615 | ModuleCurrent |  |  |  |  |
| 616 | Temperater-AVE |  |  |  |  |
| 617 | SOC |  |  |  |  |
| 618 | RemainCapacity |  |  |  |  |
| 619 | TotalCapacity |  |  |  |  |
| 620 | ChargeVoltage |  |  |  |  |
| 621 | ChargeCurrent |  |  |  |  |
| 622 | DischargeCurrent |  |  |  |  |
| 623 | Max Cell V |  |  |  |  |
| 624 | Min Cell V |  |  |  |  |
| 625 | Cyclenumber |  |  |  |  |
| 626 | Warming |  |  |  |  |
| 627 | Fault |  |  |  |  |
| 628 | PACK3 | ModuleVoltage |  |  |  |  |
| 629 | ModuleCurrent |  |  |  |  |
| 630 | Temperater-AVE |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 631 |  | SOC |  |  |  |  |
| 632 | RemainCapacity |  |  |  |  |
| 633 | TotalCapacity |  |  |  |  |
| 634 | ChargeVoltage |  |  |  |  |
| 635 | ChargeCurrent |  |  |  |  |
| 636 | DischargeCurrent |  |  |  |  |
| 637 | Max Cell V |  |  |  |  |
| 638 | Min Cell V |  |  |  |  |
| 639 | Cyclenumber |  |  |  |  |
| 640 | Warming |  |  |  |  |
| 641 | Fault |  |  |  |  |
| 642 | PACK4 | ModuleVoltage |  |  |  |  |
| 643 | ModuleCurrent |  |  |  |  |
| 644 | Temperater-AVE |  |  |  |  |
| 645 | SOC |  |  |  |  |
| 646 | RemainCapacity |  |  |  |  |
| 647 | TotalCapacity |  |  |  |  |
| 648 | ChargeVoltage |  |  |  |  |
| 649 | ChargeCurrent |  |  |  |  |
| 650 | DischargeCurrent |  |  |  |  |
| 651 | Max Cell V |  |  |  |  |
| 652 | Min Cell V |  |  |  |  |
| 653 | Cyclenumber |  |  |  |  |
| 654 | Warming |  |  |  |  |
| 655 | Fault |  |  |  |  |
| 656 | PACK5 | ModuleVoltage |  |  |  |  |
| 657 | Module |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Current |  |  |  |  |
| 658 | Temperater-AVE |  |  |  |  |
| 659 | SOC |  |  |  |  |
| 660 | RemainCapacity |  |  |  |  |
| 661 | TotalCapacity |  |  |  |  |
| 662 | ChargeVoltage |  |  |  |  |
| 663 | ChargeCurrent |  |  |  |  |
| 664 | DischargeCurrent |  |  |  |  |
| 665 | Max Cell V |  |  |  |  |
| 666 | Min Cell V |  |  |  |  |
| 667 | Cyclenumber |  |  |  |  |
| 668 | Warming |  |  |  |  |
| 669 | Fault |  |  |  |  |
| 670 | PACK6 | ModuleVoltage |  |  |  |  |
| 671 | ModuleCurrent |  |  |  |  |
| 672 | Temperater-AVE |  |  |  |  |
| 673 | SOC |  |  |  |  |
| 674 | RemainCapacity |  |  |  |  |
| 675 | TotalCapacity |  |  |  |  |
| 676 | ChargeVoltage |  |  |  |  |
| 677 | ChargeCurrent |  |  |  |  |
| 678 | DischargeCurrent |  |  |  |  |
| 679 | Max Cell V |  |  |  |  |
| 680 | Min Cell V |  |  |  |  |
| 681 | Cyclenumber |  |  |  |  |
| 682 | Warming |  |  |  |  |
| 683 | Fault |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
| 684 | PACK7 | ModuleVoltage |  |  |  |  |
| 685 | ModuleCurrent |  |  |  |  |
| 686 | Temperater-AVE |  |  |  |  |
| 687 | SOC |  |  |  |  |
| 688 | RemainCapacity |  |  |  |  |
| 689 | TotalCapacity |  |  |  |  |
| 690 | ChargeVoltage |  |  |  |  |
| 691 | ChargeCurrent |  |  |  |  |
| 692 | DischargeCurrent |  |  |  |  |
| 693 | Max Cell V |  |  |  |  |
| 694 | Min Cell V |  |  |  |  |
| 695 | Cyclenumber |  |  |  |  |
| 696 | Warming |  |  |  |  |
| 697 | Fault |  |  |  |  |
| 698 | PACK8 | ModuleVoltage |  |  |  |  |
| 699 | ModuleCurrent |  |  |  |  |
| 700 | Temperater-AVE |  |  |  |  |
| 701 | SOC |  |  |  |  |
| 702 | RemainCapacity |  |  |  |  |
| 703 | TotalCapacity |  |  |  |  |
| 704 | ChargeVoltage |  |  |  |  |
| 705 | ChargeCurrent |  |  |  |  |
| 706 | DischargeCurrent |  |  |  |  |
| 707 | Max Cell V |  |  |  |  |
| 708 | Min Cell V |  |  |  |  |
| 709 | Cycle |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | number |  |  |  |  |
| 710 | Warming |  |  |  |  |
| 711 | Fault |  |  |  |  |
| 712 | PACK9 | ModuleVoltage |  |  |  |  |
| 713 | ModuleCurrent |  |  |  |  |
| 714 | Temperater-AVE |  |  |  |  |
| 715 | SOC |  |  |  |  |
| 716 | RemainCapacity |  |  |  |  |
| 717 | TotalCapacity |  |  |  |  |
| 718 | ChargeVoltage |  |  |  |  |
| 719 | ChargeCurrent |  |  |  |  |
| 720 | DischargeCurrent |  |  |  |  |
| 721 | Max Cell V |  |  |  |  |
| 722 | Min Cell V |  |  |  |  |
| 723 | Cyclenumber |  |  |  |  |
| 724 | Warming |  |  |  |  |
| 725 | Fault |  |  |  |  |
| 726 | PACK10 | ModuleVoltage |  |  |  |  |
| 727 | ModuleCurrent |  |  |  |  |
| 728 | Temperater-AVE |  |  |  |  |
| 729 | SOC |  |  |  |  |
| 730 | RemainCapacity |  |  |  |  |
| 731 | TotalCapacity |  |  |  |  |
| 732 | ChargeVoltage |  |  |  |  |
| 733 | ChargeCurrent |  |  |  |  |
| 734 | DischargeCurrent |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- |
| 735 |  | Max Cell V |  |  |  |  |
| 736 | Min Cell V |  |  |  |  |
| 737 | Cyclenumber |  |  |  |  |
| 738 | Warming |  |  |  |  |
| 739 | Fault |  |  |  |  |
| 740 | PACK11 | ModuleVoltage |  |  |  |  |
| 741 | ModuleCurrent |  |  |  |  |
| 742 | Temperater-AVE |  |  |  |  |
| 743 | SOC |  |  |  |  |
| 744 | RemainCapacity |  |  |  |  |
| 745 | TotalCapacity |  |  |  |  |
| 746 | ChargeVoltage |  |  |  |  |
| 747 | ChargeCurrent |  |  |  |  |
| 748 | DischargeCurrent |  |  |  |  |
| 749 | Max Cell V |  |  |  |  |
| 750 | Min Cell V |  |  |  |  |
| 751 | Cyclenumber |  |  |  |  |
| 752 | Warming |  |  |  |  |
| 753 | Fault |  |  |  |  |
| 754 | PACK12 | ModuleVoltage |  |  |  |  |
| 755 | ModuleCurrent |  |  |  |  |
| 756 | Temperater-AVE |  |  |  |  |
| 757 | SOC |  |  |  |  |
| 758 | RemainCapacity |  |  |  |  |
| 759 | TotalCapacity |  |  |  |  |
| 760 | ChargeVoltage |  |  |  |  |
| 761 | Charge |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Current |  |  |  |  |
| 762 | DischargeCurrent |  |  |  |  |
| 763 | Max Cell V |  |  |  |  |
| 764 | Min Cell V |  |  |  |  |
| 765 | Cyclenumber |  |  |  |  |
| 766 | Warming |  |  |  |  |
| 767 | Fault |  |  |  |  |
| 768 | PACK13 | ModuleVoltage |  |  |  |  |
| 769 | ModuleCurrent |  |  |  |  |
| 770 | Temperater-AVE |  |  |  |  |
| 771 | SOC |  |  |  |  |
| 772 | RemainCapacity |  |  |  |  |
| 773 | TotalCapacity |  |  |  |  |
| 774 | ChargeVoltage |  |  |  |  |
| 775 | ChargeCurrent |  |  |  |  |
| 776 | DischargeCurrent |  |  |  |  |
| 777 | Max Cell V |  |  |  |  |
| 778 | Min Cell V |  |  |  |  |
| 779 | Cyclenumber |  |  |  |  |
| 780 | Warming |  |  |  |  |
| 781 | Fault |  |  |  |  |
| 782 | PACK14 | ModuleVoltage |  |  |  |  |
| 783 | ModuleCurrent |  |  |  |  |
| 784 | Temperater-AVE |  |  |  |  |
| 785 | SOC |  |  |  |  |
| 786 | RemainCapacity |  |  |  |  |
| 787 | TotalCapacity |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 788 |  | ChargeVoltage |  |  |  |  |
| 789 | ChargeCurrent |  |  |  |  |
| 790 | DischargeCurrent |  |  |  |  |
| 791 | Max Cell V |  |  |  |  |
| 792 | Min Cell V |  |  |  |  |
| 793 | Cyclenumber |  |  |  |  |
| 794 | Warming |  |  |  |  |
| 795 | Fault |  |  |  |  |
| 796 | PACK15 | ModuleVoltage |  |  |  |  |
| 797 | ModuleCurrent |  |  |  |  |
| 798 | Temperater-AVE |  |  |  |  |
| 799 | SOC |  |  |  |  |
| 800 | RemainCapacity |  |  |  |  |
| 801 | TotalCapacity |  |  |  |  |
| 802 | ChargeVoltage |  |  |  |  |
| 803 | ChargeCurrent |  |  |  |  |
| 804 | DischargeCurrent |  |  |  |  |
| 805 | Max Cell V |  |  |  |  |
| 806 | Min Cell V |  |  |  |  |
| 807 | Cyclenumber |  |  |  |  |
| 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 fault1. 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\_FailureAuxiliary ࣙ Power failure | Auxiliary power supply failure1. 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 changeMode ࠷ change | Inverter work mode changed1. 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 hardwareHardware AC overcurrent | AC side over current fault1. 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 hardwareHardware DC overcurrent | DC side over current fault1. 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\_FaultSudden stop fault (逆ਈ器被䬱定3 | Tz\_EmergSStop\_FaultSeek help from us,This failure hardly happens. |
| F23 | AC leakage current is transient over current instantaneous leakage current fault | Leakage current fault1. 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 failurePhalanx insulation impedance failure | PV isolation resistance is too low1. 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 unbalancedDC 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\_FaultParallel connection" failure | This fualt only for inverters working in parallel mode1. Check the parallel setting according to the instructions;
2. Check the connection of the CANBus;
3. Seek help from us
 |
| F35 | No AC gridNo mains power | No Utility1. 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\_StopParallel 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 voltageLine voltage over No fault | Grid voltage fault1. 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\_FaultBackup 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 frequencyAC over-frequency | Grid frequency out of range1. 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 frequencyAC c frequency | Grid frequency out of range1. 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 lowThe busbar voltage is over No | Battery voltage low1. 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 faultBMS Pass" failure |  |
| F63 | ARC faultPull 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 temperaturefailureThe radiator temperature is too high | Heat sink temperature is too high1. 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: