

MODBUS RTU三相储能通信规约

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更改记录

| 版本号 | 更改内容 | 责任人 | 更改日期 |
|------|---|-----|------------|
| V100 | 初始版 | 刘胜利 | 2020.09.16 |
| | | | |
| V103 | 增加DeyePack电池协议500开始 | 刘胜利 | 2021.07.01 |
| V104 | 增加交流测数据寄存器为32bit，原先寄存器作为数据低16位. 687-709号寄存器 | 刘胜利 | 2021.11.22 |
| | 增加电网标准需要的寄存器 | 陈旭东 | 2021.12.22 |
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1. 概述

本协议适用于我司三相储能逆变器与上位机监控和DSP之间的通信协议。采用MODBUS RTU通讯规约。本协议可以实时读取逆变器的运行信息和对逆变器控制操作。

2. 物理接口

2.1. 采用RS485/RS232，为异步收发方式，主从模式，固定波特率。

- 波特率：9600bps
- 奇偶校验位：None
- 数据位：8
- 停止位：1

2.2. 帧间间隔时间要求

3. 数据帧格式

| 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，必须和逆变器的从机地址匹配。

Function code域：功能码，目前只开放03H、10H功能码。

| Function code(Hex) | 中文名 | 寄存器地址 | 功能 |
|--------------------|----------|---------------|------------|
| 02H | 读开关输入状态 | | 读故障信息寄存器内容 |
| 03H | 读保持寄存器 | 0~59/500~2000 | 读设置寄存器内容 |
| 04H | 读输入寄存器 | | 读逆变器信息内容 |
| 05H | 写单个线圈 | | 开关机设置功能 |
| 06H | 写单个保持寄存器 | | 设置单字节功能 |
| 10H | 写多个保持寄存器 | 60-499 | 设置多字节功能 |

Data域：包括起始寄存器地址，数据长度，数据字节个数，数据内容。都是高字节在前，低字节在后。

CRC Check域：CRC查表校验方式，低字节在前高字节在后。

4. 错误信息及数据的处理

从机回复(16进制):

| Slave Address | Function code | Error code | CRC Check | |
|---------------|---------------|------------|-----------|-----|
| xx | xx 0x80 | xx | 低字节 | 高字节 |
| | | | xx | xx |

逆变器通讯模块检测到除了CRC

码出错以外的错误时，必须向主机回送信息，功能码的最高位置为1，即在主机发送的功能码的基础上加128。

逆变器通讯模块响应回送的错误码:

0x01 非法的功能码 服务器不了解功能码

0x02 非法的数据地址 与请求有关

0x03 非法的数据值 与请求有关

0x04 服务故障 逆变器通讯模块在执行过程中无法取出数据故障

5. 详细协议描述

0-59寄存器地址为可读寄存器类型， **0x03**功能码。

60-499寄存器地址为可读写寄存器类型， **0x10**功能码。

500-2000寄存器地址为可读寄存器类型， **0x03**功能码。

5.1. 03读固有属性区，对应功能码**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 单相储能机 hybird 0X0400 微逆机MI microinverter 0X0005 低压三相储能机 phase3 hybird 0X0600 高压三相储能机 0600 三相高压6-15kw 0601 三相高压20-50kw |
| 001 | Modbus address | R | [1,247] | | |
| 002 | 通讯协议版本Communication protocol version | R | ‘0’~‘9’; ‘A’~‘Z’ | | 固件所遵从的本协议的版本，如 0x 0102 代表 1.2 版 |
| 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 | 功率等级 Rated Power | R | 0x0000 | | |
| 009 | 保留字 undefined | R | 0x0000 | | |
| 010 | 保留字 undefined | R | | | |
| 011 | 控制板辅助单片机软件 | R | 0XFFFF | | Bit0-7 启动程序 bootloader software |

| | | | | | |
|-----|---|---|-------------|------|--|
| | 版本号 Assistant program version 控制板启动程序版本号 bootloader software version | | | | Bit8-15 辅助程序 Assistant program |
| 012 | 预留 undefine | R | | | |
| 013 | EEPROM initialize FG | R | [0,1] | | 1: means initialized |
| 014 | 控制板固件版本-字段2 Control panel firmware version-2 | R | | | 举例0x2001 高字节0x20 为三相低压储能固有 低字节0x01 为硬件版本号，出厂设定不可更改 密码for debug |
| 015 | 控制板固件版本-主版本 Control panel firmware master version | R | | | 举例： 0x1001 Bit12- 15： 数字表示发行版本，大版本区分；F表示研发内部测试版本 Bit0-11： 版本流水号 |
| 016 | 通讯板固件版本-字段1 Comm panel firmware version-1 | R | | | |
| 017 | 通讯板固件版本-字段2 Comm panel firmware version-2 | R | | | |
| 018 | 通讯板固件版本-主版本 Comm panel firmware master version | R | | | |
| 019 | 安规类型 Safety type | R | | | |
| 020 | 额定功率低字 Rated power low word | R | | 0.1W | |
| 021 | 额定功率高字 Rated power high word | R | | 0.1W | |
| 022 | MPPT 路数及相数 MPPT number and phases | R | [1,8]/[1,3] | | 0x0503: five-mppts three-phase |
| 023 | 机型选择 | R | [0-3] | | Factory only 参考附录一 |
| 024 | 电池路数 | R | [0,4] | | 0 默认值 也是1路输入 1 1路电池输入 2 2路电池输入 |
| 025 | 三相输出还是裂相输出 选择 | R | [0,1] | | 默认值三相 0:三相输出 1:裂相输出 |
| 026 | EU or UL 欧版或者美版选择 | | | | 0: EU default value 1:UL |

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|-----|--------------------------|---|--|--|--|
| 027 | 风扇配置 | | | | Bit0 总使能 Bit1 内部风扇1 Bit2 内部风扇2 Bit3 外部风扇1 Bit4 外部风扇2 Bit5 外部风扇3 |
| 028 | 预留SN byte 07 | | | | |
| | 预留SN byte 08 | | | | |
| 029 | 预留SN byte 09 | | | | 密码for debug |
| | 预留SN byte 10 | | | | |
| 030 | InternalRTC/External RTC | R | | | InternalRTC: 1 External RTC: 0 |
| 031 | Lcd_MCU_Type | R | | | 高8位: 芯片类型, 低8位: 芯片序号 |
| 032 | Control_MCU_Type | R | | | 高8位: 芯片类型, 低8位: 芯片序号 |
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| 059 | | | | | |
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1.1. 10可读写可变属性区, 对应功能码是0x10。

| Addr | Register meaning | R/W | data range | unit | note |
|------|-----------------------------------|-----|------------|------------|--|
| 60 | 远程锁定使能 Remote Lock | R/W | | | 0x0002 关机 turn off 0x0000 开机 turn on |
| 61 | 开机自检时间 self-check time | R/W | [0,1000] | S | MI |
| 62 | 系统时间第 1 字节 system time byte 01 | R/W | [0,255] | 年 Year | MI以 20 00 年为基值 Based on the year 2000 |
| | 系统时间第 2 字节 system time byte 02 | R/W | [1,12] | 月 Month | |
| 63 | 系统时间第 3 字节 system time byte 03 | R/W | [1,31] | 日 Day | |
| | 系统时间第 4 字节 system time byte 04 | R/W | [0,23] | 时 Hour | |
| 64 | 系统时间第 5 字节 system time byte 05 | R/W | [0,59] | 分Minute | |
| | 系统时间第 6 字节 system time byte 06 | R/W | [0,59] | 秒 Sec | |
| 65 | | | | | |

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|----|---|-----|----------|---------|--|
| 66 | 预留 Undefine | | | | |
| 67 | 预留 Undefine | | | | |
| 68 | 预留 Undefine | | | | |
| 69 | 预留 Undefine | | | | |
| 70 | 预留 Undefine | | | | |
| 71 | 预留 Undefine | | | | |
| 72 | 预留 Undefine | | | | |
| 73 | 预留 Undefine | | | | |
| 74 | 通讯地址 Communication address | R | 0x0000 | - | |
| 75 | 通讯波特率 Communication baud rate MI: Zigbee or PLC | R | 0x0000 | - | |
| 76 | Debug_function | R/W | | | Bit0 Meter-RS485功能 0:debug 1:meter |
| 77 | 有功功率调节 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 | 无功功率调节 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 | 视在功率调节 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 | 开关机使能 Switch on and off enable | R/W | [0,1] | - | 0: 关机 1: 开机 MI 2: 关机 0: power off 1: power on |
| 81 | 恢复出厂使能 Factory reset enable | R/W | [0,1] | | 0: disable 1: enable 3: Locked inv |
| 82 | 自检时间 Self-checking time | R/W | [0,1] | - | 0-360 seconds |
| 83 | 孤岛保护使能 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 已使用 |
| 86 | | | | | |
| 87 | RISO 使能 | R/W | [0,1] | | 0: disable 1: enable |

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|-----|--|-----|-------------|-------|--|
| | RISO enable | | | | |
| 88 | 并网标准 GridStandard | R/W | [0,20] | | 1, 中国 2, 巴西 3, 印度 4, EN50438 5, 其他 |
| 89 | | | | | |
| 90 | 低压穿越使能 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: 正常工作 work normal 1: 初始化控制板 EEPROM init mcu eeprom |
| 92 | 通讯板EEPROM 初始使能 Comm-EEPROM initial enabled | R/W | | | 0: 正常 work normal 1: 初始化通讯板 EEPROM init comm eeprom 3: Locekd inverter(Sunsynk) |
| 93 | 控制板测试控制指令 Factory only | | | | Bit0 开测试使能(使能这后面的才有效) Test enable=1 if use later bit Bit1 开逆变器全部风扇 open all fan Bit4 开启Gen信号继电器 open Gen singal relay |
| 94 | 通讯板测试控制指令Facto ry only | R/W | [0,3] | - | Bit0 开测试使能(使能这后面的才有效) Test enable=1 if use later bit Bit2 闪显示板的所有LED, 蜂蜜器, 背光, 显 示红黄蓝 Flash display board for all LEDs, honey maker, backlight, display red, yellow and blue Bit3 开启锂电池接口测试 Open lithium battery interface test Bit5 重启液晶程序 Restart lcd |
| 95 | | | | | |
| 96 | 发电量修正系数 PowerWH Factor | R/W | | -0.01 | 100 mean 1 111 mean 1.11 |
| 97 | Solar输入为SPU 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 |

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|-----|---|-----|-------------|-----------|--|
| 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 | |
| 104 | 最小limit起作用功率 ZeroExport power | R/W | | | |
| 105 | 均衡充几天执行一次 Equalization day cycle | R/W | [0 90] | Day | |
| 106 | 均衡充执行时间 Equalization time | R/W | [0 20] | 0.5Hour | 分辨率 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/℃ | 带有正负的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 | Parallel Bat&Bat2 | R/W | [0,1] | | For high vol three phase inverter |
| 111 | 电池工作根据电压还是容量 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 没有电池 no battery |
| 112 | 锂电池唤醒标志位 Li-battery wake up sign bit | R/W | | | Bit0 电池1唤醒 0=enabled 1=Disable Bit8 电池2唤醒 0=enabled 1=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% | 低容量截止点 Low capacity cutoff point |
| 116 | 电池容量Restart battery capacityRestart | R/W | [0,100] | 1% | 保护恢复点 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 | 低保护点 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 | 发电机冷却时间 Generator cooling time | | | 0.1 hours | 120表示12小时 120 is 12 hours |
| 123 | 发电机充电启动电压点 Generator charging Starting voltage point | R/W | [0000 6300] | 0.01V | 电池电压小于这个值发电机开启充电 The battery voltage is less than this value |
| 124 | 发电机充电启动容量点 Generator charging starting capacity point | R/W | [0000 6300] | 1% | 电池容量小于这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 | 市电充电启动电压点 Grid charging Start voltage point o | R/W | [0000 6300] | 0.01v | |
| 127 | 市电充电启动容量点 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 频率上限设置 | R/W | 5000-6500 | | 5000-6500 |
| 132 | 强制开启发电机作为负载功能 Force on generator as load function | R/W | | | 前提是235号寄存器已经使能1 The premise is that register 234 has enabled 1 0 不强制 Do not force 1 强制 force |
| 133 | 发电机输入作为负载输出使能 generator input is enabled as the load output | R/W | | | 0 只作为发电机输入 only Gen use 1 智能负载输出 only smart load output 2 使能作为逆变器输入 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 | R/W | [0000 100] | 1% | |

| | | | | | |
|-----|--|-----|----------|-----|---|
| | SmartLoad ON batt | | | | |
| 138 | 输出电压等级设定 Output voltage level setting | R/W | | | 0 LN:220VAC LL:380VAC 1 LN:230VAC LL:398VAC 2 LN:240VAC LL:415VAC 3 LN:120VAC LL:208VAC 4 LN:133VAC LL:220VAC 5 LN:100VAC LL:173VAC |
| 139 | 开启发电机的最小solar功率 minimum solar power required to start a generator | R/W | [0,8000] | 1W | |
| 140 | 发电机并网信号 Gen_Grid_Signal On | | | | Bit0 grid signal Bit1 gen signal |
| 141 | 能量管理模式 Energy management model | | | | Bit0-1 10 电池优先模式 battery first mode 11 负载优先模式 load first mode Bit2-3 表示被动并网功率平衡功能Represents passive grid-connected power balance function 10 不开启 colse 11 开启 open Bit4-5 表示主动并网功率平衡功能Represents active grid-connection power balance function 10 不开启 close 11 开启 open |
| 142 | limit控制功能 limit control function | R/W | | 0/1 | 0x00 使能卖电 sell electricity enabled 0x01 使能内置 built-in enabled 0x02 使能外置 extraposition enabled |
| 143 | 最大卖电功率 Max sell Power | R/W | [0,8000] | 1W | Low Vol: 1W High Vol:10W |
| 144 | 外置电流传感器方向 External current sensor clamp phase | R/W | [xx,00] | 1W | [11][12] |
| 145 | 光伏卖电 Solar sell | R/W | | | 0x00光伏不卖电 solar Don't sell 0x01光伏卖电 solar sell |
| 146 | 高级削峰填谷功能使能 Time of Use Selling enabled | R/W | | | Bit0 0 disable 1 enable Bit1 Monday |

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|-----|---|-----|-------------|-------|--|
| | | | | | 0-disable 1-enable Bit2 Tuesday Bit7 Sunday Bit8 西班牙模式 |
| 147 | 三相ABC电网相序设定 Grid Phase | R/W | | | 0 0 120 240 1 0 240 120 |
| 148 | 卖电模式时间点1 Sell mode time point 1 | R/W | [0000 2359] | | 2359表示时间23: 59 2359 means time 23:59 |
| 149 | 卖电模式时间点2 Sell mode time point 2 | R/W | [0000 2359] | | Time |
| 150 | 卖电模式时间点3 Sell mode time point 3 | R/W | [0000 2359] | | |
| 151 | 卖电模式时间点4 Sell mode time point 4 | R/W | [0000 2359] | | |
| 152 | 卖电模式时间点5 Sell mode time point5 | R/W | [0000 2359] | | |
| 153 | 卖电模式时间点6 Sell mode time point6 | R/W | [0000 2359] | | |
| 154 | 卖电模式时间点1功率 Sell mode time point 1 power | R/W | [0000 8000] | 1W | Low Vol: 1W High Vol:10W |
| 155 | 卖电模式时间点2功率 Sell mode time point 2 | R/W | [0000 8000] | 1W | Power |
| 156 | 卖电模式时间点3功率 Sell mode time point 3 power | R/W | [0000 8000] | 1W | |
| 157 | 卖电模式时间点4功率 Sell mode time point 4 power | R/W | [0000 8000] | 1W | |
| 158 | 卖电模式时间点5功率 Sell mode time point 5 power | R/W | [0000 8000] | 1W | |
| 159 | 卖电模式时间点6功率 Sell mode time point 6 power | R/W | [0000 8000] | 1W | |
| 160 | 卖电模式时间点1电压 Sell mode time point 1 voltage | R/W | [0000 6300] | 0.01V | 受到电池电压的影响 Is affected by the battery voltage |
| 161 | 卖电模式时间点2电压 Sell mode time point 2 voltage | R/W | [0000 6300] | 0.01V | Voltage |
| 162 | 卖电模式时间点3电压 Sell mode time point 3 voltage | R/W | [0000 6300] | 0.01V | |
| 163 | 卖电模式时间点4电压 Sell mode time point 4 voltage | R/W | [0000 6300] | 0.01V | |

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|-----|--|-----|-------------|-------|---|
| 164 | 卖电模式时间点5电压 Sell mode time point 5 voltage | R/W | [0000 6300] | 0.01V | |
| 165 | 卖电模式时间点6电压 Sell mode time point 6 voltage | 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 grid charging enable Bit1 gen charging enable Bit2 西班牙的GM模式 Bit3 西班牙的BU模式 |
| 173 | 时间点2充电使能 Time point 2 charge enable | R/W | [0,1] | | 同上 |
| 174 | 时间点3充电使能 Time point 3 charge enable | R/W | [0,1] | | 同上 |
| 175 | 时间点4充电使能 Time point 4 charge enable | R/W | [0,1] | | 同上 |
| 176 | 时间点5充电使能 Time point 5 charge enable | R/W | [0,1] | | 同上 |
| 177 | 时间点6充电使能 Time point 6 charge enable | R/W | [0,1] | | 同上 |

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| 178 | 控制板特殊功能位 1 Microinverter export to grid cutoff | R/W | [0,1] | 需要全部改成两位控制 need two bits control -00无动作-01无动作-10失能-11使能 -00Nowork-01Nowork-10Disable- 11Enable 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 enable Bit10-11 10: 锂电池丢失报故障 disable Loss of lithium battery report fault disable 11: 锂电池丢失报故障 enable Loss of lithium battery report fault enable Bit12-13 10: DRM使能位 disable 11: DRM使能位 enable Bit14-15 10:美版接地故障 disable 11:美版接地故障 enable |
|-----|--|-----|-------|---|

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| 179 | 控制板特殊功能位 2 1,外置CT自动检测方向 2,强制脱网 | R/W | [0,1] | | Bit0-1 10: 外置CT自动检测方向 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 |
| 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 关闭 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 4= CEI 0-21 |
| 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 现在是三相，无效 | R/W | [0 3] | | 0 三相系统 Three Phase 1 单相 Single-phase 2 裂相 Split-phase |
| 185 | 电网高压保护点 Grid Vol High | R/W | [1800 2700] | 0.1V | |
| 186 | 电网低压保护点 | R/W | [1800 2700] | 0.1V | |

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| | Grid Vol Low | | | | |
| 187 | 电网频率高保护点 Grid Hz High | R/W | [4500 6500] | 0.01Hz | |
| 188 | 电网频率低保护点 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] | | 0 disable 1 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（有功调节） 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 | 外部继电器位 External relay bit | R/W | [0 0xFFFF] | | Bit0-8 对应8个继电器位 Bit0-8 corresponds to 8 relay bits |
| 195 | ARC_facTory_B高位 ARC_facTory_B high word | R/W | [0,65535] | | 高位和地位组合，以数值显示即可 High and status combination, with numerical display can be |
| 196 | 低位 Low word | R/W | [0,65535] | | |
| 197 | ARC_facTory_I高位 ARC_facTory_I high word | R/W | [0,65535] | | |
| 198 | 低位 Low word | R/W | [0,65535] | | |
| 199 | ARC_facTory_F高位 ARC_facTory_F high word | R/W | [0,65535] | | |
| 200 | 低位 Low word | R/W | [0,65535] | | |
| 201 | ARC_facTory_D高位 ARC_facTory_D high word | R/W | [0,65535] | | |
| 202 | 低位 Low word | R/W | [0,65535] | | |
| 203 | ARC_facTory_T高位 ARC_facTory_T high word | R/W | [0,65535] | | |
| 204 | 低位 Low word | R/W | [0,65535] | | |
| 205 | ARC_facTory_C高位 ARC_facTory_C high word | R/W | [0,65535] | | |
| 206 | 低位 Low word | R/W | [0,65535] | | |
| 207 | ARC_facTory_Frz高位 ARC_facTory_Frz high | R/W | [0,65535] | | |

| | | | | | |
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| | word | | | | |
| 208 | 低位 Low word | R/W | [0,65535] | | |
| 209 | Ups_delay time | R/W | | 1S | 0 为默认 1 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 | 当前电量 Li-bat SOC | R/W | | 1% | |
| 215 | 当前电压 Li-bat voltage | R/W | | 0.01V | |
| 216 | 当前电流 Li-bat current | R/W | | 1A | |
| 217 | 当前温度 Li-bat temperature | 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 | 锂电池告警位 Lithium battery alarm flag | R/W | | | 0x0001 |
| 221 | 锂电池故障位 Lithium battery fault flag | R/W | [0,65535] | | |
| 222 | 锂电池标志2 Lithium battery other flag | R/W | [0,65535] | | Bit0 NULL Bit1 电池1强冲标志 Force charge Bit2 电池2强冲标志 Force charge |
| 223 | 锂电池类型 Lithium battery type | R/W | | | 0x0000 中兴派能 德朗能锂 PYLON SOLAX 通用CAN协议 0x0001 天邦达RS485modbus协议 0x0002 KOK协议 0x0003 keith 0X0004 拓派协议 |

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|-----|---|-----|-------|--|---|
| | | | | | 0X0005 派能485协议 0X0006 杰力斯485协议 0X0007 欣旺达485协议 0X0008 欣瑞能485协议 0X0009 天邦达485协议 0X000A 晟高电气can协议 |
| 224 | 锂电池SOH Lithium battery SOH | | | | |
| 225 | 锂电池版本号 | | | | |
| 226 | 电池额定AH | | | | |
| 227 | Upgrade LCD test | R/W | [0,1] | | |
| 228 | 通讯板设置功能 Comm board setting function | R/W | | | Bit0-1 时间校时 Bit2-3 beep Bit4-5 AM/PM Bit6-7 Auto dim -00无动作 no work -01无动作 no work -10失能 disable -11使能 enable |
| 229 | 电池1厂家 | R/W | | | //====LV battery #define HereYin 0 #define PYLON 1 #define SOLAX 2 #define DYNESS_L 3 #define CCGX 4 #define Alpha_ESS 5 #define SUNGO_CAN 6 #define VISION_CAN 7 #define WATTSONIC_CAN 8 #define KUNLAN 9 #define GSEnergy 10 #define GS_HUB 11 #define BYD_LV 12 #define AOBO 13 #define DEYE 14 #define CFE 15 #define DMEGC 16 #define UZENERGY 17 #define GROWATT 18 //====HV battery #define Bat_PYLON_HV 0x01 |

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|-----|---|-----|-----------|--|--|
| | | | | | <pre> #define Bat_DynessHV_HV 0x02 #define Bat_UZENERGY_HV 0x03 #define Bat_Deye_HV 0x04 #define Bat_BYD_HV 0x05 </pre> |
| 230 | 电池2厂家 | | | | <pre> //=====No LV battery //=====HV battery #define Bat_PYLON_HV 0x01 #define Bat_DynessHV_HV 0x02 #define Bat_UZENERGY_HV 0x03 #define Bat_Deye_HV 0x04 #define Bat_BYD_HV 0x05 </pre> |
| 231 | | | | | |
| 232 | | | | | |
| 233 | | | | | |
| 234 | | | | | |
| 235 | Track Grid-Phase | R/W | [0,1] | | 0 disable default value 1 enable |
| 236 | IT_SYSTEM | R/W | [0,1] | | |
| 237 | Active unbalance load | R/W | [0,1] | | |
| 238 | unbalance power trip | R/W | [0,65535] | | |
| 239 | FAN_alarm_enable | R/W | | | Bit0总使能 Bit1 内部风扇1 Bit2 内部风扇2 Bit3 外部风扇1 Bit4 外部风扇2 Bit5 外部风扇3 |
| 240 | 进入厂内初测程序 | R/W | | | =12345 进入 |
| 241 | 锂电池2充电电压 Li-bat2 charging voltage | | | | |
| 242 | 锂电池2放电电压 Li-bat2 discharging voltage | | | | |
| 243 | 充电限流 charging current limit | | | | |
| 244 | 放电限流 Discharge current limit | | | | |
| 245 | 当前电量 Li-bat2 SOC | | | | |
| 246 | 当前电压 | | | | |

| | | | | | |
|-----|---|-----|-----------|--|---|
| | Li-bat2 voltage | | | | |
| 247 | 当前电流 Li-bat2 current | | | | |
| 248 | 当前温度 Li-bat2 temperature | | | | |
| 249 | 离网充电限流 最大值 Max charge current limit | | | | |
| 250 | 离网放电限流 最大值 Max discharge current limit | | | | |
| 251 | 锂电池2告警位 Li-bat2 alarm flag | | | | |
| 252 | 锂电池2故障位 Li-bat2 fault flag | | | | |
| 253 | 锂电池标志2 Lithium battery other flag | R/W | [0,65535] | | Bit0 NULL Bit1 电池1强冲标志 Force charge Bit2 电池2强冲标志 Force charge |
| 254 | 锂电池2版本号 | | | | |
| 255 | 锂电池2额定AH | | | | |
| 256 | | | | | |
| 257 | | | | | |
| 258 | | | | | |
| 259 | | | | | |
| 260 | | | | | |
| 261 | | | | | |
| 262 | | | | | |
| 263 | | | | | |
| 264 | | | | | |
| 265 | | | | | |
| 266 | | | | | |
| 267 | | | | | |
| 268 | | | | | |
| 269 | Grid1_I | | | | 注意范围【900，1100】 |
| 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 | | | | |

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|-----|--|-----|------------|------|----------------------------|
| 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 | BAT1_I | | | | |
| 289 | BAT1_V | | | | |
| 290 | Gen1_I | | | | |
| 291 | Gen2_I | | | | |
| 292 | Gen3_I | | | | |
| 293 | Gen1_V | | | | |
| 294 | Gen2_V | | | | |
| 295 | Gen3_V | | | | |
| 296 | PV3_V | | | | |
| 297 | PV3_I | | | | |
| 298 | PV4_V | | | | |
| 299 | PV4_I | | | | |
| 300 | BAT2_I | | | | |
| 301 | BAT2_V | | | | |
| 302 | | | | | |
| 303 | | | | | |
| 304 | | | | | |
| 305 | | | | | |
| 306 | | | | | |
| 307 | | | | | |
| 308 | | | | | |
| 309 | | | | | |
| 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 | | | | Bit0 1:Parallel Enable 0: Parallel Disable Bit1 1:Master 0:Slave Bit2-7 Void Bit8-9 Phase(00:A,01:B,10:C,11:void) Bit10-15 Modbus SN(0-63) |
| 337 | 并联2 Parallel-2 | | | | |
| 338 | 预留 Undefine | | | | |
| 339 | 预留 Undefine | | | | |
| 340 | 光伏最大卖电功率 Max Solar Sell Power | | R/W | 1W | Low Vol:1W High Vol:10W |
| 341 | 预留 Undefine | | | | |
| 342 | | | | | |
| 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 | 电表厂家信息 | | | | 0: 预留 1: Eastron 东鸿 2: CHNT 正泰 |
| 346 | Meter limit mode | | | [0,1] | 0: AVE 1: MIN |
| 347 | 外置CT变比 | R/W | | 30<--> | U16 |

| | | | | | |
|-----|--------------------------------------|-----|-----------|---------|--|
| | CT ratio | | | 30:1 | |
| 348 | | | | | |
| 349 | | | | | |
| 350 | 电压重连上限 (Reconn.Vol_Max) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 351 | 电压重连下限 (Reconn.Vol_Min) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 352 | 频率重连上限 (Reconn.Freq_Max) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 353 | 频率重连下限 (Reconn.Freq_Min) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 354 | 过压1 (Over_Vol.Trip1_Value) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 355 | 过压2 (Over_Vol.Trip2_Value) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 356 | 欠压1 (Under_Vol.Trip1_Value) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 357 | 欠压2 (Under_Vol.Trip2_Value) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 358 | 过频1 (Over_Freq.Trip1_Value) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 359 | 过频2 (Over_Freq.Trip2_Value) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 360 | 欠频1 (Under_Freq.Trip1_Value) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 361 | 欠频2 (Under_Freq.Trip2_Value) | R/W | [0,10000] | 0.01Hz | 5000:50Hz 6000:60Hz |
| 362 | 长时间过压 (Over_Vol_Long.Trip1_Value) | R/W | [0,10000] | 0.1v | 1000:100.0v 2300:230.0v |
| 363 | 电压-无功 Lock in Volt_VAR | R/W | [0,10000] | 0.01%Pn | 10000:100%Pn |
| 364 | 电压-无功 Lock out Volt_VAR | R/W | [0,10000] | 0.01%Pn | |
| 365 | 电压-有功模式使能 (V_Watt.Ena) | R/W | [0,1] | NO | 0:disable 1:enabled |
| 366 | 电压-有功模式, 电压点1 (V_Watt.V1) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点1小于等于电压点2) |
| 367 | 电压-有功模式, 有功点1 (V_Watt.W1) | R/W | [0,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 |
| 368 | 电压-有功模式, 电压点2 (V_Watt.V2) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点2小于等于电压点3) |
| 369 | 电压-有功模式, 有功点2 (V_Watt.W2) | R/W | [0,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 |
| 370 | 电压-有功模式, 电压点3 (V_Watt.V3) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 |

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|-----|--|-----|--------------|---------|--|
| | | | | | (电压点3小于等于电压点4) |
| 371 | 电压-有功模式, 有功点3 (V_Watt.W3) | R/W | [0,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 |
| 372 | 电压-有功模式, 电压点4 (V_Watt.V4) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点4最大) |
| 373 | 电压-有功模式, 有功点4 (V_Watt.W4) | R/W | [0,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 |
| 374 | 电压-无功模式使能 (Volt_VAR.Ena) | R/W | [0,1] | None | 0:disable 1:enabled |
| 375 | 电压-无功模式, 电压点1 (Volt_VAR.V1) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点1小于等于电压点2) |
| 376 | 电压-无功模式, 无功点1 (Volt_VAR.VAr1) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 377 | 电压-无功模式, 电压点2 (Volt_VAR.V2) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点2小于等于电压点3) |
| 378 | 电压-无功模式, 无功点2 (Volt_VAR.VAr2) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 379 | 电压-无功模式, 电压点3 (Volt_VAR.V3) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点3小于等于电压点4) |
| 380 | 电压-无功模式, 无功点3 (Volt_VAR.VAr3) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 381 | 电压-无功模式, 电压点4 (Volt_VAR.V4) | R/W | [0,10000] | 0.01% | 0:0%额定电压 5000:50%额定电压 10000:100%额定电压 (电压点4最大) |
| 382 | 电压-无功模式, 无功点4 (Volt_VAR.VAr4) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 383 | 频率-有功参数模式使能 (Freq_Watt_P.Ena) | R/W | [0,7] | NO | Bit0: enabled (欠频加载使能) Bit1: enabled (过频降载使能) Bit2: |
| 384 | 频率-有功参数模式, 欠频退出频率 (Freq_Watt_P.Under_StopHz) | R/W | [0,200] | 0.1% | 200:20%下垂率: 50Hz*20%=10Hz |
| 385 | 频率-有功参数模式, 欠频_频率点1 (F_Watt_P.Under_Hz1) | R/W | [0,200] | 0.1% | 200:20%下垂率: 50Hz*20%=10Hz |
| 386 | 频率-有功参数模式, 欠频下垂率1 | R/W | [0,10000] | 0.001Hz | 10000:10Hz |

| | | | | | |
|-----|---|-----|----------------|-----------------|---|
| | (F_Watt_P.Under_WGra1) | | | | |
| 387 | 频率-有功参数模式， 欠频_频率点1的 启动延时 | R/W | [0-65535] | 0.1S | |
| 388 | 频率-有功参数模式， 欠频退出频率的 停止延时 | R/W | [0-65535] | 0.1S | |
| 389 | 频率-有功参数模式， 过频退出频率点(F_Watt_P. Over_StopHz) | R/W | [4500,6500] | 0.01Hz | 4500:45.00Hz 5000:50.00Hz 6500:65.00Hz |
| 390 | 频率-有功参数模式， 过频频率点1 (F_Watt_C.Over_Hz1) | R/W | [0,30000] | %Prated /min | 100:10.0%Prated/min 1000:100.0%Prated/min 30000:3000.0%Prated/min |
| 391 | 频率-有功参数模式， 过频下垂率1 (F_Watt_C.Over.WGra1) | | | | |
| 392 | 频率-有功参数模式， 过频_频率点1的 启动延时 | R/W | [0-65535] | 0.1S | |
| 393 | 频率-有功参数模式， 过频退出频率的 停止延时 | R/W | [0-65535] | 0.1S | |
| 394 | 预留 | | | | |
| 395 | 有功-无功模式使能 (Watt_VAr.Ena) | R/W | [0,1] | NO | 0:disable 1:enabled |
| 396 | 有功-无功模式， 有功点1 (Watt_VAr.W1) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点1小于等于有功点2) |
| 397 | 有功-无功模式， 无功点1 (Watt_VAr.VAr1) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 398 | 有功-无功模式， 有功点2 (Watt_VAr.W2) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点2小于等于有功点3) |
| 399 | 有功-无功模式， 无功点2 (Watt_VAr.VAr2) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 400 | 有功-无功模式， 有功点3 (Watt_VAr.W3) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点3小于等于有功点4) |
| 401 | 有功-无功模式， 无功点3 (Watt_VAr.VAr3) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |
| 402 | 有功-无功模式， 有功点4 (Watt_VAr.W4) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定电压 (有功点4最大) |
| 403 | 有功-无功模式， 无功点4 (Watt_VAr.VAr4) | R/W | [-7000,7000] | 0.01% | 0:0%额定功率 -7000:-70%额定功率 7000:70%额定功率 |

| | | | | | |
|-----|---------------------------------------|-----|---------------------------------|--------|--|
| 404 | 有功-功率因素模式使能 (Watt_PF.Ena) | R/W | [0,1] | NO | 0:disable 1:enabled |
| 405 | 有功-功率因素模式， 有功点1 (Watt_PF.W1) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点1小于等于有功点2) |
| 406 | 有功-功率因素模式， 功率因素点1 (Watt_PF.PF1) | R/W | [8000,10000], [-8000,-10000] | 0.0001 | 10000:功率因素为1 8000:功率因素为0.8 -8000:功率因素为-0.8 -10000:功率因素为-1 |
| 407 | 有功-功率因素模式， 有功点2 (Watt_PF.W2) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点2小于等于有功点3) |
| 408 | 有功-功率因素模式， 功率因素点2 (Watt_PF.PF2) | R/W | [8000,10000], [-8000,-10000] | 0.0001 | 10000:功率因素为1 8000:功率因素为0.8 -8000:功率因素为-0.8 -10000:功率因素为-1 |
| 409 | 有功-功率因素模式， 有功点3 (Watt_PF.W3) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定功率 (有功点3小于等于有功点4) |
| 410 | 有功-功率因素模式， 功率因素点3 (Watt_PF.PF3) | R/W | [8000,10000], [-8000,-10000] | 0.0001 | 10000:功率因素为1 8000:功率因素为0.8 -8000:功率因素为-0.8 -10000:功率因素为-1 |
| 411 | 有功-功率因素模式， 有功点4 (Watt_PF.W4) | R/W | [-10000,10000] | 0.01% | 0:0%额定功率 5000:50%额定功率 10000:100%额定电压 (有功点4最大) |
| 412 | 有功-功率因素模式， 功率因素点4 (Watt_PF.PF4) | R/W | [8000,10000], [-8000,-10000] | 0.0001 | 10000:功率因素为1 8000:功率因素为0.8 -8000:功率因素为-0.8 -10000:功率因素为-1 |
| 413 | CA_Vstart | | | | |
| 414 | CA_Vstop | | | | |
| 415 | 正常上升斜率 Normal upward slope | R/W | [1 100] | 1% | |
| 416 | 软启动上升速率 Soft start rise rate | R/W | [1 100] | 1% | |
| 417 | 过压1触发延时 (Over_Vol.Trip1_delay) | R/W | [1,6000] 0.1S-600S | 0.1S | |
| 418 | 过压2 (Over_Vol.Trip2_delay) | R/W | [1, 6000] | 0.1S | |
| 419 | 欠压1 (Under_Vol.Trip1_delay) | | [1,6000] | 0.1S | |
| 420 | 欠压2 (Under_Vol.Trip2_delay) | | [1, 6000] | 0.1S | |
| 421 | 过频1 (Over_Freq.Trip1_delay) | | [1,6000] | 0.1S | |
| 422 | 过频2 (Over_Freq.Trip2_delay) | | [1, 6000] | 0.1S | |

| | | | | | |
|-------|---------------------------------|-----|-----------|---------|--------------|
| 423 | 欠频1 (Under Freq.Trip1 delay) | | [1,6000] | 0.1S | |
| 424 | 欠频2 (Under Freq.Trip2 delay) | | [1, 6000] | 0.1S | |
| 425 | | | | | |
| 426 | | | | | |
| 427 | | | | | |
| 428 | | | | | |
| 429 | | | | | |
| 430 | | | | | For debug |
| | | | | | |
| 480 | 有功-功率因数 Lock in Watt PF | R/W | [0,10000] | 0.01%Pn | 10000:100%Pn |
| 481 | 有功-功率因数 Lock out Watt PF | R/W | [0,10000] | 0.01%Pn | |
| | | | | | |
| 499 | | | | | |
| | | | | | |

5.2. 03只读实时属性区，对应功能码是0x03。

| 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 正常 normal 0003 告警 alarm 0004 故障 fault |
| 501 | 逆变器电网侧当日有功发电量 active power generation of today | R | [-32768,32767] | 0.1kWh | |
| 502 | 逆变器电网侧当日无功发电量 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 | 逆变器电网侧总有功发电量 低字 active power generation of total low byte | R | [0,0xFFFFFFFF] | 0.1kWh | |
| 505 | 逆变器电网侧总有功发电量 高字 active power generation of total high byte | R | | | |

| | | | | | |
|-----|---|---|--|--------|---|
| 506 | 逆变器电网侧总无功发电量 低字 reactive power generation of total low byte | | | | |
| 507 | 逆变器电网侧总无功发电量 高字 reactive power generation of total high byte | | | | |
| 508 | 逆变器状态位1 | R | | | Debug only 调试用，无意义 Bit0:内部风扇存在位；1有 0无 Bit1:外部风扇存在位；1有 0无 |
| 509 | 逆变器状态位1 | R | | | Debug only 调试用，无意义 |
| 510 | 发电量数据-预留 | R | | | |
| 511 | 发电量数据-预留 | R | | | |
| 512 | 发电机历史工作时间低字节 | R | | 0.1h | |
| 513 | 发电机历史工作时间高字节 | R | | 0.1h | |
| 514 | 电池当日充电量 Today charge of the battery | R | | 0.1kwh | |
| 515 | 电池当日放电量 Today discharge of the battery | R | | 0.1kwh | |
| 516 | 电池累计充电量低字 Total charge of the battery low byte | R | | 0.1kwh | |
| 517 | 电池累计充电量高字 Total charge of the battery high byte | R | | 0.1kwh | |
| 518 | 电池累计放电量低字 Total discharge of the battery low byte | R | | 0.1kwh | |
| 519 | 电池累计放电量高字 Total discharge of the battery high byte | R | | 0.1kwh | |
| 520 | 电网当日购电量 Day_GridBuy_Power Wh | R | | 0.1kwh | |
| 521 | 电网当日卖电量 Day_GridSell_Power Wh | R | | 0.1kwh | |
| 522 | 电网累计购电量低字 Total_GridBuy_Power Wh_low word | R | | 0.1kwh | |
| 523 | 电网累计购电量高字 Total_GridBuy_Power Wh_high word | R | | 0.1kwh | |
| 524 | 电网累计卖电量低字 Total_GridSell_Power Wh_low word | R | | 0.1kwh | |
| 525 | 电网累计卖电量高字 Total_GridSell_Power Wh_high word | R | | 0.1kwh | |
| 526 | 当日用电量 Day_Load_Power Wh | R | | 0.1kwh | |

| | | | | | |
|-----|--|---|------------|--------|---|
| 527 | 累计用电量低字 Total_Load_Power Wh_low word | R | | 0.1kwh | |
| 528 | 累计用电量高字 Total_Load_Power Wh_high word | R | | 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 | R | | 0.1kWh | 预留 |
| 531 | 当日PV-2发电量 Day_PV-2_Power Wh | R | | 0.1kWh | 预留 |
| 532 | 当日PV-3发电量 Day_PV-3_Power Wh | R | | 0.1kWh | 预留 |
| 533 | 当日PV-4发电量 Day_PV-4_Power Wh | R | | 0.1kWh | 预留 |
| 534 | 历史PV发电量低字 Total_PV_power Wh_low word | R | | 0.1kWh | 预留 |
| 535 | 历史PV发电量高字 Total_PV_power Wh_high word | R | | 0.1kWh | |
| 536 | 发电机日发电量 | R | | 0.1kWh | |
| 537 | 发电机总发电量低字节 | R | | 0.1kWh | |
| 538 | 发电机总发电量高字节 | R | | 0.1kWh | |
| 539 | 发电机日工作时间 Generator working hours per day | R | | 0.1h | |
| 540 | DC变压器温度 (DCTransformer temperature) | R | [0,3000] | 0.1℃ | 偏移1000 |
| 541 | 散热片温度 Heat sink temperature | R | [0,3000] | 0.1℃ | |
| 542 | 预留温度1 undefine | R | [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 | 负载年用电量低字节 Yer_Loadwh_L | R | [0,0xFFFF] | 0.1KWH | |
| 546 | 负载年用电量高字节 Yer_Loadwh_H | R | [0,0xFFFF] | 0.1KWH | |
| 547 | | | | | |
| 548 | 通讯板的故障状态 Failure status of communication board | R | [0,0xFFFF] | | Bit0 Flash chip error Bit1 time error Bit2 EEPROM error |
| 549 | MCU测试标志位 MCU test flag | R | | | Bit0 拉弧通讯标志 Arc pull communication sign Bit1 可并联CAN通讯 Parallel CAN communication |
| 550 | LCD测试标志位 LCD test flag | R | 0x0000 | | Bit8 锂电接口RS485 Lithium electric interface RS485 |

| | | | | | |
|-------|---------------------------------------|---|-----------|------|---|
| | | | | | Bit9 锂电接口CAN Lithium electric interface CAN Bit10 按键1234 key1234 Bit11 液晶中断状态 lcd interrupt status |
| 551 | 开关机状态 Turn off/on status | R | | | 低4位表示开关信号 0000 关机 power off 0001 开机 power on |
| 552 | AC侧继电器状态 AC really status | R | | | 0 off 1 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 Bit7 干接点 Dry contact1 Bit8 干接点 Dry contact2() |
| 553 | 告警信息第 1 字 Warning message word 1 | R | [0,65535] | | Bit0: reserved Bit1:风扇故障 FAN_WARN Bit2:电网相位错误 grid phase wrong Bit3: Bit15 |
| 554 | 告警信息第 2 字 Warning message word 2 | R | [0,65535] | | Bit0 Bit1 Bit14 锂电池丢失告警 Bit15 并联通讯质量告警 |
| 555 | 故障信息第 1 字 Fault information word 1 | R | [0,65535] | | 见故障信息编码表 |
| 556 | 故障信息第 2 字 Fault information word 2 | R | [0,65535] | | |
| 557 | 故障信息第 3 字 Fault information word 3 | R | [0,65535] | | |
| 558 | 故障信息第 4 字 Fault information word 4 | R | [0,65535] | | |
| 559 | WorkFlag.ON_OFF_Trip_D ATA | R | | | |
| 560 | 调试数据Debug Data | R | | | Factory test only |
| |共24个寄存器 | | | | |
| 583 | 调试数据Debug Data | R | 0 | | |
| 584 | 预留 undefine | R | | | |
| 585 | 预留的电池温度传感器值 | R | | | |
| 586 | 电池1温度 | R | [0,3000] | 0.1℃ | |

| | | | | | |
|-----|--|---|----------|-------------------------|--------------|
| | Battery1 temperature | | | | |
| 587 | 电池1电压 Battery-1 voltage | R | | L: 0.01V H: 0.1V | |
| 588 | 电池1的电量 Battery-1 SOC | R | [0,100] | 1% | |
| 589 | 电池2的电量 Battery-2 SOC | R | [0,100] | 1% | |
| 590 | 电池输出功率 Battery output power | R | | H:1W H:10W | S16 |
| 591 | 电池1电流 Battery1 Current | R | | 0.01A | S16 |
| 592 | 电池校正后的容量Corrected _AH | R | [0,3000] | 1AH | 100 is 100AH |
| 593 | 电池2电压 Battery-2 voltage | R | | L: 0.01 V H: 0.1V | |
| 594 | 电池2电流 Battery2 Current | R | | | |
| 595 | 电池2功率 Battery2 Power | R | | L:1W H:10W | |
| 596 | 电池2温度 Battery2 temperature | R | | | |
| 597 | | R | | | |
| 598 | 电网侧相电压A Grid phase voltage A | R | | 0.1V | |
| 599 | 电网侧相电压B Grid phase voltage B | R | | 0.1V | |
| 600 | 电网侧相电压C Grid phase voltage C | R | | 0.1V | |
| 601 | 电网侧线电压AB Grid line voltage AB | R | | 0.1V | 预留 |
| 602 | 电网侧线电压BC Grid line voltage BC | R | | 0.1V | |
| 603 | 电网侧线电压CA Grid line voltage CA | R | | 0.1V | |
| 604 | 电网侧内侧A相功率低16位 A phase power on the inner side of the grid | R | | 1W | S16 |
| 605 | 电网侧内侧B相功率低16位 B phase power on the inner side of the grid | R | | 1W | S16 |
| 606 | 电网侧内侧C相功率低16位 C phase power on the inner side of the grid | R | | 1W | S16 |
| 607 | 电网侧- 内侧总有功功率低16位 Total active power from side to side of the grid | R | | 1W | S16 |
| 608 | 电网侧- 内侧总视在功率低16位 Grid side - inside total | R | | 1W | 预留 |

| | | | | | |
|-----|---|---|-----|----------|--|
| | apparent power | | | | |
| 609 | 电网侧频率 Grid-side frequency | R | | | |
| 610 | 电网侧内侧电流A grid side inner current A | R | | 0.01A | S16 |
| 611 | 电网侧内侧电流B grid side inner current B | R | | 0.01A | S16 |
| 612 | 电网侧内侧电流C grid side inner current C | R | | 0.01A | S16 |
| 613 | 电网外置-电流A Out-of-grid - current A | R | | 0.01A | S16 |
| 614 | 电网外置-电流B Out-of-grid - current B | R | | 0.01A | S16 |
| 615 | 电网外置-电流C Out-of-grid - current C | R | | 0.01A | S16 |
| 616 | 电网外置-功率A低16位 Out-of-grid -power A | R | | 1W | S16 |
| 617 | 电网外置-功率B低16位 Out-of-grid -power B | R | | 1W | S16 |
| 618 | 电网外置-功率C低16位 Out-of-grid -power C高16位 | R | | 1W | S16 |
| 619 | 电网外置- 总有功功率低16位 Out-of-grid -total power | R | | 1W | S16 |
| 620 | 电网外置- 总视在功率低16位 Out-of-grid -total apparent power | R | | 1VA | S16 |
| 621 | 并网功率因数 PF Grid-connected power factor PF | R | R/W | [0,1000] | 真实值*1000 |
| 622 | 电网侧A相功率低16位 Grid side A-phase power Low_Word | R | | 1W | 以下三个寄存器根据内置外置设置变化 The following three registers vary according to the built-in and external Settings |
| 623 | 电网侧B相功率低16位 Grid side B-phase power Low_Word | R | | 1W | |
| 624 | 电网侧C相功率低16位 Grid side C-phase power Low_Word | R | | 1W | |
| 625 | 电网侧-总有功功率低16位 Grid side total power Low_Word | R | | 1W | |
| 626 | | | | | |
| 627 | 逆变器输出相电压A Inverter output phase voltage A | R | | 0.1V | |
| 628 | 逆变器输出相电压B Inverter output phase voltage B | R | | 0.1V | |
| 629 | 逆变器输出相电压C | R | | 0.1V | |

| | | | | | |
|-----|---|---|--|--------|-----|
| | Inverter output phase voltage C | | | | |
| 630 | 逆变器输出相电流A Inverter output phase current A | R | | 0.01A | S16 |
| 631 | 逆变器输出相电流B Inverter output phase current B | R | | 0.01A | S16 |
| 632 | 逆变器输出相电流C Inverter output phase current C | R | | 0.01A | S16 |
| 633 | 逆变器输出相功率A低16位 Inverter output phase power A Low_Word | R | | 1W | S16 |
| 634 | 逆变器输出相功率B低16位 Inverter output phase power B Low_Word | R | | 1W | S16 |
| 635 | 逆变器输出相功率C低16位 Inverter output phase power C Low_Word | | | 1W | S16 |
| 636 | 逆变器输出总有功功率低16位 Inverter output total power Low_Word | R | | 1W | S16 |
| 637 | 逆变器输出总视在功率低16位 Inverter output total apparent power Low_Word | R | | 1W | S16 |
| 638 | 逆变器频率 Inverter frequency | R | | 0.01Hz | U16 |
| 639 | | R | | | |
| 640 | UPS负载侧相功率A低16位 UPS load-side phase power A Low_Word | R | | 1W | U16 |
| 641 | UPS负载侧相功率B低16位 UPS load-side phase power B Low_Word | R | | 1W | U16 |
| 642 | UPS负载侧相功率C低16位 UPS load-side phase power C Low_Word | R | | 1W | U16 |
| 643 | UPS负载侧总功率低16位 UPS load-side total power Low_Word | R | | 1W | U16 |
| 644 | 负载测相电压A Load phase voltage A | R | | 0.1V | U16 |
| 645 | 负载测相电压B Load phase voltage B | R | | 0.1V | U16 |
| 646 | 负载测相电压C Load phase voltage C | | | 0.1V | U16 |

| | | | | | |
|-----|--|---|--|--------|-----|
| 647 | 负载测电流A 无效 Load phase current A no use | R | | 0.01A | S16 |
| 648 | 负载测电流B 无效 Load phase current B no use | R | | 0.01A | S16 |
| 649 | 负载测电流C 无效 Load phase current C no use | R | | 0.01A | S16 |
| 650 | 负载侧相功率A低16位 Load phase power A_L_Word | R | | 1W | S16 |
| 651 | 负载侧相功率B低16位 Load phasepowerB Low_Word | R | | 1W | S16 |
| 652 | 负载侧相功率C低16位 Load phase poweC Low_Word | R | | 1W | S16 |
| 653 | 负载侧总有功功率低16位 Load totalpower Low_Word | R | | 1W | S16 |
| 654 | 负载侧总视在功率 预留 Load phase apparent power undefine Low_Word | R | | 1W | S16 |
| 655 | 负载频率 Load frequency | R | | 0.01Hz | |
| 656 | 负载侧相功率A高16位 Load phase power A High_Word | R | | 1W | S16 |
| 657 | 负载侧相功率B高16位 Load phase power B High_Word | R | | 1W | S16 |
| 658 | 负载侧相功率C高16位 Load phase power C High_Word | R | | 1W | S16 |
| 659 | 负载侧总有功功率高16位 Load totalpower High_Word | R | | 1W | S16 |
| 660 | 负载侧总视在功率高16位 预留 Load phase apparent power undefine High_Word | R | | 1W | S16 |
| 661 | Gen端口的相电压A Phase voltage of Gen port A | R | | 0.1V | |
| 662 | Gen端口的相电压B Phase voltage of Gen port B | R | | 0.1V | |
| 663 | Gen端口的相电压C Phase voltage of Gen port C | R | | 0.1V | |
| 664 | Gen端口的功率A低16位 Phase power of Gen port A Low_Word | R | | 1W | |
| 665 | Gen端口的功率B低16位 Phase power of Gen port B Low_Word | R | | 1W | |
| 666 | Gen端口的功率C低16位 Phase power of Gen port C | R | | 1W | |

| | | | | | |
|-----|---|---|-----------|---------------|---|
| | Low_Word | | | | |
| 667 | Gen端口的总功率低16位 total power of Gen port Low_Word | R | | 1W | |
| 668 | Gen端口的功率A高16位 Phase power of Gen port A High_Word | R | | 1W | |
| 669 | Gen端口的功率B高16位 Phase power of Gen port B High_Word | R | | 1W | |
| 670 | Gen端口的功率C高16位 Phase power of Gen port C High_Word | R | | 1W | |
| 671 | Gen端口的总功率高16位 total power of Gen port High_Word | R | | 1W | |
| 672 | PV1输入功率 PV1 input power | R | | L:1W H:10W | |
| 673 | PV2输入功率 PV2 input power | R | | L:1W H:10W | |
| 674 | PV3输入功率 PV3 input power | R | | L:1W H:10W | |
| 675 | PV4输入功率 PV4 input power | R | | L:1W H:10W | |
| 676 | 直流电压1 Dc voltage 1 | R | [0,65535] | 0.1V | |
| 677 | 直流电流1 Dc current 1 | R | [0,65535] | 0.1A | |
| 678 | 直流电压2 Dc voltage 2 | R | [0,65535] | 0.1V | |
| 679 | 直流电流2 Dc current 2 | R | [0,65535] | 0.1A | |
| 680 | 直流电压3 Dc voltage 3 | R | [0,65535] | 0.1V | |
| 681 | 直流电流3 Dc current 3 | R | [0,65535] | 0.1A | |
| 682 | 直流电压4 Dc voltage 4 | R | [0,65535] | 0.1V | |
| 683 | 直流电流4 Dc current 4 | R | [0,65535] | 0.1A | |
| 684 | 预留 | R | | | |
| 685 | 预留 | R | | | |
| 686 | 预留 | R | | | |
| 687 | 电网侧A相功率高16位 Grid side A-phase power high_Word | R | | 1W | 以下三个寄存器根据内置外置设置变化 The following three registers vary according to the built-in and external Settings |
| 688 | 电网侧B相功率高16位 | R | | 1W | |

| | | | | | |
|-----|--|---|--|----|-----|
| | Grid side B-phase power high_Word | | | | |
| 689 | 电网侧C相功率高16位 Grid side C-phase power high_Word | R | | 1W | |
| 690 | 电网侧-总有功功率高16位 Grid side total power high_Word | R | | 1W | |
| 691 | 逆变器输出相功率A高16位 Inverter output phase power A high_Word | R | | 1W | S16 |
| 692 | 逆变器输出相功率B高16位 Inverter output phase power B Low_Word | R | | 1W | S16 |
| 693 | 逆变器输出相功率C高16位 Inverter output phase power C high_Word | | | 1W | S16 |
| 694 | 逆变器输出总有功功率高16位 Inverter output total power high_Word | R | | 1W | S16 |
| 695 | 逆变器输出总视在功率高16位 Inverter output total apparent power high_Word | R | | 1W | S16 |
| 696 | UPS负载侧相功率A高16位 UPS load-side phase power A high_Word | R | | 1W | U16 |
| 697 | UPS负载侧相功率B高16位 UPS load-side phase power B high_Word | R | | 1W | U16 |
| 698 | UPS负载侧相功率C高16位 UPS load-side phase power C high_Word | R | | 1W | U16 |
| 699 | UPS负载侧总功率高16位 UPS load-side total power high_Word | R | | 1W | U16 |
| 700 | 电网侧内侧A相功率高16位 A phase power on the inner side of the grid high_Word | R | | 1W | S16 |
| 701 | 电网侧内侧B相功率高16位 B phase power on the inner side of the grid high_Word | R | | 1W | S16 |
| 702 | 电网侧内侧C相功率高16位 C phase power on the inner side of the grid high_Word | R | | 1W | S16 |
| 703 | 电网侧-内侧总有功功率高16位 Total active power from side to side of the grid high_Word | R | | 1W | S16 |
| 704 | 电网侧-内侧总视在功率高16位 Grid side - inside total | R | | 1W | 预留 |

| | | | | | |
|------|---|---|--|-----|---|
| | apparent power high Word | | | | |
| 705 | 电网外置-功率A高16位 Out-of-grid -power A high Word | R | | 1W | S16 |
| 706 | 电网外置-功率B高16位 Out-of-grid -power B high Word | R | | 1W | S16 |
| 707 | 电网外置-功率C高16位 Out-of-grid -power C high Word | R | | 1W | S16 |
| 708 | 电网外置- 总有功功率高16位 Out-of-grid -total power high Word | R | | 1W | S16 |
| 709 | 电网外置- 总视在功率高16位 Out-of-grid -total apparent power high Word | R | | 1VA | S16 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 738 | 内部风扇返回AD值 | | | | Factory test only BIT00: 0: CT 1: Meter BIT01-BIT15: undefine |
| 739 | 外部风扇返回AD值 | | | | |
| | | | | | |
| 800 | 厂内自检 | R | | | |
| | 预留 | | | | |
| 1000 | 电网信息监测方式 Grid power check mode | R | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

5.3. 03德业电池只读区

| Addr. | 寄存器含义 | R/W | Range | Unit | note |
|-------|------------------------------|-----|-------|------|-----------------|
| 德业电池 | | | | | |
| 10000 | 设备类型 Device Type | R | | | 0x700:锂电池Pack协议 |
| 10001 | 协议版本号 Protocol Version | R | | | |
| 10002 | 电池PackNum数 Packnum number | R | | 1 | |
| 10003 | 电池电压 Battery voltage | R | | 0.1V | |
| 10004 | 电池电流 | R | | 0.1A | |

| | | | | | |
|-------|---|---|--|-------|--|
| | Battery current | | | | |
| 10005 | 电池容量SOC Battery SOC | R | | 1% | |
| 10006 | 电池健康度SOH Battery SOH | R | | 1% | |
| 10007 | 电池剩余容量 Battery CApAH | R | | 1AH | |
| 10008 | 电池温度 Battery Temp | R | | 0. 1C | |
| 10009 | 电池充电电压 Charge Voltage | R | | 0. 1V | |
| 10010 | 电池放电电压 Discharge voltage | R | | 0. 1V | |
| 10011 | 电池充电截止电压 Charge End voltage | R | | 1V | |
| 10012 | 电池放电截止电压 Discharge End voltage | R | | 1V | |
| 10013 | 电池充电限流 Charge limit current | R | | 1A | |
| 10014 | 电池放电限流 Discharge limit current | R | | 1A | |
| 10015 | 电池离网充电限流 Off grid Charge limit current | R | | 1A | |
| 10016 | 电池离网放电电流 Off grid Discharge limit current | R | | 1A | |
| 10017 | 强充标志 Force Charge Flag | R | | | |
| 10018 | 校准容量标志 Check SOC Flag | R | | | |
| 10019 | 电池故障1 Battery Fault1 | R | | | |
| 10020 | 电池故障2 Battery Fault2 | R | | | |
| 10021 | 电池告警1 Battery Alarm1 | R | | | |
| 10022 | 电池告警2 Battery Alarm2 | R | | | |
| 10023 | 预留1 | R | | | |
| 10024 | 预留2 | R | | | |
| 10025 | 预留3 | R | | | |
| 10026 | 预留4 | R | | | |

| | | | | | |
|-------|--------|-------------------|------------------------------|--|-----------------|
| 10027 | 预留5 | R | | | |
| 10028 | 预留6 | R | | | |
| 10029 | 预留7 | R | | | |
| 10030 | 预留8 | R | | | |
| 10031 | 预留9 | | | | |
| 10032 | 1号1字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号2字节 | | | | |
| 10033 | 1号3字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号4字节 | | | | |
| 10034 | 1号5字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号6字节 | | | | |
| 10035 | 1号7字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号8字节 | | | | |
| 10036 | 1号9字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号10字节 | | | | |
| 10037 | 1号11字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号12字节 | | | | |
| 10038 | 1号13字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| | 1号14字节 | | | | |
| 10039 | 1号15字节 | R | ‘0’ – ‘9’ ‘A’ – ‘Z’ | | ASCII字符 |
| 10040 | | Module Voltage | | | 0.01V |
| 10041 | | Module Current | | | 0.1A |
| 10042 | | Temperate-AVE | | | 1250 mean 25.0℃ |
| 10043 | | Temperate-CellMax | | | 1250 mean 25.0℃ |
| 10044 | | Temperate-CellMin | | | 1250 mean 25.0℃ |
| 10045 | | Temperate-MosMax | | | 1250 mean 25.0℃ |
| 10046 | | Temperate-HeatMem | | | 1250 mean 25.0℃ |

| | | | | | | |
|-------|-------|-------------------|--|--|-------|--|
| 10047 | PACK1 | SOC | | | 0.1 | |
| 10048 | | SOH | | | 0.1 | |
| 10049 | | Remain Capacity | | | 0.1AH | |
| 10050 | | Total Capacity | | | 0.1AH | |
| 10051 | | Charge Voltage | | | 0.01V | |
| 10052 | | Charge Current | | | 0.1A | |
| 10053 | | Discharge Current | | | 0.1A | |
| 10054 | | Max Cell V | | | 0.01V | |
| 10055 | | Min Cell V | | | 0.01V | |
| 10056 | | Cycle number | | | 1 | |
| 10057 | | MOS Status | | | 1 | |
| 10058 | | Warming1 | | | -- | |
| 10059 | | Warming2 | | | -- | |
| 10060 | | Fault1 | | | -- | |
| 10061 | | Fault2 | | | -- | |
| 10062 | | 软件版本号 | | | -- | |
| 10063 | | 硬件版本号 | | | -- | |
| 10064 | | 预留1 | | | | |
| 10065 | | 预留2 | | | | |
| 10066 | | 预留3 | | | | |
| 10067 | | 预留4 | | | | |
| 10068 | | 预留5 | | | | |
| 10069 | | 预留6 | | | | |

以此类推8个寄存器的SN+22和数据寄存器=30个寄存器为第二个电池包信息

以此类推8个寄存器的SN+22和数据寄存器=30个寄存器为第三个电池包信息

机型功率表

| | 低压三相 | 高压15kw美版 | 高压15kw欧版 | 高压50kw美版 | 高压50kw欧版 |
|---|------|----------|----------|----------|----------|
| 0 | | | | | |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

5.4. 内存记录表

| 内存记录表 | | | | | |
|-------|---------|-----|-------|------|----------|
| Addr. | 寄存器含义 | R/W | Range | Unit | note |
| 1000 | 逆变器故障信息 | R | | | 长度范围是500 |

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

5.5. 故障代码

告警代码

| Error code | Description /描述 | Solutions/解决方案 |
|------------|------------------|----------------|
| | | |
| | | |
| W01 | reserve | |
| W02 | FAN_WARN | |
| W03 | Grid phase wrong | |
| W04 | meter_Comm_Fail | |

故障代码: Fault Code

| Error code | Description /描述 | Solutions/解决方案 |
|------------|--|---|
| F07 | DC/DC_Softstart_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 辅助电源故障 | 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 模式切换 | 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（逆变器被锁定） | 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. |
| 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 直流母线不平衡 | 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 并联通讯故障 | This fault 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 线电压过低故障 | 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 交流欠频 | 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. |
| F56 | DC busbar voltage is too low 母线电压过低 | 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通讯故障 | |
| F62 | DRM检测 | 1. Check whether the DRM function is enabled by mistake. 2. Check whether the DRM cable is damaged |
| 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. |

6. 附录

6.1. 附录一：机型选择表

| | 三相低压 | 高压15kw欧版 | 高压15kw美版 | 高压50kw欧版 | 高压50kw美版 |
|---|--------|----------|----------|----------|----------|
| 0 | 默认12kw | 默认15kw | 默认15kw | 默认50kw | 默认30 |
| 1 | 10kw | 12kw | 10kw | 40kw | 25kw |
| 2 | 8kw | 10kw | | 30kw | 20kw |
| 3 | 6kw | 8kw | | 20kw | |
| 4 | 5kw | 20kw | | | |

6.2. 附录二：

6.3. 附录三：

6.4. 附录四

6.5. 附录五：