**MODBUS RTU** й相储能通信规㓖

# (⡸权所$，翻⡸必究3

更改½录

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| --- | --- | --- | --- |
| ⡸本ª | 更改内容 | 责任人 | 更改日期 |
| V100 | 初始⡸ | 刘胜利 | 2020.09.16 |
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# 概述

本协䇞䘲用于ᡁ№й相储能逆ਈ器окƒ机监控和 DSP 之间的通信协䇞˚采用 MODBUS RTU

通”规㓖˚本协䇞可ԕ实时读ਆ逆ਈ器的运行信息和对逆ਈ器控制操作˚

# 物理接口

* 1. 采用 **RS485/RS232**，Ѫ异步收发方式，▲从模式，固定波特率˚

----波特率:9600bps

----奇偶校验ƒ:None

----数据ƒ:8

----停‡ƒ:1

* 1. ᑗ间间隔时间要求

# 数据ᑗ格式

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

**Slave Address** 域:是对应的从机地址，必须和逆ਈ器的从机地址३配˚ **Function code** 域:࣏能码，目前只开放 03Hǃ10H ࣏能码˚

|  |  |  |  |
| --- | --- | --- | --- |
| **Function code(Hex)** | 中文Q | 寄ᆈ器地址 | ࣏能 |
| 02H | 读开ޣ输入状态 |  | 读故障信息寄ᆈ器内容 |
| 03H | 读保持寄ᆈ器 | 0~59/500~2000 | 读设置寄ᆈ器内容 |
| 04H | 读输入寄ᆈ器 |  | 读逆ਈ器信息内容 |
| 05H | 写অ个线圈 |  | 开ޣ机设置࣏能 |
| 06H | 写অ个保持寄ᆈ器 |  | 设置অᆇ节࣏能 |
| 10H | 写多个保持寄ᆈ器 | 60-499 | 设置多ᆇ节࣏能 |

**Data** 域:包括起始寄ᆈ器地址，数据长度，数据ᆇ节个数，数据内容˚都是高ᆇ节在前，

№ᆇ节在ਾ˚

**CRC Check** 域: CRC 查表校验方式，№ᆇ节在前高ᆇ节在ਾ˚

# 错误信息及数据的处理

从机回复(16 䘋制):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Slave Address** | **Function code** | **Error code** | **CRC Check** | |
| xx | xx|0x80 | xx | №ᆇ节 | 高ᆇ节 |
| xx | xx |

逆ਈ器通”模块检测到除了 CRC 码出错ԕ外的错误时，必须向▲机回䘱信息，࣏能码的最高ƒ置Ѫ 1，ণ 在▲机发䘱的࣏能码的基础к࣐ 128 ˚

逆ਈ器通”模块响应回䘱的错误码:

0x01 非法的࣏能码 服࣑器н了解࣏能码

0x02 非法的数据地址 о请求$ޣ

0x03 非法的数据值 о请求$ޣ

0x04 服࣑故障 逆ਈ器通”模块在执行过程中无法ਆ出数据故障

# 详细协䇞描述

0-59 寄ᆈ器地址Ѫ可读寄ᆈ器类型， **0x03** ࣏能码˚

60-499 寄ᆈ器地址Ѫ可读写寄ᆈ器类型， **0x10** ࣏能码˚

500-2000 寄ᆈ器地址Ѫ可读寄ᆈ器类型， **0x03** ࣏能码˚

**5.1. 03** 读固$属性;，对应࣏能码 **0x03,**地址范围 **0~59**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Addr | Register meaning | R/W | data range | unit | note |
|  | | | | | |
| 000 | 设备类型  Device type | R |  |  | 0X0200 组串机 inverter 0X0300 অ相储能机 hybird  0X0400 微逆机 MI microinverter  0X0500 й相储能机 phase3 hybird |
| 001 | Modbus address | R | [1,247] |  |  |
| 002 | 通 ” 协 䇞 ⡸ 本  Communication protocol version | R | ‘0’~’9’;  ‘A’~’Z’ |  | 固件所遵从的本协䇞的⡸本，如 0x 0102  ԓ表 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 | ࣏率等¾  Rated Power | R | 0x0000 |  |  |
| 009 | 保留ᆇ  undefined | R | 0x0000 |  |  |
| 010 | 保留ᆇ  undefined | R |  |  |  |
| 011 | 控制板辅ࣙঅƒ机软件  ⡸本ª  Assistant program version | R | 0XFFFF |  | Bit0-7 启ࣘ程序 bootloader software Bit8-15 辅ࣙ程序 Assistant program |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 控制板启ࣘ程序⡸本ª  bootloader software version |  |  |  |  |
| 012 | 预留  undefine | R |  |  |  |
| 013 | 预留  undefine | R |  |  |  |
| 014 | 控制板固件⡸本-ᆇ段 2  Control panel firmware version-2 | R |  |  |  |
| 015 | 控制板固件⡸本**-**▲⡸本  Control panel firmware master version | R |  |  |  |
| 016 | 通”板固件⡸本-ᆇ段 1 Comm panel firmware  version-1 | R |  |  |  |
| 017 | 通”板固件⡸本-ᆇ段 2  Comm panel firmware version-2 | R |  |  |  |
| 018 | 通”板固件⡸本**-**▲⡸本  Comm panel firmware master version | R |  |  |  |
| 019 | 安规类型  Safety type | R |  |  |  |
| 020 | 额定࣏率№ᆇ  Rated power low word | R |  | 0.1W |  |
| 021 | 额定࣏率高ᆇ  Rated power high word | R |  | 0.1W |  |
| 022 | MPPT 路数及相数  MPPT number and phases | R | [1,8]/[1,3] |  | MI 0x0503: five-mppts three-phase |
| 023 | 并网电压等¾/Rated Grid  Voltage | R | [0-3] |  | 0: 127/220V 1: 220/380V |
| 024 |  |  |  |  |  |
| 025 | 预留 SN byte 01 |  |  |  |  |
| 预留 SN byte 02 |
| 026 | 预留 SN byte 03 |  |  |  |  |
| 预留 SN byte 04 |
| 027 | 预留 SN byte 05 |  |  |  |  |
| 预留 SN byte 06 |
| 028 | 预留 SN byte 07 |  |  |  |  |
| 预留 SN byte 08 |
| 029 | 预留 SN byte 09 |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
|  | 预留 SN byte 10 |  |  |  |  |
| 030 |  |  |  |  |  |
| 031 |  |  |  |  |  |
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| 059 |  |  |  |  |  |
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* 1. **10** 可读写可ਈ属性;，对应࣏能码是 **0x10**˚

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Addr | Register meaning | | R/W | data range | unit | | note |
|  | | | | | | | |
| 60 | t程䬱定使能  Remote Lock | | R/W |  |  | | 0x0002 ޣ机 turn off  0x0000 开机 turn on |
| 61 | 开机自检时间  self-check time | | R/W | [0,1000] | S | | MI (bylo -1) |
| 62 | 系统时间第 1 ᆇ节  system time byte 01 | | R/W | [0,255] | ᒤ  Year | | MI ԕ 20 00 ᒤѪ基值  Based on the year 2000 |
| 系统时间第 2 ᆇ节  system time byte 02 | | R/W | [1,12] | $  Month | |
| 63 | 系统时间第 3 ᆇ节  system time byte 03 | | R/W | [1,31] | 日  Day | |
| 系统时间第 4 ᆇ节  system time byte 04 | | R/W | [0,23] | 时  Hour | |
| 64 | 系统时间第 5 ᆇ节  system time byte 05 | | R/W | [0,59] | ࠶ Minute | |
| 系统时间第 6 ᆇ节  system time byte 06 | | R/W | [0,59] | 秒  Sec | |
| 65 | 绝缘阻抗л限 | insulation | R/W | [100,20000] | 0.1KΩ | |  |
| Minimum |
| impedance | |
|  | |  |  |  |  |  |
| 66 | 预留  Undefine | |  |  |  | |  |
| 67 | 预留  Undefine | |  |  |  | |  |
| 68 | 预留  Undefine | |  |  |  | |  |

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| --- | --- | --- | --- | --- | --- |
| 69 | 预留  Undefine |  |  |  |  |
| 70 | 预留  Undefine |  |  |  |  |
| 71 | 预留  Undefine |  |  |  |  |
| 72 | 预留  Undefine |  |  |  |  |
| 73 | 预留  Undefine |  |  |  |  |
| 74 | 通”地址  Communication address | R | 0x0000 | - |  |
| 75 | 通”波特率  Communication baud rate MI:Zigbee or PLC | R | 0x0000 | - |  |
| 76 | 预留  Undefine | R/W |  |  |  |
| 77 | $࣏࣏率调节  Active power regulation | R/W | [0,1200] | 0.1%/1% | 如 800 表示调节到 80.0% MI  If 800, adjust to 80.0% |
| 78 | 无࣏࣏率调节  Reactive power regulation | R/W | [0,1200] | 0.1% | 如 800 表示调节到 80.0%  If 800, adjust to 80.0% |
| 79 | 视在࣏率调节  Apparent power regulation | R/W | [0,1200] | 0.1% | 如 800 表示调节到 80.0%  If 800, adjust to 80.0% |
| 80 | 开ޣ机使能  Switch on and off enable | R/W | [0,1] | - | 0:ޣ机 1:开机MI 2:ޣ机  0: power off 1: power on |
| 81 | 恢复出厂使能  Factory reset enable | R/W | [0,1] |  | 0: disable 1: enable |
| 82 | 自检时间  Self-checking time | R/W | [0,1] | - | 0-360 seconds |
| 83 | 孤岛保ᣔ使能  Island protection enable | R/W | [0,1] |  | 0: disable 1: enable |
| 84 | MPPT路数MPPT number | R/W | [0,1] | - | 0: disable 1: enable |
| 85 | GFDI使能  GFDI enable | R/W | [0,1] |  | 0: disable 1: enable |
| 86 |  |  |  |  |  |
| 87 | RISO 使能  RISO enable | R/W | [0,1] |  | 0: disable 1: enable |
| 88 | 并网标准  GridStandard | R/W | [0,20] |  | 1， 中国  2， 巴西  3， 印度 |

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|  |  |  |  |  | 4， EN50438  5，其他 |
| 89 |  |  |  |  |  |
| 90 | №压穿越使能  Low voltage across enable |  |  |  | 0: disable 1: enable |
| 91 | 控制板EEPROM 初始使能  MCU-EEPROM initial  enabled | R/W | [0,2] | - | 0: ↓常工作 work normal  1: 初始化控制板 EEPROM init mcu eeprom |
| 92 | 通”板EEPROM 初始使能  Comm-EEPROM initial  enabled | R/W |  |  | 0:↓常 work normal  1:初始化通”板 EEPROM init comm eeprom |
| 93 | 控制板测试控制指÷  Factory only |  |  |  | Bit0 开测试使能(使能䘉ਾ面的才$效) Test enable=1 if use later bit  Bit1 开逆ਈ器全部风扇 open all fan  Bit4 开启Gen信ª继电器 open Gen singal relay |
| 94 | 通”板测试控制指÷  Factory only | R/W | [0,3] | - | Bit0 开测试使能(使能䘉ਾ面的才$效) Test enable=1 if use later bit  Bit2 闪显示板的所$LED，蜂蜜器，背ݹ,显示红黄蓝  Flash display board for all LEDs, honey maker, backlight, display red, yellow and blue  Bit3 开启D电池接口测试Open lithium battery interface test Bit5 重启液晶程序  Restart lcd |
| 95 |  |  |  |  |  |
| 96 | 发电量修↓系数  PowerWH Factor | R/W |  | -0.01 | 100 mean 1  111 mean 1.11 |
| 97 | Solar输入ѪSPU  TEST MODE |  |  |  |  |
| 98 | 电池充电类型  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 | 电池容量  Batt Capacity | R/W | [0,2000] | 1 Ah | 200 means 200AH |
| 103 | Empty\_v | R/W |  | 0.01V |  |

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| --- | --- | --- | --- | --- | --- |
| 104 | 最小limit起作用࣏率  ZeroExport power | R/W |  |  |  |
| 105 | 均衡充几天执行一⅑  Equalization day cycle | R/W | [0 90] | Day |  |
| 106 | 均衡充执行时间  Equalization time | R/W | [0 20] | 0.5Hour | ࠶辨率 0.5小时Resolution 0.5 h  [0-20]对应 0- 10小时  但是发MCU是[0-100] |
| 107 | 温度补偿值  TEMPCO | R/W | [0,50] | 1mV/℃ | ᑖ$↓负的int型 Signed int |
| 108 | 电池最大充电电流  Max A Charge | R/W | [0,185] | 1A | 0-185A |
| 109 | 电池最大放电电流  Max A discharge | R/W | [0,185] | 1A | 0-185A |
| 110 | 保留  undefined | R/W |  |  |  |
| 111 | 电池工作根据电压䘈是容量  battery operates according  to voltage or capacity | R/W |  |  | 根据电压 According to the voltage  根据容量 According to the capacity  2 没$电池 no battery |
| 112 | D电池唤醒标志ƒ  Lithium battery wake up sign bit | R/W |  |  | 1. enabled 2. Disable |
| 113 | 电池内阻值  battery resistance value | R/W | [0,6000] | mΩ |  |
| 114 | 电池充电效率  Battery charging efficiency | R/W | [0-100] | 0.1% | 983表示98.3%  983 is 98.3% |
| 115 | 电池容量ShutDown  battery capacity ShutDown | R/W | [0,100] | 1% | №容量截‡点  Low capacity cutoff point |
| 116 | 电池容量Restart  battery capacityRestart | R/W | [0,100] | 1% | 保ᣔ恢复点  Protection recovery point |
| 117 | 电池容量LowBatt  battery capacityLowBatt | R/W | [0,100] | 1% |  |
| 118 | 电池电压ShutDown  battery voltageShutDown | R/W | [3800,6100] | 0.01V | №保ᣔ点 cutoff 41V  Low protection point cutoff 41V |
| 119 | 电池电压Restart  battery voltageRestart | R/W | [3800,6100] | 0.01V | Reboot /recover 52V |
| 120 | 电池电压LowBatt  battery voltageLowBatt | R/W | [3800,6100] | 0.01V | 放电深度 46V Discharge  depth 46V |
| 121 | 发电机最大运行时间  Maximum operating time of generator |  |  | 0.1 hours | 120表示12小时120 is 12 hours |
| 122 | 发电机冷K时间  Generator cooling time |  |  | 0.1 hours | 120表示12小时  120 is 12 hours |

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| --- | --- | --- | --- | --- | --- |
| 123 | 发电机充电启ࣘ电压点  Generator charging Starting voltage point | R/W | [0000 6300] | 0.01V | 电池电压小于䘉个值发电机开启充电  The battery voltage is less than this value |
| 124 | 发电机充电启ࣘ容量点  Generator charging starting capacity point | R/W | [0000 6300] | 1% | 电池容量小于䘉个值发电机开启充电  The battery capacity is less than this value |
| 125 | 发电机对电池充电电流  Generator charges the battery current | R/W | [0000 185] | 1A | 发电机对电池充电电流  The generator charges the battery |
| 126 | 市电充电启ࣘ电压点  Grid charging Start voltage point o | R/W | [0000 6300] | 0.01v |  |
| 127 | 市电充电启ࣘ容量点  Grid charging start capacity point | R/W | [0000 6300] | 1% |  |
| 128 | 市电对电池充电电流  Grid charge the battery current | R/W | [0000 185] | 1A | 市电对电池充电电流  Grid charge the battery current |
| 129 | 发电机充电使能  Generator is charged to enable | R/W |  |  |  |
| 130 | 市电充电使能  Grid is charged to enable | R/W |  |  |  |
| 131 | AC couple 频率к限设置 | R/W | 5000-6500 |  | 5000-6500 |
| 132 | 强制开启发电机作Ѫ负载  ࣏能  Force on generator as load function | R/W |  |  | 前提是235ª寄ᆈ器已经使能1  The premise is that register 234 has enabled 1   1. н强制 Do not force 2. 强制 force |
| 133 | 发电机输入作Ѫ负载输出使能  generator input is enabled  as the load output | R/W |  |  | 1. 只作Ѫ发电机输入 only Gen use 2. 智能负载输出 only smart load output 3. 使能作Ѫ逆ਈ器输入 only microinverter input |
| 134 | 发电机负载OFF电压  SmartLoad OFF batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 135 | 发电机负载OFF电量  SmartLoad OFF batt | R/W | [0000 100] | 1% |  |
| 136 | 发电机负载ON电压  SmartLoad ON batt Voltage | R/W | [3800 6300] | 0.01V |  |
| 137 | 发电机负载ON电量  SmartLoad ON batt | R/W | [0000 100] | 1% |  |
| 138 | 输出电压等¾设定 | R/W |  |  | 0 表示220V means 220V |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Output voltage level setting |  |  |  | 1. 表示230V means 230V 2. 表示240V means 240V 3. 表示120V means 120V 4 133VAC |
| 139 | 开启发电机的最小solar࣏ 率  minimum solar power  required to start a generator | R/W | [0,8000] | 1W |  |
| 140 | 发电机并网信ª  Gen\_Grid\_Signal On |  |  |  |  |
| 141 | 能量管理模式 Energy management model |  |  |  | Bit0-1 10 电池优] 模式 battery first mode  11 负载优]模式 load first mode Bit2-3 表示被ࣘ 并网࣏ 率ᒣ 衡࣏ 能Represents passive grid-connected power balance function   1. н开启 colse 2. 开启 open   Bit4-5 表示▲ ࣘ 并网࣏ 率ᒣ 衡࣏ 能Represents active grid-connection power balance function   1. н开启 close 2. 开启 open |
| 142 | limit控制࣏能  limit control function | R/W |  | 0/1 | 0x00 使能আ电  sell electricity enabled  0x01 使能内置 built-in enabled 0x02 使能外置  extraposition enabled |
| 143 | 限制并网最大࣏率输出Limit the maximum power output of the grid  connection | R/W | [0,8000] | 1W | ԓ表总࣏率  Represents total power |
| 144 | 外置电流传感器方向External current sensor clamp phase | R/W | [xx,00] | 1W | [11][12] |
| 145 | ݹ伏আ电  Solar sell | R/W |  |  | 0x00ݹ伏нআ电 solar Don't sell 0x01ݹ  伏আ电 solar sell |
| 146 | 高¾削峰填谷࣏能使能Time of Use Selling enabled | R/W |  |  | Bit0 0 disable  1 enable  Bit1 Monday  0-disable 1-enable Bit2 Tuesday |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | ……  Bit7 Sunday |
| 147 | й相ABC电网相序设定  Grid Phase | R/W |  |  | 0 0 120 240  1 0 240 120 |
| 148 | আ电模式时间点1  Sell mode time point 1 | R/W | [0000 2359] |  | 2359表示时间23:59  2359 means time 23:59 |
| 149 | আ电模式时间点2 Sell mode time point 2 | R/W | [0000 2359] |  | Time |
| 150 | আ电模式时间点3  Sell mode time point 3 | R/W | [0000 2359] |  |  |
| 151 | আ电模式时间点4  Sell mode time point 4 | R/W | [0000 2359] |  |  |
| 152 | আ电模式时间点5  Sell mode time point5 | R/W | [0000 2359] |  |  |
| 153 | আ电模式时间点6  Sell mode time point6 | R/W | [0000 2359] |  |  |
| 154 | আ电模式时间点1࣏率  Sell mode time point 1 | R/W | [0000 8000] | 1W | ਇ到电池最大放电࣏率影响 Affected by the maximum discharge power of the battery |
| 155 | আ电模式时间点2࣏率  Sell mode time point 2 | R/W | [0000 8000] | 1W | Power |
| 156 | আ 电模式时间点 3 ࣏ 率  Sell mode time point 3 | R/W | [0000 8000] | 1W |  |
| 157 | আ 电模式时间点 4 ࣏ 率  Sell mode time point 4 | R/W | [0000 8000] | 1W |  |
| 158 | আ 电模式时间点 5 ࣏ 率  Sell mode time point 5 | R/W | [0000 8000] | 1W |  |
| 159 | আ 电模式时间点 6 ࣏ 率  Sell mode time point 6 | R/W | [0000 8000] | 1W |  |
| 160 | আ 电模式时间点 1 电 压  Sell mode time point 1 | R/W | [0000 6300] | 0.01V | ਇ到电池电压的影响  Is affected by the battery voltage |
| 161 | আ 电模式时间点 2 电 压  Sell mode time point 2 | R/W | [0000 6300] | 0.01V | Voltage |
| 162 | আ 电模式时间点 3 电 压  Sell mode time point 3 | R/W | [0000 6300] | 0.01V |  |

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| 163 | আ 电模式时间点 4 电 压  Sell mode time point 4 | R/W | [0000 6300] | 0.01V |  |
| 164 | আ 电模式时间点 5 电 压  Sell mode time point 5 | R/W | [0000 6300] | 0.01V |  |
| 165 | আ 电模式时间点 6 电 压  Sell mode time point 6 | R/W | [0000 6300] | 0.01V |  |
| 166 | 1容量 1 capacity | R/W | [0,100] | 1% | Soc |
| 167 | 2容量 2 capacity | R/W | [0,100] | 1% |  |
| 168 | 3容量 3 capacity | R/W | [0,100] | 1% |  |
| 169 | 4容量 4 capacity | R/W | [0,100] | 1% |  |
| 170 | 5容量 5 capacity | R/W | [0,100] | 1% |  |
| 171 | 6容量 6 capacity | R/W | [0,100] | 1% |  |
| 172 | 时间点1充电使能  Time point 1 charge enable | R/W | [0,1] |  | Bit0 表示电网充电使能 grid charging enable  Bit1 表示发电机充电使能 gen charging  enable |
| 173 | 时间点2充电使能  Time point 2 charge enable | R/W | [0,1] |  | №к |
| 174 | 时间点3充电使能  Time point 3 charge enable | R/W | [0,1] |  | №к |
| 175 | 时间点4充电使能  Time point 4 charge enable | R/W | [0,1] |  | №к |
| 176 | 时间点5充电使能  Time point 5 charge enable | R/W | [0,1] |  | №к |
| 177 | 时间点6充电使能  Time point 6 charge enable | R/W | [0,1] |  | №к |

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| 178 | 控制板特殊࣏能ƒ 1 Microinverter export to grid cutoff | R/W | [0,1] |  | 需要全部改ᡀ两ƒ控制 need two bits control  -00无ࣘ作-01无ࣘ作-10失能-11使能  -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 | 控制板特殊࣏能ƒ 2  1,外置CT自ࣘ检测方向  2,强制脱网 | R/W | [0,1] |  | Bit0-1 10:外置CT自ࣘ检测方向 disable Externl ct direction check disable  11:enable  Bit2-3 10:强制离网工作 disable Forced off-grid work disable  11:enable |

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| 180 | 恢复并网时间  Restore connection time | R/W | [10 300] |  |  |
| 181 | Solar Arc Fault模式开启Solar Arc Fault Mode | R/W | [0 1] |  | 0x00 ޣ闭 Close 0x01 开启 open |
| 182 | 并网标准  Grid Mode | R/W | [0 1 ] |  | 0=通用标准 general standard 1= UL1741&IEE1547  2= CPUC RULE21  3= SRD-UL1741  …… |
| 183 | 电网频率设置  Grid Frequency | R/W | [0 1] |  | 0x00 50HZ  0x01 60hz |
| 184 | 电网类型设置  Grid Type  ⧠在是й相，无效 | R/W | [0 3 ] |  | 0x00 অ相 默认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 | 电网高压保ᣔ点  Grid Vol High | R/W | [1800 2700] | 0.1V |  |
| 186 | 电网№压保ᣔ点  Grid Vol Low | R/W | [1800 2700] | 0.1V |  |
| 187 | 电网频率高保ᣔ点  Grid Hz High | R/W | [4500 6500] | 0.01Hz |  |
| 188 | 电网频率№保ᣔ点  Grid Hz Low | R/W | [4500 6500] | 0.01Hz |  |
| 189 | 发电机连接到电网输入端  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 | 输出PF值设定($࣏调节  Output PF value Settings | R/W | [800 1200] |  | 800表示调整到80% 1200标识调整到120%  800 for 80%, 1200 for 120% |
| 194 | 外部继电器ƒ  External relay bit | R/W | [0 0xFFFF] |  | Bit0-8 对应8个继电器ƒ  Bit0-8 corresponds to 8 relay bits |
| 195 | ARC\_facTory\_B高ƒ  ARC\_facTory\_B high word | R/W | [0,65535] |  | 高ƒ和地ƒ组合，ԕ数值显示ণ可  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 高 ƒ  ARC\_facTory\_I high word | R/W | [0,65535] |  |
| 198 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 199 | ARC\_facTory\_F高ƒ  ARC\_facTory\_F high word | R/W | [0,65535] |  |  |
| 200 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 201 | ARC\_facTory\_D高ƒ  ARC\_facTory\_D high word | R/W | [0,65535] |  |  |
| 202 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 203 | ARC\_facTory\_T高ƒ  ARC\_facTory\_T high word | R/W | [0,65535] |  |  |
| 204 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 205 | ARC\_facTory\_C高ƒ  ARC\_facTory\_C high word | R/W | [0,65535] |  |  |
| 206 | №ƒ  Low word | R/W | [0,65535] |  |  |
| 207 | ARC\_facTory\_Frz高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默认 2. 1S |
| 210 | 充电电压  charging voltage | R/W |  | 0.01V |  |
| 211 | 放电电压  discharge voltage | R/W |  | 0.01V |  |
| 212 | 充电限流  charging current limiting | R/W |  | 1A |  |
| 213 | 放电限流  Discharge current limiting | R/W |  | 1A |  |
| 214 | 当前容量  real time Capacity | R/W |  | 1% |  |
| 215 | 当前电压  real time voltage | R/W |  | 0.01V |  |
| 216 | 当前电流 | R/W |  | 1A |  |

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|  | real time current |  |  |  |  |
| 217 | 当前温度  real time temp | R/W |  | 0.1C | 1000 对应0 度 1200 表示20.0 度 800 表示  -20.0C  1000 corresponds to 0 degrees  1200 means 20.0 degrees  800 means -20.0C |
| 218 | 离网充电限流 最大 值  Maximum charge current limit | R/W |  | 1A |  |
| 219 | 离网放电限流 最大值  Maximum discharge current limiting | R/W |  |  |  |
| 220 | D电池告警ƒ  Lithium battery alarm position | R/W |  |  | 0x0001 |
| 221 | D电池故障ƒ  Lithium battery fault location | R/W | [0,65535] |  |  |
| 222 | D电池标志2  Lithium battery symbol 2 | R/W | [0,65535] |  | Bit0 空缺 Vacancy  Bit1 强ߢ标志 Strong impact marks |
| 223 | D电池类型  Lithium battery type | R/W |  |  | 0x0000 中ޤ派能 德朗能D  PYLON SOLAX  通用CAN协䇞  0x0001 天邦达RS485modbus协䇞  0x0002 KOK协䇞  0x0003 keith 0X0004 拓派协䇞  0X0005 派能485协䇞  0X0006 杰力斯485协䇞  0X0007 欣旺达485协䇞  0X0008 欣瑞能485协䇞  0X0009 天邦达485协䇞  0X000A 晟高电气can协䇞 |
| 224 | D电池SOH  Lithium battery SOH |  |  |  |  |
| 225 |  |  |  |  |  |
| 226 |  |  |  |  |  |
| 227 | Upgrade LCD test | R/W | [0,1] |  |  |
| 228 | 通”板设置࣏能  Comm board setting function | R/W |  |  | Bit0-1 时间校时  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失能 disable  -11使能 enable |
| 229 |  |  |  |  |  |
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| 239 |  |  |  |  |  |
| 240 | 䘋入厂内初测程序 | R/W |  |  | =12345 䘋入 |
| 241 |  |  |  |  |  |
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| 243 |  |  |  |  |  |
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| 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做Wind输入使能  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 | 预留  Undefine |  |  |  |  |
| 336 | 并联**1**  Parallel-1 |  |  |  |  |
| 337 | 并联2  Parallel-2 |  |  |  |  |
| 338 | 预留  Undefine |  |  |  |  |
| 339 | 预留  Undefine |  |  |  |  |
| 340 | ݹ伏最大আ电࣏率  Max Solar Sell Power |  | R/W | 1W |  |
| 341 | 预留  Undefine |  |  |  |  |
| 342 | 预留  Undefine |  |  |  |  |

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| 343 | 预留  Undefine |  |  |  |  |
| 344 | 电网信息监测方式  Grid check from Meter or CT | R/W |  |  | BIT00:  0:CT  1:Meter  BIT01: -BIT15: undefine |
| 345 |  |  |  |  |  |
| 346 |  |  |  |  |  |
| 347 | 外置CTਈ比  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 | Charge⧟的输入斜率控制  ↓数 | R/W | [0-500] | W | 逐周期࣏率ਈ化  Cycle by cycle power variation |
| 351 | Charge⧟的输入斜率控制  负数 | R/W | [0-500] | W | 逐周期࣏率ਈ化  Cycle by cycle power variation |
|  |  |  |  |  |  |
| 359 | 离网过载 电压小于180V  持续时间 |  |  |  |  |
| 360 |  |  |  |  |  |
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| 380 | ࣐ 州 № 压 高 压 穿 越CA\_LHVRT使能 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 | ࣐ 州 № 频 高 频 穿 越CA\_LHFRT使能 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 | ࣐州CA\_QV使能  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 | ࣐州CA\_FW使能  California CA\_FW enable |  |  |  |  |
| 410 | CA\_Fstart |  |  |  |  |
| 411 | CA\_Fstop |  |  |  |  |
| 412 | ࣐州CA\_VW使能  California CA\_VW enable |  |  |  |  |
| 413 | CA\_Vstart |  |  |  |  |
| 414 | CA\_Vstop |  |  |  |  |
| 415 | ↓常к升斜率  Normal upward slope | R/W | [1 100] | 1% |  |
| 416 | 软启ࣘк升速率  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** 只读实时属性;，对应࣏能码是 **0x03**˚

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| Addr | Register meaning | R/W | data range | unit | note |
|  | | | | | |
| 500 | 运行状态  run state | R | [0,5] | - | 0000 待机 standby  0001 自检 selfcheck  0002 ↓常 normal  0003 告警 alarm  0004 故障 fault |

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| 501 | 逆ਈ器电网侧当日$࣏发电量  active power generation of  today | R | [-32768,32767] | 0.1kWh |  |
| 502 | 逆ਈ器电网侧当日无࣏发电量  reactive power generation of  today | R | [-32768,32767] | 0.1kVarh |  |
| 503 | 当日并网时间  Grid connection time of today | R | [0,65535] | S |  |
| 504 | 逆ਈ器电网侧总$࣏发电量  №ᆇ  active power generation of total low byte | R | [0,0xFFFFFFFF] | 0.1kWh |  |
| 505 | 逆ਈ器电网侧总$࣏发电量高ᆇ  active power generation of  total high byte | R |
| 506 | 逆ਈ器电网侧总无࣏发电量  №ᆇ  reactive power generation of total low byte |  |  |  |  |
| 507 | 逆ਈ器电网侧总无࣏发电量高ᆇ  reactive power generation of  total high byte |  |  |  |  |
| 508 | ~~逆ਈ器状态ƒ1~~ | R |  |  | **Debug only** 调试用，无意义  Bit0:内部风扇ᆈ在ƒ:1$ 0无Bit1:外部风扇ᆈ在ƒ:1$ 0无 |
| 509 | ~~逆ਈ器状态ƒ1~~ | R |  |  | **Debug only** 调试用，无意义 |
| 510 |  |  |  |  |  |
| 511 |  |  |  |  |  |
| 512 |  |  |  |  |  |
| 513 |  |  |  |  |  |
| 514 | 电池当日充电量  Today charge of the battery |  |  | 0.1kwh |  |
| 515 | 电池当日放电量  Today discharge of the battery |  |  | 0.1kwh |  |
| 516 | 电池累计充电量№ᆇ  Total charge of the battery low byte |  |  | 0.1kwh |  |
| 517 | 电池累计充电量高ᆇ  Total charge of the battery |  |  | 0.1kwh |  |

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|  | high byte |  |  |  |  |
| 518 | 电池累计放电量№ᆇ  Total discharge of the battery low byte |  |  | 0.1kwh |  |
| 519 | 电池累计放电量高ᆇ  Total discharge of the battery high byte |  |  | 0.1kwh |  |
| 520 | 电网当日购电量  Day\_GridBuy\_Power Wh |  |  | 0.1kwh |  |
| 521 | 电网当日আ电量  Day\_GridSell\_Power Wh |  |  | 0.1kwh |  |
| 522 | 电网累计购电量№ᆇ  Total\_GridBuy\_Power Wh\_low word |  |  | 0.1kwh |  |
| 523 | 电网累计购电量高ᆇ  Total\_GridBuy\_Power Wh\_high word |  |  | 0.1kwh |  |
| 524 | 电网累计আ电量№ᆇ  Total\_GridSell\_Power Wh\_low word |  |  | 0.1kwh |  |
| 525 | 电网累计আ电量高ᆇ  Total\_GridSell\_Power Wh\_high word |  |  | 0.1kwh |  |
| 526 | 当日用电量  Day\_Load\_Power Wh |  |  | 0.1kwh |  |
| 527 | 累计用电量№ᆇ  Total\_Load\_Power Wh\_low word |  |  | 0.1kwh |  |
| 528 | 累计用电量高ᆇ  Total\_Load\_Power Wh\_high word |  |  | 0.1kwh |  |
| 529 | 当日总PV发电量  Day\_PV\_Power Wh | R | [0,65535] | 0.1kWh |  |
| 530 | 当日PV-1发电量  Day\_PV-1\_Power Wh |  |  | 0.1kWh |  |
| 531 | 当日PV-2发电量  Day\_PV-2\_Power Wh |  |  | 0.1kWh |  |
| 532 | 当日PV-3发电量  Day\_PV-3\_Power Wh |  |  | 0.1kWh |  |
| 533 | 当日PV-4发电量  Day\_PV-4\_Power Wh |  |  | 0.1kWh |  |
| 534 | 历史PV发电量№ᆇ  Total PV\_power Wh\_low word | R |  | 0.1kWh |  |

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| 535 | 历史PV发电量高ᆇ  Total PV\_power Wh\_high word | R |  | 0.1kWh |  |
| 536 |  |  |  |  |  |
| 537 |  |  |  |  |  |
| 538 |  |  |  |  |  |
| 539 | 发电机日工作时间  Generator working hours per  day |  |  | 0.1h |  |
| 540 | DCਈ压器温度(DCTransformer  temperature) | R | [0,3000] | 0.1℃ | 偏移1000 |
| 541 | 散热ƒ温度  Heat sink temperature |  | [0,3000] | 0.1℃ |  |
| 542 | 预留温度1 undefine |  | [0,3000] | 0.1℃ |  |
| 543 | 预留温度2 undefine | R | [0,3000] | 0.1℃ |  |
| 544 | 预留温度3  undefine | R | [0,3000] | 0.1℃ |  |
| 545 |  |  |  |  |  |
| 546 |  |  |  |  |  |
| 547 |  |  |  |  |  |
| 548 | 通”板的故障状态  Failure status of  communication board | R | [0,0xFFFF] |  | Bit0 Flash chip error Bit1 time error  Bit2 EEPROM error |
| 549 | MCU测试标志ƒ MCU test flag |  |  |  | Bit0 拉弧通”标志 Arc pull communication sign  Bit1 可并联CAN通” Parallel CAN  communication |
| 550 | LCD测试标志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 按键1234 key1234  Bit11 液晶中断状态 lcd interrupt  status |
| 551 | 开ޣ机状态  Turn off/on status | R |  |  | №4ƒ表示开ޣ信ª  0000 ޣ机 power off  0001 开机 power on |
| 552 | AC侧继电器状态AC realy status | R |  |  | 1. off 2. on   Bit0 INV继电器 INV relay  Bit1 负载继电器 预留 undefine Bit2 电网继电器 grid relay  Bit3 发电机继电器 gen relay  Bit4 电网供电继电器 grid give power to relay |

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|  |  |  |  |  | Bit5 ç接点 Dry contact |
| 553 | 告警信息第 1 ᆇ  Warning message word 1 | R | [0,65535] |  | Bit0: reserved  Bit1:风扇故障 FAN\_WARN  Bit2:电网相ƒ错误 grid phase wrong  Bit3: |
| 554 | 告警信息第 2 ᆇ  Warning message word 2 | R | [0,65535] |  |  |
| 555 | 故障信息第 1ᆇ  Fault information word 1 | R | [0,65535] |  | 见故障信息编码表 |
| 556 | 故障信息第 2ᆇ  Fault information word 2 | R | [0,65535] |  |
| 557 | 故障信息第 3 ᆇ  Fault information word 3 | R | [0,65535] |  |
| 558 | 故障信息第 4 ᆇ  Fault information word 4 | R | [0,65535] |  |
| 559 | 预留 |  |  |  |  |
| 560 | 预留 |  |  |  |  |
| 561 | 调试数据  Debug Data |  |  |  |  |
|  | 561-583 一共23 个调  试数据 |  |  |  |  |
| 583 | 调试数据  Debug Data | R | 0x0000 |  |  |
| 584 | 预留  undefine |  |  |  |  |
| 585 | 预留  undefine |  |  |  |  |
| 586 | 电池温度  battery temperature | R 0 | [0,3000] | 0.1℃ |  |
| 587 | 电池电压  battery voltage | R 1 |  | 0.01V |  |
| 588 | 电池电量  battery capacity | R 2 | [0,100] | 1% |  |
| 589 | 保留  undefined | R 3 |  |  |  |
| 590 | 电池输出࣏率  Battery output power | R4 |  | 1W | S16 |
| 591 | 电池输出电流  Battery output current | R5 |  | 0.01A | S16 |
| 592 | 电 池 校 ↓ ਾ 的 容 量  Corrected\_AH | 6 | [0,3000] | 1AH | 100 is 100AH |
| 593 |  | 7 |  |  |  |
| 594 |  | 8 |  |  |  |

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| 595 |  | 9 |  |  |  |
| 596 |  | 10 |  |  |  |
| 597 |  | 11 |  |  |  |
| 598 | 电网侧相电压A Grid phase voltage A | R12 |  | 0.1V |  |
| 599 | 电网侧相电压B Grid phase voltage B | R13 |  | 0.1V |  |
| 600 | 电网侧相电压C Grid phase voltage C | R14 |  | 0.1V |  |
| 601 | 电网侧线电压AB Grid line voltage AB | R15 |  | 0.1V | 预留 |
| 602 | 电网侧线电压BC  Grid line voltage BC | R16 |  | 0.1V |  |
| 603 | 电网侧线电压CA Grid line voltage CA | R17 |  | 0.1V |  |
| 604 | 电网侧内侧A相࣏率  A phase power on the inner  side of the grid | R18 |  | 1W | S16 |
| 605 | 电网侧内侧B相࣏率  B phase power on the inner  side of the grid | R19 |  | 1W | S16 |
| 606 | 电网侧内侧C相࣏率  C phase power on the inner  side of the grid | R20 |  | 1W | S16 |
| 607 | 电网侧-内侧总$࣏࣏率Total active power from side to side of the grid | R21 |  | 1W |  |
| 608 | 电网侧-内侧总视在࣏率  Grid side - inside total  apparent power | R22 |  | 1W | 预留 |
| 609 | 电网侧频率  Grid-side frequency | 23 |  |  |  |
| 610 | 电网侧内侧电流A  grid side inner current A | R24 |  | 0.01A | S16 |
| 611 | 电网侧内侧电流B  grid side inner current B | R25 |  | 0.01A | S16 |
| 612 | 电网侧内侧电流C  grid side inner current C | R26 |  | 0.01A | S16 |
| 613 | 电网外置-电流A  Out-of-grid - current A | R27 |  | 0.01A | S16 |
| 614 | 电网外置-电流B  Out-of-grid - current B | R28 |  | 0.01A | S16 |
| 615 | 电网外置-电流C  Out-of-grid - current C | R29 |  | 0.01A | S16 |
| 616 | 电网外置-࣏率A Out-of-grid -power A | R30 |  | 1W | S16 |
| 617 | 电网外置-࣏率B  Out-of-grid -power B | R31 |  | 1W | S16 |
| 618 | 电网外置-࣏率C Out-of-grid -power C | R32 |  | 1W | S16 |
| 619 | 电网外置-总$࣏࣏率  Out-of-grid –total power | R33 |  | 1W | S16 |
| 620 | 电网外置-总视在࣏率 | R34 |  | 1VA | S16 |

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|  | Out-of-grid –total apparent power |  |  |  |  |
| 621 | 并网࣏率因数 PF  Grid-connected power factor PF | R35 | R/W | [0,1000] | 真实值\*1000 |
| 622 | 电网侧A相࣏率  Grid side A-phase power | 36 |  | 1W | ԕлй个寄ᆈ器根据内置外置设置ਈ化  The following three registers vary according to the built-in and external Settings |
| 623 | 电网侧B相࣏率  Grid side B-phase power | 37 |  | 1W |  |
| 624 | 电网侧C相࣏率  Grid side C-phase power | 38 |  | 1W |  |
| 625 | 电网侧-总$࣏࣏率  Grid side total power | 39 |  | 1W |  |
| 626 |  | 40 |  |  |  |
| 627 | 逆ਈ器输出相电压A  Inverter output phase voltage A | R41 |  | 0.1V |  |
| 628 | 逆ਈ器输出相电压B  Inverter output phase voltage B | R42 |  | 0.1V |  |
| 629 | 逆ਈ器输出相电压C  Inverter output phase voltage C | R43 |  | 0.1V |  |
| 630 | 逆ਈ器输出相电流A  Inverter output phase current A | 44 |  | 0.01A | S16 |
| 631 | 逆ਈ器输出相电流B Inverter output phase  current B | 45 |  | 0.01A | S16 |
| 632 | 逆ਈ器输出相电流C Inverter output phase current C | 46 |  | 0.01A | S16 |
| 633 | 逆ਈ器输出相࣏率A Inverter output phase  power A | R47 |  | 1W | S16 |
| 634 | 逆ਈ器输出相࣏率B Inverter output phase  power B | R48 |  | 1W | S16 |
| 635 | 逆ਈ器输出相࣏率C Inverter output phase  power C | 49 |  | 1W | S16 |
| 636 | 逆ਈ器输出总$࣏࣏率  Inverter output total  power | R50 |  | 1W | S16 |
| 637 | 逆ਈ器输出总视在࣏率  Inverter output total  apparent power | 51 |  | 1W | S16 |

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| 638 | 逆ਈ器频率  Inverter frequency | 52 |  | 0.01Hz | U16 |
| 639 |  | 53 |  |  |  |
| 640 | UPS负载侧相࣏率A  UPS load-side phase power  A | 54 |  | 1W | U16 |
| 641 | UPS负载侧相࣏率B  UPS load-side phase power  B | 55 |  | 1W | U16 |
| 642 | UPS负载侧相࣏率C  UPS load-side phase power  C | 56 |  | 1W | U16 |
| 643 | UPS负载侧总࣏率C UPS load-sidetotal power | 57 |  | 1W | U16 |
| 644 | 负载测相电压A Load phase voltage A | R58 |  | 0.1V | U16 |
| 645 | 负载测相电压B Load phase voltage B | R59 |  | 0.1V | U16 |
| 646 | 负载测相电压C Load phase voltage C | 60 |  | 0.1V | U16 |
| 647 | 负载测电流A 无效  Load phase current A no use | R61 |  | 0.01A | S16 |
| 648 | 负载测电流B 无效  Load phase current B no use | R62 |  | 0.01A | S16 |
| 649 | 负载测电流C 无效  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 | 负载侧相࣏率B Load phase power B | R65 |  | 1W | S16 |
| 652 | 负载侧相࣏率C  Load phase power C | R66 |  | 1W | S16 |
| 653 | 负载侧总$࣏࣏率  Load totalpower | R67 |  | 1W | S16 |
| 654 | 负载侧总视在࣏率 预留  Load phase apparent power  undefine | R68 |  | 1W | S16 |
| 655 | 负载频率  Load frequency | R69 |  | 0.01Hz |  |
| 656 |  | 70 |  |  |  |
| 657 |  | 71 |  |  |  |
| 658 |  | 72 |  |  |  |
| 659 |  | 73 |  |  |  |
| 660 |  | 74 |  |  |  |
| 661 | Gen端口的相电压A  Phase voltage of Gen port A | 75 |  | 0.1V |  |
| 662 | Gen端口的相电压B  Phase voltage of Gen port B | 76 |  | 0.1V |  |
| 663 | Gen端口的相电压C  Phase voltage of Gen port C | 77 |  | 0.1V |  |
| 664 | Gen端口的࣏率A  Phase power of Gen port A | R78 |  | 1W |  |

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| 665 | Gen端口的࣏率B  Phase power of Gen port B | 79 |  | 1W |  |
| 666 | Gen端口的࣏率C  Phase power of Gen port C | 80 |  | 1W |  |
| 667 | Gen端口的总࣏率  total power of Gen port | 81 |  | 1W |  |
| 668 |  | 82 |  |  |  |
| 669 |  | 83 |  |  |  |
| 670 |  | 84 |  |  |  |
| 671 |  | 85 |  |  |  |
| 672 | PV1输入࣏率  PV1 input power | R86 |  | 1W |  |
| 673 | PV2输入࣏率  PV2 input power | R87 |  | 1W |  |
| 674 | PV3输入࣏率  PV3 input power | R88 |  | 1W |  |
| 675 | PV4输入࣏率  PV4 input power | R89 |  | 1W |  |
| 676 | 直流电压1  Dc voltage 1 | R90 | [0,65535] | 0.1V |  |
| 677 | 直流电流1  Dc current 1 | R91 | [0,65535] | 0.1A |  |
| 678 | 直流电压2  Dc voltage 2 | R92 | [0,65535] | 0.1V |  |
| 679 | 直流电流2  Dc current 2 | R93 | [0,65535] | 0.1A |  |
| 680 | 直流电压3  Dc voltage 3 | R94 | [0,65535] | 0.1V |  |
| 681 | 直流电流3  Dc current 3 | R95 | [0,65535] | 0.1A |  |
| 682 | 直流电压4  Dc voltage 4 | R96 | [0,65535] | 0.1V |  |
| 683 | 直流电流4  Dc current 4 | R97 | [0,65535] | 0.1A |  |
|  | 预留 |  |  |  |  |
|  | 预留 |  |  |  |  |
|  | 预留 |  |  |  |  |
| 1000 | 电网信息监测方式  Grid power check mode | R |  |  | BIT00:  0:CT  1:Meter  BIT01-BIT15: undefine |
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* 1. **03** 电池只读;

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| Addr | Register meaning | | R/W | data range | unit | note |
| 2000-2999 ѪD电池寄ᆈ器 | | | | | | |
|  | 电池 ID | |  |  |  |  |
|  | 圣阳电池 |  |  |  |  |  |
| 500 | 1 ª 1 ᆇ节 | | R | ‘0’- ‘9’ ‘A’-  ‘Z’ |  | ASCII ᆇ符 |
| 1 ª 2 ᆇ节 | |
| 501 | 1 ª 3 ᆇ节 | | R |  |  |  |
| 1 ª 4 ᆇ节 | |
| 502 | 1 ª 5 ᆇ节 | |  |  |  |  |
| 1 ª 6 ᆇ节 | |
| 503 | 1 ª 7 ᆇ节 | |  |  |  |  |
| 1 ª 8 ᆇ节 | |
| 504 | 1 ª 9 ᆇ节 | |  |  |  |  |
| 1 ª 10 ᆇ节 | |
| 505 | 1 ª 11 ᆇ节 | |  |  |  |  |
| 1 ª 12 ᆇ节 | |
| 506 | 2 ª 1 ᆇ节 | | R | ‘0’- ‘9’ ‘A’-  ‘Z’ |  | ASCII ᆇ符 |
| 2 ª 2 ᆇ节 | |
| 507 | 2 ª 3 ᆇ节 | | R |  |  |  |
| 2 ª 4 ᆇ节 | |
| 508 | 2 ª 5 ᆇ节 | |  |  |  |  |
| 2 ª 6 ᆇ节 | |

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

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

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 13 ª 4 ᆇ节 | |  |  |  |  |
| 574 | 13 ª 5 ᆇ节 | |  |  |  |  |
| 13 ª 6 ᆇ节 | |
| 575 | 13 ª 7 ᆇ节 | |  |  |  |  |
| 13 ª 8 ᆇ节 | |
| 576 | 13 ª 9 ᆇ节 | |  |  |  |  |
| 13 ª 10 ᆇ节 | |
| 577 | 13 ª 11 ᆇ节 | |  |  |  |  |
| 13 ª 12 ᆇ节 | |
| 578 | 14 ª 1 ᆇ节 | | R | ‘0’- ‘9’ ‘A’-  ‘Z’ |  | ASCII ᆇ符 |
| 14 ª 2 ᆇ节 | |
| 579 | 14 ª 3 ᆇ节 | | R |  |  |  |
| 14 ª 4 ᆇ节 | |
| 580 | 14 ª 5 ᆇ节 | |  |  |  |  |
| 14 ª 6 ᆇ节 | |
| 581 | 14 ª 7 ᆇ节 | |  |  |  |  |
| 14 ª 8 ᆇ节 | |
| 582 | 14 ª 9 ᆇ节 | |  |  |  |  |
| 14 ª 10 ᆇ节 | |
| 583 | 14 ª 11 ᆇ节 | |  |  |  |  |
| 14 ª 12 ᆇ节 | |
| 584 | 15 ª 1 ᆇ节 | | R | ‘0’- ‘9’ ‘A’-  ‘Z’ |  | ASCII ᆇ符 |
| 15 ª 2 ᆇ节 | |
| 585 | 15 ª 3 ᆇ节 | | R |  |  |  |
| 15 ª 4 ᆇ节 | |
| 586 | 15 ª 5 ᆇ节 | |  |  |  |  |
| 15 ª 6 ᆇ节 | |
| 587 | 15 ª 7 ᆇ节 | |  |  |  |  |
| 15 ª 8 ᆇ节 | |
| 588 | 15 ª 9 ᆇ节 | |  |  |  |  |
| 15 ª 10 ᆇ节 | |
| 589 | 15 ª 11 ᆇ节 | |  |  |  |  |
| 15 ª 12 ᆇ节 | |
|  |  | |  |  |  |  |
| 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. 内ᆈ½录表

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 内ᆈ½录表 | | | | | |
| Addr. | 寄ᆈ器含义 | R/W | Range | Unit | note |
| 1000 | 逆ਈ器故障信息 | R |  |  | 长度范围是 500 |
| …… |  | R |  |  |  |
| …… |  | R |  |  |  |

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

* 1. 故障ԓ码

告警ԓ码

|  |  |  |
| --- | --- | --- |
| Error code | Description /描述 | Solutions/解ߣ方案 |
| W01 | 风扇故障 |  |
| W02 | 相ƒ错误 |  |

故障ԓ码:Fault Code

|  |  |  |
| --- | --- | --- |
| Error code | Description /描述 | Solutions/解ߣ方案 |
| F07 | DC/DC\_Softsart\_Fault DC/DC 软起故障 | 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  辅ࣙ电源故障 | 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  模式࠷换 | 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  硬件交流过流 | 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  硬件直流过流 | 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  急停故障(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 瞬时漏电流故障 | 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. |

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| F24 | DC insulation impedance failure  方阵绝缘阻抗故障 | 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  直流母线нᒣ衡 | 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  并联通”故障 | 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  无市电 | 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  并联系统停机故障 | 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  线电压过№故障 | 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  备份电池故障 | 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  交流过频 | 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  交流ç频 | 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  母线电压过№ | 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 通”故障 |  |
| F63 | ARC fault  拉弧故障 | 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  散热器温度过高 | 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. |

# 附录

* 1. 附录一:
  2. 附录二:
  3. 附录й:
  4. 附录四
  5. 附录五: