# KSTAR Hybrid Inverter

# MODBUS RS485 Communication Protocol V2.9.1

| revised version | modify content | author | Date |
|---|---|---|---|
| V1.0 | Add KSE hybrid inverter | | 2020.04.17 |
| V1.1 | Modify the overfrequency, overvoltage, and undervoltage ranges | | 2020.12.31 |
| V1.2 | 03 Querying Function Codes is added | | 2021.01.15 |
| V1.3 | Add Brazil, South Africa, 50549 and other standards | | 2021.02.03 |
| V1.4 | Charge and discharge quantity of newly added batteries in the day (3,294, 3,301) | | 2021.04.06 |
| V1.5 | Modify PV, buy power, sell power, load power unit of the day: changed from 1kwh to 0.1kwh; | | 2021.04.28 |
| V1.6 | Added the maximum temperature of the battery pack and the cumulative time of the | | 2021.05.26 |
| V1.7 | Add PV power from grid-connected on the same day;<br>One-day charging comes from PV power;<br>The daily load comes from battery power consumption; | | 2021.10.12 |
| V1.8 | Added five battery packs (addresses 3441 to 3660) | | 2021.11.04 |
| V1.9 | Added advanced peak load filling function, off-grid battery discharge depth, generator mode, battery pack forced wake up, manually open the heating film, CT direction | | 2021.11.16 |
| V2.0 | Added grid standard subdivision, AC coupling enable, BMS discharge depth enable; grid standard added Israel, Poland, Chile | | 2022.02.16 |
| V2.1 | Added Charge from grid MAX SOC , GFCI Check Enable,VRTEnable,Warning:Bms_Updating,Bms_VersionErr, Bms_UpdateFail | | 2022.02.23 |
| V2.2 | Add parameters corresponding to phase S and T | | 2022.04.02 |
| V2.3 | Supplemental English translation of battery pack parameters; | | 2022.07.29 |
| V2.4 | Table 3.1.5 Newly added three-phase models; Indicate the register data only available for three-phase models; | | 2022.08.17<br>2022.08.18 |
| V2.5 | Newly added registers for three-phase models: PV temperature, LLC temperature; Battery pack 6, 7 and 8 information; DSP2 version number and test version number. | | 2022.11.17 |
| V2.6 | Added grid standards for Sweden, Denmark, and Austria; Add F21 and F22; Add registers such as parallel enable, parallel address, PV startup voltage, etc | | 2023.07.05 |
| V2.6 | 1. Added CSA models. 2. Added first level trip time, second level trip point and time. (BluE-S not available) 3. Add QU, QP curve start and end point, P (U), P (f) curve start and end point slope, reconnection point. (BluE-S not available)4. Add grid type, parallel type, BatteryReady, heat pump. (Only three phase model available) | | 2023.12 |

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|---|---|---|---|
| V2.7 | New zero ground voltage detection, demand control enable, demand control power, peak shaving and valley filling power control enable, peak power, valley power (registers 3907-3913) | | 2024.06.03 |
| V2.8 | Added Self-Consumption Charge Start Time 02 | | 2024.06.17 |
| V2.9.01 | Added Time of Use 3-5 | | 2024.07.21 |

# 1. General Protocol

## 1.1. Overview of the Protocol

This paper has stipulated the protocol specification for communication between our company's hybrid inverter and PC. This specification is a subset of the MODBUS protocol. The MODBUS protocol standard specification is not described in this document. Please refer to the standard MODBUS RTU protocol format: see www.modicon .com.

## 1.2. Communication Interface

The serial communication port uses standard RS485.The information transmission mode is asynchronous, with 1 bit of start bit, 8 bits of data bit, 1 bit of stop bit, and no parity bit. The data transfer baud rate defaults to 9600bps, 2400/4800/9600 is optional. The transmission uses "big-Endian", such as transmission 0x12345678, first send 0x12, then 0x34, then 0x56, finally 0x78.

## 1.3. Communication method

The PC (host) and the inverter (slave) adopt the master-slave simplex communication mode. Up to 32 slaves can be connected to the 485 bus. The master polls each slave. If the slave does not respond or receives in response to the error message, the communication process is considered to have failed.

# 2. Protocol frame

## 2.1. Protocol frame format

| Byte number | 0 | 1 | N | N+1 | N+2 |
|---|---|---|---|---|---|
| Bytes | 1 | 1 | | 2 | |
| Content | Slave address | Function | Data | Check code | |
| Format | ID | FUNC | ADDR | CRC | |

## 2.2. Protocol Frame Description

2.2.1 ID

Slave (module power) address, value range 0-32. 0 is the broadcast address, the slave address is unique on the Modbus bus.

2.2.2 FUNC

| FUNC | Meaning |
|---|---|
| 0x03 | Read holding register to query inverter information |
| 0x04 | Read input register to query inverter information |
| 0x06 | Write a single register and execute a |

| | |
|---|---|
| | remote instruction |
| 0x10 | Write multiple registers and set the inverter information |

Error code

| Error code | Meaning |
|---|---|
| 0x01 | Invalid function code |
| 0x02 | Invalid address code |
| 0x03 | Invalid value |
| 0x06 | Slave busy ,invalid command |

2.3.3 CRC

The master or slave can use the CRC check code to determine if the received information is correct. Due to electronic noise or some other interference on the bus, information may be wrong during transmission. The receiving party can use the CRC check code to judge whether the received information frame is correct and give up the wrong information frame, which improves the communication system. Safety and reliability.

The CRC (Redundant Cyclic Code) of the MODBUS communication protocol contains 2 bytes, which is a 16-bit binary number. The transmitting device calculates the CRC code and places it at the end of the transmitted information frame. The device receiving the information recalculates the CRC code for all the received information (including the CRC code) and determines whether the CRC code is 0. If it is 0, it indicates that the received information frame is correct, otherwise it indicates that the received information frame is incorrect.

Only 8 data bits are used in the CRC calculation. The start and stop bits are not involved in the CRC calculation.

**● The calculation method of the CRC code is:**

1. Preset one 16-bit register to be hexadecimal FFFF (that is, all 1); call this register as CRC register;

2. Put the first 8-bit binary data (the first byte of the communication message frame) with the lower of the 16-bit CRC register8-bit distinct OR, put the result in the CRC register;

3. Move the contents of the CRC register one bit to the right (toward the low) to fill the highest bit with 0, and check the shifted out bit after the right shift;

4. If the shift bit is 0: repeat step 3 (shift one bit to the right);If the shift bit is 1: the CRC register is XORed with the polynomial A001 (1010 0000 0000 0001);

5. Repeat steps 3 and 4 until you shift 8 times to the right, so that the entire 8-bit data is processed.

6. Repeat steps 2 through 5 to process the next byte of the communication information frame.

7. After all the bytes of the communication information frame are calculated as described above, the high and low bytes of the obtained 16-bit CRC register are exchanged;

8. The final CRC register content is: CRC code.

# 3. Inverter Information Address Table

## 3.1. Inverter basic information（04H Read）

Table 3.1.1

| Register Address | Item | Byte | Byte No. | Unit | Data Type | Remark | FUNC |
|---|---|---|---|---|---|---|---|
| 3000 | PV1 Input Vlot | 2 | 0 | 0.1V | U16 | | 04H |
| 3001 | PV2 Input Vlot | 2 | 2 | 0.1V | U16 | | 04H |
| 3002~3011 | Reserved | 20 | 4 | | | | 04H |
| 3012 | PV1 Input Curr | 2 | 24 | 0.01A | S16 | | 04H |
| 3013 | PV2 Input Curr | 2 | 26 | 0.01A | S16 | | 04H |
| 3014~3023 | Reserved | 20 | 28 | | | | 04H |
| 3024 | PV1 Input Power | 2 | 48 | 1W | S16 | | 04H |
| 3025 | PV2 Input Power | 2 | 50 | 1W | S16 | | 04H |
| 3026~3035 | Reserved | 20 | 52 | | | | 04H |
| 3036 | Day Energy (PV) | 2 | 72 | 0.1Kwh | U16 | | 04H |
| 3037 | Month Energy (PV) | 4 | 74 | Kwh | U32 | | 04H |
| 3038 | | | | | | | 04H |
| 3039 | Year Energy (PV) | 4 | 78 | Kwh | U32 | | 04H |
| 3040 | | | | | | | 04H |
| 3041 | Total Energy (PV) | 4 | 82 | 0.1Kwh | U32 | | 04H |
| 3042 | | | | | | | 04H |
| 3043 | Reserved | 2 | 86 | | | | 04H |
| 3044 | Inverter working mode | 2 | 88 | | U16 | 0：SELF CSM<br>1：PEAK SFT<br>2：BAT PRIO | 04H/06H |
| 3045 | Inverter Model | 2 | 90 | | U16 | Table 3.1.5 | 04H |
| 3046 | SYS_STATE | 2 | 92 | | U16 | Table 3.1.4 | 04H |
| 3047 | INV_STATE | 2 | 94 | | U16 | Table 3.1.10 | 04H |
| 3048 | DCDC_STATE | 2 | 96 | | U16 | Table 3.1.11 | 04H |
| 3049 | DSP alarm code | 4 | 98 | | U32 | Table 3.1.2 | 04H |
| 3050 | | | | | | | 04H |
| 3051 | DSP error code | 4 | 102 | | U32 | Table 3.1.3 | 04H |
| 3052 | | | | | | | 04H |
| 3053 | BUS Volt | 2 | 106 | 0.1V | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3054 | DCBUS Vlot | 2 | 108 | 0.1V | U16 | | 04H |
| 3055 | INV radiator temp | 2 | 110 | 0. 1℃ | S16 | | 04H |
| 3056 | BAT radiator temp | 2 | 112 | 0. 1℃ | S16 | | 04H |
| 3057 | Inside environment | 2 | 114 | 0. 1℃ | S16 | | 04H |
| 3058 | Reserved | 2 | 116 | | U16 | | 04H |
| 3059 | Discharge Depth Enable | 2 | 118 | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3060 | BMS DOD Enable | 2 | 120 | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3061 | OffGrid DOD | 2 | 122 | Unit: % | U16 | Range:5 ~90<br>Default: 90 | 04H/06H |
| 3062 | BAT Type | 2 | 124 | | U16 | | 04H |
| 3063 | BAT Volt | 2 | 126 | 0.01V | U16 | | 04H |
| 3064 | BAT Current | 2 | 128 | 0.1A | S16 | | 04H |
| 3065 | BAT CHG/DISCHG Power | 2 | 130 | 1W | S16 | | 04H |
| 3066 | BAT_SOC | 2 | 132 | 0.10% | U16 | | 04H |
| 3067 | BAT_Temp | 2 | 134 | 0.1℃ | S16 | | 04H |
| 3068 | OnGrid DISC-DEPTH | 2 | 136 | % | U16 | Range:10 ~95<br>Default: 90 | 04H/06H |
| 3069 | BAT_CHG_VOLT | 2 | 138 | 0.1V | U16 | | 04H |
| 3070 | BAT_CHG_LIMIT_CURR | 2 | 140 | 1A | U16 | | 04H |
| 3071 | BAT_DISCHG_LIMIT_CURR | 2 | 142 | 1A | U16 | | 04H |
| 3072 | Min Bat DisChg Volt | 2 | 144 | 0.1V | U16 | Range:400 ~480<br>Default: 432 | 04H/06H |
| 3073 | Max Bat Chg Volt | 2 | 146 | 0.1V | U16 | Range:520 ~585<br>Default:575 | 04H/06H |
| 3074 | BAT_CAP_AH | 2 | 148 | Ah | U16 | Table 3.4.7 | 04H/06H |
| 3075 | BAT Health | | 150 | 0.10% | U16 | | 04H |
| 3076 | Reserved | 2 | 152 | | U16 | | 04H |
| 3077 | Number of battery packs | 2 | 154 | | U16 | | 04H |
| 3078 | BAT Dischg Power Set | 2 | 156 | % | U16 | Range:0 ~100<br>Default:100 | 04H/06H |
| 3079 | BAT Charge Power Set | 2 | 158 | % | U16 | Range:0 ~100<br>Default:100 | 04H/06H |

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|---|---|---|---|---|---|---|---|
| 3080 | BAT_SET_FLOAT_VOLT | 2 | 160 | 0.1V | U16 | Range:520 ~580<br>Default:565 | 04H/06H |
| 3081 | BAT_SET_AVERA_VOLT | 2 | 162 | 0.1V | U16 | Range:520 ~575<br>Default:560 | 04H/06H |
| 3082 | BAT_SET_CHG_CURR | 2 | 164 | 1A | U16 | Range:1~100/1~160(Three Phase)<br>Default:60/160(Three Phase) | 04H/06H |
| 3083 | Wake-up BMS Enb | 2 | 166 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3084 | Wake-up BMS Time | 2 | 168 | min | U16 | 5~300 | 04H/06H |
| 3085 | Reserve | 2 | 170 | | U16 | | 04H |
| 3086 | Force Chg/Dischg Enb | 2 | 172 | | U16 | 0：Invalid<br>1：Charge<br>2：Discharge | 04H/06H |
| 3087~3096 | Reserved | 4 | | | | | 04H |
| 3097 | R Phase Grid Volt | 2 | 194 | 0.1V | U16 | | 04H |
| 3098 | R Phase Grid Freq | 2 | 196 | 0.01Hz | U16 | | 04H |
| 3099 | R Phase Meter Curr | 2 | 198 | 0.001A | S16 | | 04H |
| 3100 | R Phase Meter Power | 2 | 200 | 1W | S16 | | 04H |
| 3101 | S Phase Grid Volt | 2 | 202 | 0.1V | U16 | Only for Three Phase Model<br>（refer to 3.1.5） | 04H |
| 3102 | S Phase Grid Freq | 2 | 204 | 0.01Hz | U16 | | 04H |
| 3103 | S Phase Meter Curr | 2 | 206 | 0.001A | S16 | | 04H |
| 3104 | S Phase Meter Power | 2 | 208 | 1W | S16 | | 04H |
| 3105 | T Phase Grid Volt | 2 | 210 | 0.1V | U16 | | 04H |
| 3106 | T Phase Grid Freq | 2 | 212 | 0.01Hz | U16 | | 04H |
| 3107 | T Phase Meter Curr | 2 | 214 | 0.001A | S16 | | 04H |
| 3108 | T Phase Meter Power | 2 | 216 | 1W | S16 | | 04H |
| 3109 | Day Energy (BUY) | 2 | 218 | 0.1Kwh | U16 | | 04H |
| 3110 | Month Energy (BUY) | 4 | 220 | Kwh | U32 | | 04H |
| 3111 | | | | | | | 04H |
| 3112 | Year Energy (BUY) | 4 | 224 | Kwh | | | 04H |
| 3113 | | | | | | | 04H |
| 3114 | Total Energy (BUY) | 4 | 228 | 0.1Kwh | | | 04H |
| 3115 | | | | | | | 04H |
| 3116 | Day Energy (SELL) | 2 | 232 | 0.1Kwh | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3117 | Month Energy (SELL) | 4 | 234 | Kwh | U32 | | 04H |
| 3118 | | | | | | | 04H |
| 3119 | Year Energy (SELL) | 4 | 238 | Kwh | U32 | | 04H |
| 3120 | | | | | | | 04H |
| 3121 | Total Energy (SELL) | 4 | 242 | 0.1Kwh | U32 | | 04H |
| 3122 | | | | | | | 04H |
| 3123 | R-INV_Vlot | 2 | 246 | 0.1V | U16 | | 04H |
| 3124 | R-INV_Curr | 2 | 248 | 0.01A | S16 | | 04H |
| 3125 | R-INV_Freq | 2 | 250 | 0.01Hz | U16 | | 04H |
| 3126 | R-INV_Power | 2 | 252 | 1W | S16 | | 04H |
| 3127 | S-INV_Vlot | 2 | 254 | 0.1V | U16 | Only for Three Phase Model （refer to 3.1.5） | 04H |
| 3128 | S-INV_Curr | 2 | 256 | 0.01A | S16 | | 04H |
| 3129 | S-INV_Freq | 2 | 258 | 0.01Hz | U16 | | 04H |
| 3130 | S-INV_Power | 2 | 260 | 1W | S16 | | 04H |
| 3131 | T-INV_Vlot | 2 | 262 | 0.1V | U16 | | 04H |
| 3132 | T-INV_Curr | 2 | 264 | 0.01A | S16 | | 04H |
| 3133 | T-INV_Freq | 2 | 266 | 0.01Hz | U16 | | 04H |
| 3134 | T-INV_Power | 2 | 268 | 1W | S16 | | 04H |
| 3135 | R-BackUp Volt | 2 | 270 | 0.1V | U16 | | 04H |
| 3136 | R-BackUp Curr | 2 | 272 | 0.01A | U16 | | 04H |
| 3137 | R-BackUp Power | 2 | 274 | 1W | U16 | | 04H |
| 3138 | S-BackUp Volt | 2 | 276 | 0.1V | U16 | Only for Three Phase Model （refer to 3.1.5） | 04H |
| 3139 | S-BackUp Curr | 2 | 278 | 0.01A | U16 | | 04H |
| 3140 | S-BackUp Power | 2 | 280 | 1W | U16 | | 04H |
| 3141 | T-BackUp Volt | 2 | 282 | 0.1V | U16 | | 04H |
| 3142 | T-BackUp Curr | 2 | 284 | 0.01A | U16 | | 04H |
| 3143 | T-BackUp Power | 2 | 286 | 1W | U16 | | 04H |
| 3144 | R-Load Power | 2 | 288 | 1W | U16 | | 04H |
| 3145 | S-Load Power | 2 | 290 | 1W | U16 | Only for Three Phase Model （refer to 3.1.5） | 04H |
| 3146 | T-Load Power | 2 | 292 | 1W | U16 | | 04H |
| 3147 | Day Energy (LOAD) | 2 | 294 | 0.1Kwh | U16 | | 04H |
| 3148 | Month Energy ( LOAD) | 4 | 296 | Kwh | U32 | | 04H |
| 3149 | | | | | | | 04H |
| 3150 | Year Energy ( LOAD) | 4 | 300 | Kwh | U32 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3151 | | | | | | | 04H |
| 3152 | Total Energy ( LOAD) | 4 | 304 | 0.1Kwh | U32 | | 04H |
| 3153 | | | | | | | 04H |
| 3154 | On_GRID_COUNT | 4 | 308 | | U32 | | 04H |
| 3155 | | | | | | | 04H |
| 3156 | PV Temperature | 2 | 312 | 0.1℃ | S16 | Only for Three Phase Model | 04H |
| 3157 | LLC Temperature | 2 | 314 | 0.1℃ | S16 | | 04H |
| 3158 | Reserved | 2 | 316 | | | | 04H |
| 3159 | Reserved | 2 | 318 | | | | 04H |
| 3160 | Charge_START_TIME-1 | 4 | 320 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3161 | | | | | | | 04H |
| 3162 | Charge_END_TIME-1 | 4 | 324 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3163 | | | | | | | 04H |
| 3164 | Discharge_START_TIME-1 | 4 | 328 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3165 | | | | | | | 04H |
| 3166 | Discharge_END_TIME-1 | 4 | 332 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3167 | | | | | | | 04H |
| 3168 | Charge_START_TIME-2 | 4 | 336 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3169 | | | | | | | 04H |
| 3170 | Charge_END_TIME-2 | 4 | 340 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3171 | | | | | | | 04H |
| 3172 | Discharge_START_TIME-2 | 4 | 344 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3173 | | | | | | | 04H |
| 3174 | Discharge_END_TIME-2 | 4 | 348 | ASCII char | U32 | Table 3.3.3 | 04H |
| 3175 | | | | | | | 04H |
| 3176 | Timing Charge/Discharge | 2 | 352 | | U16 | Table 3.1.12 | 04H |
| 3177 | Reserved | 2 | 354 | | | | 04H |
| 3178 | Reserved | 2 | 356 | | | | 04H |
| 3179 | PV Input Mode | 2 | 358 | | U16 | Table 3.1.8 | 04H/06H |
| 3180 | PV Start Volt | 2 | 360 | 0.1V | U16 | Range: 2000~3500 Default:3500(Only For Three Phase Inverter) | 04H/06H |
| 3181 | DRM Enable | 2 | 362 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3182 | AntiReflux Enable | 2 | 364 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3183 | AntiReflux Value | 2 | 366 | | U16 | | 04H/06H |

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|---|---|---|---|---|---|---|---|
| 3184 | BackUp Output Enable | 2 | 368 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3185 | Remote Enable | 2 | 370 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3186 | Boot Delay | 2 | 372 | S | U16 | 10-300 | 04H/06H |
| 3187 | Remote off State | 2 | 374 | | U16 | 1: off State 0:Normal | 04H |
| 3188~3192 | Reserved | 10 | 376 | | | | 04H |
| 3193 | Grid Standard | 2 | 386 | | U16 | Table 3.1.9 | 04H/06H |
| 3194 | ARM error Code | 2 | 388 | | U16 | Table 3.1.7 | 04H |
| 3195 | Reactive power setting | 2 | 390 | % | S16 | Table 3.4.4 | 04H/06H |
| 3196 | Reserved | 2 | 392 | | | | 04H |
| 3197 | Reactive power control | 2 | 394 | | U16 | Table 3.4.5 | 04H/06H |
| 3198 | Reserved | 2 | 396 | | | | 04H |
| 3199 | Power factor setting | 2 | 398 | | S16 | Table 3.4.2 | 04H/06H |
| 3200 | Active power setting | 2 | 400 | % | U16 | Table 3.4.3 | 04H/06H |
| 3201 | Min Grid voltage | 2 | 402 | 0.1V | U16 | 1500-2200 | 04H/06H |
| 3202 | Max Grid Vlot | 2 | 404 | 0.1V | U16 | 2400-2800 | 04H/06H |
| 3203 | Min Grid Freq | 2 | 406 | 0.01Hz | U16 | 4500-6020 | 04H/06H |
| 3204 | Max Grid Freq | 2 | 408 | 0.01 Hz | U16 | 5020-6350 | 04H/06H |
| 3205 | Bypass Volt-Min | 2 | 410 | 0.1V | U16 | 1000-2300 | 04H/06H |
| 3206 | Bypass Volt-Max | 2 | 412 | 0.1V | U16 | 2400-2850 | 04H/06H |
| 3207 | Bypass Freq-Min | 2 | 414 | 0.01Hz | U16 | 4450-6000 | 04H/06H |
| 3208 | Bypass Freq-Max | 2 | 416 | 0.01 Hz | U16 | 5000-6500 | 04H/06H |
| 3209 | Over Volt derate Enable | 2 | 418 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3210 | Over Freq derate Enable | 2 | 420 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3211 | Under Volt derate Enable | 2 | 422 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3212 | Under Freq derate Enable | 2 | 424 | | U16 | 0:Disable 1:Enable | 04H/06H |
| 3213 | Volt Over derate Start | 2 | 426 | 0.1 V | U16 | 2400-2800 | 04H/06H |
| 3214 | Freq Over derate Start | 2 | 428 | 0.01Hz | U16 | 5000-6500 | 04H/06H |
| 3215 | Under Volt derate Start (Charging) | 2 | 430 | 0.1 V | U16 | 1840-2300 | 04H/06H |
| 3216 | Under Frep derate Start (Charging) | 2 | 432 | 0.01Hz | U16 | 4000-6000 | 04H/06H |
| 3217 | R-Voltage calibration factor | 2 | 434 | | U16 | Default：4096 | 04H/06H |
| 3218 | Reserved | 2 | 436 | | U16 | Default：4096 | 04H |

| | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 3219 | Reserved | 2 | 438 | | U16 | Default：4096 | 04H |
| 3220 | R-Current calibration factor | 2 | 440 | | U16 | Default：4096 | 04H/06H |
| 3221 | Reserved | 2 | 442 | | U16 | Default：4096 | 04H |
| 3222 | Reserved | 2 | 444 | | U16 | Default：4096 | 04H |
| 3223 | Battery/Voltage calibration factor | 2 | 446 | | U16 | Default：4096 | 04H/06H |
| 3224~3226 | Reserved | | 448 | | | | 04H |
| 3227 | DSP version | 1 | 454 | | U8 | 10 refer to V1.0 | 04H |
| | ARM version | 1 | 455 | | U8 | 10 refer to V1.0 | 04H |
| 3228-3238 | Inverter SN Number | 22 | 456 | U8 | ASCII char | | 04H |
| 3239 | Year | 2 | 478 | BCD code | U16 | 0x20 represent 2020 | 04H |
| 3240 | Month | 2 | 480 | BCD code | U16 | 0x10 represent 10 | 04H |
| 3241 | Date | 2 | 482 | BCD code | U16 | 0x30 represent 30 | 04H |
| 3242 | Hour | 2 | 484 | BCD code | U16 | 0x21 represent 21 | 04H |
| 3243 | Minute | 2 | 486 | BCD code | U16 | 0x59 represent 59 | 04H |
| 3244 | Second | 2 | 488 | BCD code | U16 | 0x59 represent 59 | 04H |
| 3245 | Week | 2 | 490 | BCD code | U16 | 0x01 represent 1 | 04H |
| 3246~3250 | Reserved | | | | | | 04H |
| 3251 | generator mode is enabled | 2 | | | U16 | 0 disable<br>1 enable | 04H/06H |
| 3252 | Island effct enabled | 2 | | | U16 | 0 disable<br>1 enable | 04H/06H |
| 3253 | Battery pack Forcibly wakes up | 2 | | | U16 | 0 disable<br>1 enable | 04H/06H |
| 3254 | Manually open the heating film | 2 | | | U16 | 0: Heating film temperature control<br>1: Manually open the heating film<br>2: Manually close the heating film | 04H/06H |
| 3255 | CT direction | 2 | | | U16 | 0 ： positive 1 ： negative | 04H/06H |
| 3256 | PV1CurrCalibrate | 2 | | | U16 | Range: 3687~4505<br>Default: 4096 | 04H/06H |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3257 | PV2CurrCalibrate | 2 | | | U16 | Range: 3687~4505<br>Default: 4096 | 04H/06H |
| 3258 | Grid Subdivide | 2 | | 表 3.1.9.1 | U16 | Range: 0~7<br>Default: 0 | 04H/06H |
| 3259 | AC Couple | 2 | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3260 | Charge from grid MAX SOC | 2 | | % | U16 | Range: 20~100<br>Default: 100 | 04H/06H |
| 3261 | Maintain Minimum SOC Enable | 2 | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3262 | GFCI Check Enable | 2 | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3263 | VRT Enable | 2 | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3264 | CT Or Meter | | | | U16 | 0: CT 1:Meter<br>Default: 0 | 04H/06H |
| 3265 | Meter Brand | | | | U16 | 0: Acrel<br>1: Estron-3PH<br>2:Rayleigh<br>3: YaDa<br>4: Estron-1PH<br>Default: 0 Acrel | 04H/06H |
| 3266 | Modbus RS485 Timeout<br>(Only for U.K.) | 2 | | Unit: 1s | U16 | 0:Disable<br>1~300:Enable<br>Default: 0 | 04H/06H |
| 3267 | Real-time Inv power setting (not saved) | 2 | | Unit: 1w | U16 | 0~±Rated Power<br>Default: 0 | 04H/06H |
| 3268，<br>3269 | PW (used by kstar only) | | | | | | |
| 3270 | RS485 Power Control Enable | 2 | | | u16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3271 | Reserved | | | | | | |
| 3272 | Real-time Charge Percent(not saved) | 2 | | | u16 | Range: 0~100<br>Default: 100 | 04H/06H |
| 3273 | Real-time Discharge Percent(not saved) | 2 | | | u16 | Range: 0~100<br>Default: 100 | 04H/06H |

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|---|---|---|---|---|---|---|---|
| 3274 | Parallel Enable | 2 | | | u16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3275 | Parallel Address | 2 | | | u16 | Range: 1~4<br>Default: 1 | 04H/06H |
| 3276 | AFCI Enable | 2 | | | u16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3277 | AFCI Level | 2 | | | u16 | Range: 1~9<br>Default: 9 | 04H/06H |
| 3278 | (used by kstar only) | | | | | | |
| 3279 | Silent Mode | 2 | | | u16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3280~3291 | Reserved | | | | | | |
| 3292 | Total battery discharge | 4 | | Kwh | U32 | | 04H |
| 3293 | | | | | | | 04H |
| 3294 | Daily battery discharge | 2 | | 0.1Kwh | U16 | | 04H |
| 3295 | Reserved | 4 | | Kwh | U32 | | 04H |
| 3296 | | | | | | | 04H |
| 3297 | Reserved | 4 | | Kwh | U32 | | 04H |
| 3298 | | | | | | | 04H |
| 3299 | Total battery charge | 4 | | Kwh | U32 | | 04H |
| 3300 | | | | | | | 04H |
| 3301 | Daily battery charge | 2 | | 0.1Kwh | U16 | | 04H |
| 3305 | Parallel Type | | | | | 0：On&Off Grid<br>1：OnGrid<br>Default: 0 | 04H/06H |
| 3306 | Battery Ready | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3307 | 电池 SOC 自检使能<br>Bat SOC SelfCheck Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3308 | 电池 SOC 自检时间<br>Bat SOC SelfCheck Time | | | Day | U16 | Range: 7~100<br>Default: 30 | 04H/06H |
| 3309~3312 | Reserved | | | | | | 04H |
| 3310 | Self-Consumption Charge Start Time 02<br>自发自用充电开始时间 02 | | | | | 0x0730 -> 7:30 am | |

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|---|---|---|---|---|---|---|---|
| 3311 | Self-Consumption Charge End Time 02<br>自发自用充电结束时间 02 | | | | | 0x0730 -> 7:30 am | |
| 3312 | Self-Consumption Charge Power<br>自发自用充电功率限制 | | | 1w | | 0-Rated Power | |
| 3313 | Reserved | 2 | | | | | 04H/06H |
| 3314 | Self-Consumption Charge Enable | 2 | | | | 0:Disable 1:Enable | 04H/06H |
| 3317 | Self-Consumption Charge Start Time | 2 | | | | 0x0730 -> 7:30 am | 04H/06H |
| 3318 | Self-Consumption Charge End Time | 2 | | | | 0x0730 -> 7:30 am | 04H/06H |
| 3326-3440 only for Three Phase inverter | | | | | | | |
| 3326 | Trip: TenMinAvgVolt<br>十分钟平均过压点 | 2 | | 0.1V | U16 | 2400-2650<br>北美：2180-3120 | 04H/06H |
| 3327~3329 | Reserve | | | | U16 | | 04H/06H |
| 3330 | Trip: Over Voltage2<br>二级过压点 | 2 | | 0.1V<br>北美 0.1% | U16 | 2300-2920<br>北美：1100-1200 | 04H/06H |
| 3331 | Trip: OV2 Time<br>二级过压时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3332 | Trip: Over Voltage1<br>一级过压点 | 2 | | 0.1V<br>北美 0.1% | U16 | 2300-2920<br>北美：1100-1200 | 04H/06H |
| 3333 | Trip: OV1 Time<br>一级过压时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3334 | Trip: Under Voltage1<br>一级欠压点 | 2 | | 0.1V<br>北美 0.1% | U16 | 1800-2200<br>北美：0-880 | 04H/06H |
| 3335 | Trip: UV1 Time<br>一级欠压时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3336 | Trip: Under Voltage2<br>二级欠压点 | 2 | | 0.1V<br>北美 0.1% | U16 | 300-2200<br>北美：0-500 | 04H/06H |
| 3337 | Trip: UV2 Time<br>二级欠压时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3338~3343 | Reserve | | | | U16 | | 04H/06H |
| 3344 | Trip: Over Frequency2 | 2 | | 0.01Hz | U16 | 5050-6500 | 04H/06H |

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|---|---|---|---|---|---|---|---|
| | 二级过频点 | | | | | | |
| 3345 | Trip: OF2 Time<br>二级过频时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3346 | Trip: Over Frequency1<br>一级过频点 | 2 | | 0.01Hz | U16 | 5050-6500 | 04H/06H |
| 3347 | Trip: OF1 Time<br>一级过频时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3348 | Trip: Under Frequency1<br>一级欠频点 | 2 | | 0.01Hz | U16 | 4500-5950 | 04H/06H |
| 3349 | Trip: UF1 Time<br>一级欠频时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3350 | Trip: Under Frequency2<br>二级欠频点 | 2 | | 0.01Hz | U16 | 4500-5950 | 04H/06H |
| 3351 | Trip: UF2 Time<br>二级欠频时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| (绿底为北美机型专用 Green Background only for CSA Type) | | | | | | | |
| 3352 | Trip: OF2 Time(Second)<br>二级过频时间（秒） | 2 | | s | U16 | 0-65535 | 04H/06H |
| 3353 | Trip: OF1 Time(Second)<br>一级过频时间（秒） | 2 | | s | U16 | 0-65535 | 04H/06H |
| 3354 | Trip: UF1 Time(Second)<br>一级欠频时间（秒） | 2 | | s | U16 | 0-65535 | 04H/06H |
| 3355 | Trip: UF2 Time(Second)<br>二级欠频时间（秒） | 2 | | s | U16 | 0-65535 | 04H/06H |
| 3356 | QU-V1(Low End)<br>QU-V1 欠压结束 | 2 | | 0.1% | U16 | 700-1300 | 04H/06H |
| 3357 | QU-Q1(Low End)<br>QU-Q1 欠压结束 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3358 | QU-V2(Low Start)<br>QU-V2 欠压起始 | 2 | | 0.1% | U16 | 700-1300 | 04H/06H |
| 3359 | QU-Q2(Low Start)<br>QU-Q2 欠压起始 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3360 | QU-V3(High Start)<br>QU-V3 过压起始 | 2 | | 0.1% | U16 | 700-1300 | 04H/06H |
| 3361 | QU-Q3(High Start) | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |

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|---|---|---|---|---|---|---|---|
| | QU-Q3 过压起始 | | | | | | |
| 3362 | QU-V4(High End)<br>QU-V4 过压结束 | 2 | | 0.1% | U16 | 700-1300 | 04H/06H |
| 3363 | QU-Q4(High End)<br>QU-Q4 过压结束 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3364 | QU-Response Time<br>QU 响应时间 | 2 | | 1ms<br>北美<br>10ms | U16 | 0-65535 | 04H/06H |
| 3365 | QU-MIN PF<br>QU 最小功因设置 | 2 | | 0.01 | S16 | -80~100,80~100 | 04H/06H |
| 3366 | QU-Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3367 | QU-AutoEnable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3368 | QU-AutoTime | | | S | U16 | 0-65535 | 04H/06H |
| 3369 | QU-Vref | | | 0.1% | U16 | | 04H/06H |
| 3370 | P(U)-OVER VOLT-V1<br>过压降额-V1 | 2 | | 0.1V<br>北美 0.1% | U16 | 2300-2760<br>北美：1000-1200 | 04H/06H |
| 3371 | P(U)-OVER VOLT-P1<br>过压降额-P1 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3372 | P(U)-OVER VOLT-V2<br>过压降额-V2 | 2 | | 0.1V<br>北美 0.1% | U16 | 2300-2760<br>北美：1000-1200 | 04H/06H |
| 3373 | P(U)-OVER VOLT-P2<br>过压降额-P2 | 2 | | 0.1% | S16 | -1000-1000 | 04H/06H |
| 3374 | P(U)-OVER VOLT-Time<br>过压降额响应时间 | 2 | | 10ms | U16 | 0-65535 | 04H/06H |
| 3375 | Reserve | 2 | | | | | 04H/06H |
| 3376 | P(U)-UNDER VOLT-V1 | 2 | | 0.1V | U16 | 1840-2300 | 04H/06H |
| 3377 | P(U)-UNDER VOLT-P1 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3378 | P(U)-UNDER VOLT-V2 | 2 | | 0.1V | U16 | 1840-2300 | 04H/06H |
| 3379 | P(U)-UNDER VOLT-P2 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3380 | P(U)-UNDER VOLT-Time | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3381 | Reserve | | | | | | 04H/06H |
| 3382 | Reserve | | | | | | 04H/06H |
| 3383 | P(f)-OVER FREQ –Gradient | 2 | | 0.1%P/Hz | U16 | 1-1000 | 04H/06H |

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|---|---|---|---|---|---|---|---|
| | 过频降额斜率 | | | | | | |
| 3384 | P(f)-OVER FREQ – Time<br>过频降额响应时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3385 | Reserve | | | | | | 04H/06H |
| 3386 | Reserve | 2 | | | | | 04H/06H |
| 3387 | P(f)-UNDER FREQ –Gradient<br>欠频增额斜率 | 2 | | 0.1%P/Hz | U16 | 1-1000 | 04H/06H |
| 3388 | P(f)-UNDER FREQ – Time<br>欠频增额响应时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3389~3390 | | | | | | | |
| 3391 | QP-Generate-P1<br>QP-发电-P1 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3392 | QP-Generate-Q1<br>QP-发电-Q1 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3393 | QP-Generate-P2<br>QP-发电-P2 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3394 | QP-Generate-Q2<br>QP-发电-Q2 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3395 | QP-Generate-P3<br>QP-发电-P3 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3396 | QP-Generate-Q3<br>QP-发电-Q3 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3397~3398 | | | | | | | 04H/06H |
| 3399 | QP-Absorb-P1<br>QP-吸收-P1 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3400 | QP- Absorb –Q1<br>QP-吸收-Q1 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3401 | QP-Absorb-P2<br>QP-吸收-P2 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3402 | QP- Absorb –Q2<br>QP-吸收-Q2 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3403 | QP-Absorb-P3<br>QP-吸收-P3 | 2 | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3404 | QP- Absorb –Q3<br>QP-吸收-Q3 | 2 | | 0.1% | S16 | -600~ +600 | 04H/06H |
| 3405 | QP-Enable | | | | U16 | 0: Disable 1:Enable | 04H/06H |

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|---|---|---|---|---|---|---|---|
| | | | | | | Default: 0 | |
| 3406 | QP-Time | | | ms | U16 | 0-65535 | 04H/06H |
| 3407 | ES Permit service | | | | U16 | 0: Disable 1:Enable<br>Default: 1 | 04H/06H |
| 3408 | ES Voltage High<br>重连电压高 | 2 | | 0.1V<br>北美 0.1% | U16 | 2300-2530<br>北美：1000-1100 | 04H/06H |
| 3409 | ES Voltage Low<br>重连电压低 | 2 | | 0.1V<br>北美 0.1% | U16 | 1840-2300<br>北美：800-1000 | 04H/06H |
| 3410 | ES Frequency High<br>重连频率高 | 2 | | 0.01Hz | U16 | 5000-6500 | 04H/06H |
| 3411 | ES Frequency Low<br>重连频率低 | 2 | | 0.01Hz | U16 | 4500-6000 | 04H/06H |
| 3412 | ES Delay | | | s | U16 | 0-65535 | 04H/06H |
| 3413 | ES Randomized Delay | | | s | U16 | 0-65535 | 04H/06H |
| 3414 | ES Ramp Time | | | s | U16 | 0-65535 | 04H/06H |
| 3415~3416 | reserve 预留 | | | | | | 04H/06H |
| 3417~3421 | 内部使用 | | | | | | |
| 3422 | LVRT Threshold<br>低穿触发电压 | 2 | | 0.1V | U16 | 1600-2400 | 04H/06H |
| 3423 | LVRT LimitMode Threshold<br>低穿受限模式触发电压 | 2 | | 0.1V | U16 | 1600-2400 | 04H/06H |
| 3424 | LVRT ActivePower Recover Time<br>低穿有功功率恢复时间 | 2 | | ms | U16 | 0-65535 | 04H/06H |
| 3425~3427 | | | | | | | |
| 3428 | QP-P1 | | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3429 | QP-PF1 | | | 0.01 | S16 | -80~100,80~100 | 04H/06H |
| 3430 | QP-P2 | | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3431 | QP-PF2 | | | 0.01 | S16 | -80~100,80~100 | 04H/06H |
| 3432 | QP-P3 | | | 0.1% | U16 | 0-1000 | 04H/06H |
| 3433 | QP-PF3 | | | 0.01 | S16 | -80~100,80~100 | 04H/06H |
| 3434 | reserve 预留 | | | | | | 04H/06H |
| 3435 | FixQ-Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3436 | FixQ-Time | | | ms | U16 | 0-65535 | 04H/06H |
| 3437 | reserve 预留 | | | | | | 04H/06H |

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|---|---|---|---|---|---|---|---|
| 3438 | FixPF-Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3439 | FixPF-Time | | | ms | U16 | 0-65535 | 04H/06H |
| 3441 | PACKAdd | | Pack1 | | U16 | | 04H |
| 3442 | PACKWarFlag | | Pack1 | | U16 | description-1 | 04H |
| 3443 | PACKProtectFlag | | Pack1 | | U16 | description-2 | 04H |
| 3444 | PACKStatusFaultFlag | | Pack1 | | U16 | description-3 | 04H |
| 3445 | PackBatVolt | | Pack1 | 0.01V | U16 | | 04H |
| 3446 | PACKCur | | Pack1 | 0.01A | S16 | | 04H |
| 3447 | PACKBalanceStatus | | Pack1 | | U16 | | 04H |
| 3448 | PACKBatCycCnt | | Pack1 | | U16 | | 04H |
| 3449 | PACKSOH | | Pack1 | % | U16 | 0~100 | 04H |
| 3450 | PACKSOC | | Pack1 | % | U16 | 0~100 | 04H |
| 3451 | AccUseTimeOverTemper | | Pack1 | | ~~U16~~ | | 04H |
| 3452 | PackOnline | | Pack1 | | U16 | 0:Off line 1:Online | 04H |
| 3453 | Reserve | | Pack1 | | U16 | | 04H |
| 3454 | PACKDesignCapactiy | | Pack1 | mAh*100 | U16 | | 04H |
| 3455 | PACK ResidualCapacity | | Pack1 | mAh*100 | U16 | | 04H |
| 3456 | PACKTotalCapacity | | Pack1 | mAh*100 | U16 | | 04H |
| 3457 | PACKDischargPowSum | | Pack1 | KWH | U16 | | 04H |
| 3458 | PACKChargPowSum | | Pack1 | KWH | U16 | | 04H |
| 3459 | PACKHeatingRequest | | Pack1 | | U16 | 1: Request heating<br>0:Heating not requested | 04H |
| 3460 | PACKCellAveTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3461 | PACKCellMaxTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3462 | PACKCellMinTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3463 | PACKMosfetAveTempe | | Pack1 | 0.1°C | S16 | | 04H |
| 3464 | PACKMosfetMaxTempe | | Pack1 | 0.1°C | S16 | | 04H |
| 3465 | PACKMosfetMinTempe | | Pack1 | 0.1°C | S16 | | 04H |
| 3466 | PACKEnvirAveTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3467 | PACKEnvirMaxTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3468 | PACKEnvirMinTemper | | Pack1 | 0.1°C | S16 | | 04H |
| 3469 | Ave cell voltage | | Pack1 | 0.01V | U16 | | 04H |
| 3470 | Maximum cell voltage | | Pack1 | 0.01V | U16 | | 04H |
| 3471 | Minimum cell voltage | | Pack1 | 0.01V | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3472 | BMSVersion order0-1 | | Pack1 | ASCII | U16 | | 04H |
| 3473 | BMSVersion order2-3 | | Pack1 | ASCII | U16 | | 04H |
| 3474 | BMSVersion order4-5 | | Pack1 | ASCII | U16 | | 04H |
| 3475~3484 | reserve 预留 | | | | | | |
| 3485 | PACKAdd | | Pack2 | | U16 | | 04H |
| 3486 | PACKWarFlag | | Pack2 | | U16 | description-1 | 04H |
| 3487 | PACKProtectFlag | | Pack2 | | U16 | description-2 | 04H |
| 3488 | PACKStatusFaultFlag | | Pack2 | | U16 | description-3 | 04H |
| 3489 | PackBatVolt | | Pack2 | 0.01V | U16 | | 04H |
| 3490 | PACKCur | | Pack2 | 0.01A | S16 | | 04H |
| 3491 | PACKBalanceStatus | | Pack2 | | U16 | | 04H |
| 3492 | PACKBatCycCnt | | Pack2 | | U16 | | 04H |
| 3493 | PACKSOH | | Pack2 | % | U16 | 0~100 | 04H |
| 3494 | PACKSOC | | Pack2 | % | U16 | 0~100 | 04H |
| 3495 | AccUseTimeOverTemper | | Pack2 | | ~~U16~~ | | 04H |
| 3496 | PackOnline | | Pack2 | | U16 | 0:Off line 1:Online | 04H |
| 3497 | Reserve | | Pack2 | | U16 | | 04H |
| 3498 | PACKDesignCapactiy | | Pack2 | mAh*100 | U16 | | 04H |
| 3499 | PACK ResidualCapacity | | Pack2 | mAh*100 | U16 | | 04H |
| 3500 | PACKTotalCapacity | | Pack2 | mAh*100 | U16 | | 04H |
| 3501 | PACKDischargPowSum | | Pack2 | KWH | U16 | | 04H |
| 3502 | PACKChargPowSum | | Pack2 | KWH | U16 | | 04H |
| 3503 | PACKHeatingRequest | | Pack2 | | U16 | 1: Request heating<br>0:Heating not requested | 04H |
| 3504 | PACKCellAveTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3505 | PACKCellMaxTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3506 | PACKCellMinTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3507 | PACKMosfetAveTempe | | Pack2 | 0.1°C | S16 | | 04H |
| 3508 | PACKMosfetMaxTempe | | Pack2 | 0.1°C | S16 | | 04H |
| 3509 | PACKMosfetMinTempe | | Pack2 | 0.1°C | S16 | | 04H |
| 3510 | PACKEnvirAveTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3511 | PACKEnvirMaxTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3512 | PACKEnvirMinTemper | | Pack2 | 0.1°C | S16 | | 04H |
| 3513 | Ave cell voltage | | Pack2 | 0.01V | U16 | | 04H |
| 3514 | Maximum cell voltage | | Pack2 | 0.01V | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3515 | Minimum cell voltage | | Pack2 | 0.01V | U16 | | 04H |
| 3516 | BMSVersion order0-1 | | Pack2 | ASCII | U16 | | 04H |
| 3517 | BMSVersion order2-3 | | Pack2 | ASCII | U16 | | 04H |
| 3518 | BMSVersion order4-5 | | Pack2 | ASCII | U16 | | 04H |
| 3519~3528 | reserve | | | | | | 04H |
| 3529 | PACKAdd | | Pack3 | | U16 | | 04H |
| 3530 | PACKWarFlag | | Pack3 | | U16 | description-1 | 04H |
| 3531 | PACKProtectFlag | | Pack3 | | U16 | description-2 | 04H |
| 3532 | PACKStatusFaultFlag | | Pack3 | | U16 | description-3 | 04H |
| 3533 | PackBatVolt | | Pack3 | 0.01V | U16 | | 04H |
| 3534 | PACKCur | | Pack3 | 0.01A | S16 | | 04H |
| 3535 | PACKBalanceStatus | | Pack3 | | U16 | | 04H |
| 3536 | PACKBatCycCnt | | Pack3 | | U16 | | 04H |
| 3537 | PACKSOH | | Pack3 | % | U16 | 0~100 | 04H |
| 3538 | PACKSOC | | Pack3 | % | U16 | 0~100 | 04H |
| 3539 | AccUseTimeOverTemper | | Pack3 | | ~~U16~~ | | 04H |
| 3540 | PackOnline | | Pack3 | | U16 | 0:Off line 1:Online | 04H |
| 3541 | Reserve | | Pack3 | | U16 | | 04H |
| 3542 | PACKDesignCapactiy | | Pack3 | mAh*100 | U16 | | 04H |
| 3543 | PACK ResidualCapacity | | Pack3 | mAh*100 | U16 | | 04H |
| 3544 | PACKTotalCapacity | | Pack3 | mAh*100 | U16 | | 04H |
| 3545 | PACKDischargPowSum | | Pack3 | KWH | U16 | | 04H |
| 3546 | PACKChargPowSum | | Pack3 | KWH | U16 | | 04H |
| 3547 | PACKHeatingRequest | | Pack3 | | U16 | 1: Request heating 0:Heating not requested | 04H |
| 3548 | PACKCellAveTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3549 | PACKCellMaxTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3550 | PACKCellMinTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3551 | PACKMosfetAveTempe | | Pack3 | 0.1°C | S16 | | 04H |
| 3552 | PACKMosfetMaxTempe | | Pack3 | 0.1°C | S16 | | 04H |
| 3553 | PACKMosfetMinTempe | | Pack3 | 0.1°C | S16 | | 04H |
| 3554 | PACKEnvirAveTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3555 | PACKEnvirMaxTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3556 | PACKEnvirMinTemper | | Pack3 | 0.1°C | S16 | | 04H |
| 3557 | Ave cell voltage | | Pack3 | 0.01V | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3558 | Maximum cell voltage | | Pack3 | 0.01V | U16 | | 04H |
| 3559 | Minimum cell voltage | | Pack3 | 0.01V | U16 | | 04H |
| 3560 | BMSVersion order0-1 | | Pack3 | ASCII | U16 | | 04H |
| 3561 | BMSVersion order2-3 | | Pack3 | ASCII | U16 | | 04H |
| 3562 | BMSVersion order4-5 | | Pack3 | ASCII | U16 | | 04H |
| 3563~3572 | reserve | | | | | | 04H |
| 3573 | PACKAdd | | Pack4 | | U16 | | 04H |
| 3574 | PACKWarFlag | | Pack4 | | U16 | description-1 | 04H |
| 3575 | PACKProtectFlag | | Pack4 | | U16 | description-2 | 04H |
| 3576 | PACKStatusFaultFlag | | Pack4 | | U16 | description-3 | 04H |
| 3577 | PackBatVolt | | Pack4 | 0.01V | U16 | | 04H |
| 3578 | PACKCur | | Pack4 | 0.01A | S16 | | 04H |
| 3579 | PACKBalanceStatus | | Pack4 | | U16 | | 04H |
| 3580 | PACKBatCycCnt | | Pack4 | | U16 | | 04H |
| 3581 | PACKSOH | | Pack4 | % | U16 | 0~100 | 04H |
| 3582 | PACKSOC | | Pack4 | % | U16 | 0~100 | 04H |
| 3583 | AccUseTimeOverTemper | | Pack4 | | ~~U16~~ | | 04H |
| 3584 | PackOnline | | Pack4 | | U16 | 0:Off line 1:Online | 04H |
| 3585 | Reserve | | Pack4 | | U16 | | 04H |
| 3586 | PACKDesignCapactiy | | Pack4 | mAh*100 | U16 | | 04H |
| 3587 | PACK ResidualCapacity | | Pack4 | mAh*100 | U16 | | 04H |
| 3588 | PACKTotalCapacity | | Pack4 | mAh*100 | U16 | | 04H |
| 3589 | PACKDischargPowSum | | Pack4 | KWH | U16 | | 04H |
| 3590 | PACKChargPowSum | | Pack4 | KWH | U16 | | 04H |
| 3591 | PACKHeatingRequest | | Pack4 | | U16 | 1: Request heating 0:Heating not requested | 04H |
| 3592 | PACKCellAveTemper | | Pack4 | 0.1°C | S16 | | 04H |
| 3593 | PACKCellMaxTemper | | Pack4 | 0.1°C | S16 | | 04H |
| 3594 | PACKCellMinTemper | | Pack4 | 0.1°C | S16 | | 04H |
| 3595 | PACKMosfetAveTempe | | Pack4 | 0.1°C | S16 | | 04H |
| 3596 | PACKMosfetMaxTempe | | Pack4 | 0.1°C | S16 | | 04H |
| 3597 | PACKMosfetMinTempe | | Pack4 | 0.1°C | S16 | | 04H |
| 3598 | PACKEnvirAveTemper | | Pack4 | 0.1°C | S16 | | 04H |
| 3599 | PACKEnvirMaxTemper | | Pack4 | 0.1°C | S16 | | 04H |
| 3600 | PACKEnvirMinTemper | | Pack4 | 0.1°C | S16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3601 | Ave cell voltage | | Pack4 | 0.01V | U16 | | 04H |
| 3602 | Maximum cell voltage | | Pack4 | 0.01V | U16 | | 04H |
| 3603 | Minimum cell voltage | | Pack4 | 0.01V | U16 | | 04H |
| 3604 | BMSVersion order0-1 | | Pack4 | ASCII | U16 | | 04H |
| 3605 | BMSVersion order2-3 | | Pack4 | ASCII | U16 | | 04H |
| 3606 | BMSVersion order4-5 | | Pack4 | ASCII | U16 | | 04H |
| 3607~3616 | reserve | | | | | | 04H |
| 3617 | PACKAdd | | Pack5 | | U16 | | 04H |
| 3618 | PACKWarFlag | | Pack5 | | U16 | description-1 | 04H |
| 3619 | PACKProtectFlag | | Pack5 | | U16 | description-2 | 04H |
| 3620 | PACKStatusFaultFlag | | Pack5 | | U16 | description-3 | 04H |
| 3621 | PackBatVolt | | Pack5 | 0.01V | U16 | | 04H |
| 3622 | PACKCur | | Pack5 | 0.01A | S16 | | 04H |
| 3623 | PACKBalanceStatus | | Pack5 | | U16 | | 04H |
| 3624 | PACKBatCycCnt | | Pack5 | | U16 | | 04H |
| 3625 | PACKSOH | | Pack5 | % | U16 | 0~100 | 04H |
| 3626 | PACKSOC | | Pack5 | % | U16 | 0~100 | 04H |
| 3627 | AccUseTimeOverTemper | | Pack5 | | ~~U16~~ | | 04H |
| 3628 | PackOnline | | Pack5 | | U16 | 0:Off line 1:Online | 04H |
| 3629 | Reserve | | Pack5 | | U16 | | 04H |
| 3630 | PACKDesignCapactiy | | Pack5 | mAh*100 | U16 | | 04H |
| 3631 | PACK ResidualCapacity | | Pack5 | mAh*100 | U16 | | 04H |
| 3632 | PACKTotalCapacity | | Pack5 | mAh*100 | U16 | | 04H |
| 3633 | PACKDischargPowSum | | Pack5 | KWH | U16 | | 04H |
| 3634 | PACKChargPowSum | | Pack5 | KWH | U16 | | 04H |
| 3635 | PACKHeatingRequest | | Pack5 | | U16 | 1: Request heating 0:Heating not requested | 04H |
| 3636 | PACKCellAveTemper | | Pack5 | 0.1°C | S16 | | 04H |
| 3637 | PACKCellMaxTemper | | Pack5 | 0.1°C | S16 | | 04H |
| 3638 | PACKCellMinTemper | | Pack5 | 0.1°C | S16 | | 04H |
| 3639 | PACKMosfetAveTempe | | Pack5 | 0.1°C | S16 | | 04H |
| 3640 | PACKMosfetMaxTempe | | Pack5 | 0.1°C | S16 | | 04H |
| 3641 | PACKMosfetMinTempe | | Pack5 | 0.1°C | S16 | | 04H |
| 3642 | PACKEnvirAveTemper | | Pack5 | 0.1°C | S16 | | 04H |
| 3643 | PACKEnvirMaxTemper | | Pack5 | 0.1°C | S16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3644 | PACKEnvirMinTemper | | Pack5 | 0.1°C | S16 | | 04H |
| 3645 | Ave cell voltage | | Pack5 | 0.01V | U16 | | 04H |
| 3646 | Maximum cell voltage | | Pack5 | 0.01V | U16 | | 04H |
| 3647 | Minimum cell voltage | | Pack5 | 0.01V | U16 | | 04H |
| 3648 | BMSVersion order0-1 | | Pack5 | ASCII | U16 | | 04H |
| 3649 | BMSVersion order2-3 | | Pack5 | ASCII | U16 | | 04H |
| 3650 | BMSVersion order4-5 | | Pack5 | ASCII | U16 | | 04H |
| 3651~3660 | Reserve | | | | | | |
| | **（Note：Pack 6、7、8 only for three phase model，unreadable on single phase model）** | | | | | | |
| 3661 | PACKAdd | | Pack6 | | U16 | | 04H |
| 3662 | PACKWarFlag | | Pack6 | | U16 | description-1 | 04H |
| 3663 | PACKProtectFlag | | Pack6 | | U16 | description-2 | 04H |
| 3664 | PACKStatusFaultFlag | | Pack6 | | U16 | description-3 | 04H |
| 3665 | PackBatVolt | | Pack6 | 0.01V | U16 | | 04H |
| 3666 | PACKCur | | Pack6 | 0.01A | S16 | | 04H |
| 3667 | PACKBalanceStatus | | Pack6 | | U16 | | 04H |
| 3668 | PACKBatCycCnt | | Pack6 | | U16 | | 04H |
| 3669 | PACKSOH | | Pack6 | % | U16 | 0~100 | 04H |
| 3670 | PACKSOC | | Pack6 | % | U16 | 0~100 | 04H |
| 3671 | AccUseTimeOverTemper | | Pack6 | | ~~U16~~ | | ~~04H~~ |
| 3672 | PackOnline | | Pack6 | | U16 | 0:Off line 1:Online | 04H |
| 3673 | Reserve | | Pack6 | | U16 | | 04H |
| 3674 | PACKDesignCapactiy | | Pack6 | mAh*100 | U16 | | 04H |
| 3675 | PACK ResidualCapacity | | Pack6 | mAh*100 | U16 | | 04H |
| 3676 | PACKTotalCapacity | | Pack6 | mAh*100 | U16 | | 04H |
| 3677 | PACKDischargPowSum | | Pack6 | KWH | U16 | | 04H |
| 3678 | PACKChargPowSum | | Pack6 | KWH | U16 | | 04H |
| 3679 | PACKHeatingRequest | | Pack6 | | U16 | 1: Request heating<br>0:Heating not requested | 04H |
| 3680 | PACKCellAveTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3681 | PACKCellMaxTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3682 | PACKCellMinTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3683 | PACKMosfetAveTempe | | Pack6 | 0.1°C | S16 | | 04H |
| 3684 | PACKMosfetMaxTempe | | Pack6 | 0.1°C | S16 | | 04H |
| 3685 | PACKMosfetMinTempe | | Pack6 | 0.1°C | S16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3686 | PACKEnvirAveTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3687 | PACKEnvirMaxTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3688 | PACKEnvirMinTemper | | Pack6 | 0.1°C | S16 | | 04H |
| 3689 | Ave cell voltage | | Pack6 | 0.01V | U16 | | 04H |
| 3690 | Maximum cell voltage | | Pack6 | 0.01V | U16 | | 04H |
| 3691 | Minimum cell voltage | | Pack6 | 0.01V | U16 | | 04H |
| 3692 | BMSVersion order0-1 | | Pack6 | ASCII | U16 | | 04H |
| 3693 | BMSVersion order2-3 | | Pack6 | ASCII | U16 | | 04H |
| 3694 | BMSVersion order4-5 | | Pack6 | ASCII | U16 | | 04H |
| 3695~3704 | Reserve | | | | | | |
| 3705 | PACKAdd | | Pack7 | | U16 | | 04H |
| 3706 | PACKWarFlag | | Pack7 | | U16 | description-1 | 04H |
| 3707 | PACKProtectFlag | | Pack7 | | U16 | description-2 | 04H |
| 3708 | PACKStatusFaultFlag | | Pack7 | | U16 | description-3 | 04H |
| 3709 | PackBatVolt | | Pack7 | 0.01V | U16 | | 04H |
| 3710 | PACKCur | | Pack7 | 0.01A | S16 | | 04H |
| 3711 | PACKBalanceStatus | | Pack7 | | U16 | | 04H |
| 3712 | PACKBatCycCnt | | Pack7 | | U16 | | 04H |
| 3713 | PACKSOH | | Pack7 | % | U16 | 0~100 | 04H |
| 3714 | PACKSOC | | Pack7 | % | U16 | 0~100 | 04H |
| 3715 | AccUseTimeOverTemper | | Pack7 | | ~~U16~~ | | ~~04H~~ |
| 3716 | PackOnline | | Pack7 | | U16 | 0:Off line 1:Online | 04H |
| 3717 | Reserve | | Pack7 | | U16 | | 04H |
| 3718 | PACKDesignCapactiy | | Pack7 | mAh*100 | U16 | | 04H |
| 3719 | PACK ResidualCapacity | | Pack7 | mAh*100 | U16 | | 04H |
| 3720 | PACKTotalCapacity | | Pack7 | mAh*100 | U16 | | 04H |
| 3721 | PACKDischargPowSum | | Pack7 | KWH | U16 | | 04H |
| 3722 | PACKChargPowSum | | Pack7 | KWH | U16 | | 04H |
| 3723 | PACKHeatingRequest | | Pack7 | | U16 | 1: Request heating 0:Heating not requested | 04H |
| 3724 | PACKCellAveTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3725 | PACKCellMaxTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3726 | PACKCellMinTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3727 | PACKMosfetAveTempe | | Pack7 | 0.1°C | S16 | | 04H |
| 3728 | PACKMosfetMaxTempe | | Pack7 | 0.1°C | S16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3729 | PACKMosfetMinTempe | | Pack7 | 0.1°C | S16 | | 04H |
| 3730 | PACKEnvirAveTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3731 | PACKEnvirMaxTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3732 | PACKEnvirMinTemper | | Pack7 | 0.1°C | S16 | | 04H |
| 3733 | Ave cell voltage | | Pack7 | 0.01V | U16 | | 04H |
| 3734 | Maximum cell voltage | | Pack7 | 0.01V | U16 | | 04H |
| 3735 | Minimum cell voltage | | Pack7 | 0.01V | U16 | | 04H |
| 3736 | BMSVersion order0-1 | | Pack7 | ASCII | U16 | | 04H |
| 3737 | BMSVersion order2-3 | | Pack7 | ASCII | U16 | | 04H |
| 3738 | BMSVersion order4-5 | | Pack7 | ASCII | U16 | | 04H |
| 3739~3748 | Reserve | | | | | | |
| 3749 | PACKAdd | | Pack8 | | U16 | | 04H |
| 3750 | PACKWarFlag | | Pack8 | | U16 | description-1 | 04H |
| 3751 | PACKProtectFlag | | Pack8 | | U16 | description-2 | 04H |
| 3752 | PACKStatusFaultFlag | | Pack8 | | U16 | description-3 | 04H |
| 3753 | PackBatVolt | | Pack8 | 0.01V | U16 | | 04H |
| 3754 | PACKCur | | Pack8 | 0.01A | S16 | | 04H |
| 3755 | PACKBalanceStatus | | Pack8 | | U16 | | 04H |
| 3756 | PACKBatCycCnt | | Pack8 | | U16 | | 04H |
| 3757 | PACKSOH | | Pack8 | % | U16 | 0~100 | 04H |
| 3758 | PACKSOC | | Pack8 | % | U16 | 0~100 | 04H |
| 3759 | AccUseTimeOverTemper | | Pack8 | | ~~U16~~ | | ~~04H~~ |
| 3760 | PackOnline | | Pack8 | | U16 | 0:Off line 1:Online | 04H |
| 3761 | Reserve | | Pack8 | | U16 | | 04H |
| 3762 | PACKDesignCapactiy | | Pack8 | mAh*100 | U16 | | 04H |
| 3763 | PACK ResidualCapacity | | Pack8 | mAh*100 | U16 | | 04H |
| 3764 | PACKTotalCapacity | | Pack8 | mAh*100 | U16 | | 04H |
| 3765 | PACKDischargPowSum | | Pack8 | KWH | U16 | | 04H |
| 3766 | PACKChargPowSum | | Pack8 | KWH | U16 | | 04H |
| 3767 | PACKHeatingRequest | | Pack8 | | U16 | 1: Request heating 0:Heating not requested | 04H |
| 3768 | PACKCellAveTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3769 | PACKCellMaxTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3770 | PACKCellMinTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3771 | PACKMosfetAveTempe | | Pack8 | 0.1°C | S16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3772 | PACKMosfetMaxTempe | | Pack8 | 0.1°C | S16 | | 04H |
| 3773 | PACKMosfetMinTempe | | Pack8 | 0.1°C | S16 | | 04H |
| 3774 | PACKEnvirAveTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3775 | PACKEnvirMaxTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3776 | PACKEnvirMinTemper | | Pack8 | 0.1°C | S16 | | 04H |
| 3777 | Ave cell voltage | | Pack8 | 0.01V | U16 | | 04H |
| 3778 | Maximum cell voltage | | Pack8 | 0.01V | U16 | | 04H |
| 3779 | Minimum cell voltage | | Pack8 | 0.01V | U16 | | 04H |
| 3780 | BMSVersion order0-1 | | Pack8 | ASCII | U16 | | 04H |
| 3781 | BMSVersion order2-3 | | Pack8 | ASCII | U16 | | 04H |
| 3782 | BMSVersion order4-5 | | Pack8 | ASCII | U16 | | 04H |
| 3900 | Heat Pump Enable<br>热泵使能 | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | |
| 3901 | Heat Pump PowerSet | | | | U16 | | |
| 3902 | Heat Pump Start Time | | | | U16 | | |
| 3903 | Heat Pump End Time | | | | U16 | | |
| 3904 | Heat Pump SOC Set | | | | U16 | | |
| 3905 | CT 自检成功日期<br>(Only for kstar) | | | | U16 | 0x0730 -> 7/30 | |
| 3906 | CT 自检成功时分<br>(Only for kstar) | | | | U16 | 0x0730 -> 7:30 | |
| 3907 | 零地电压检测使能<br>PEN Check Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | |
| 3908 | 零地电压检测值<br>PEN Check Volt | | | 0.1V | U16 | Range: 0~1200<br>Default: 600 | |
| 3909 | 需量控制使能<br>DemandCtrl Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | |
| 3910 | 需量控制功率值<br>DemandCtrl Power | | | 1w | U16 | Range:500~50000<br>Default: RatedPower | |
| 3911 | 削峰填谷功率控制使能<br>PeakShavingPower Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | |
| 3912 | 峰值功率<br>Peak Power | | | 1w | U16 | Range: 0~50000<br>Default: | |
| 3913 | 谷值功率<br>Valley Power | | | 1w | U16 | Range: 0~50000<br>Default: | |
| 3914~3949 | 预留 | | | | | | |

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|---|---|---|---|---|---|---|---|
| 3914 | 风扇控制方式（E6KS）<br>FAN Ctrl Mode | | | | U16 | 0 自动 1 手动<br>Default:0 | 04H/06H |
| 3915 | 风扇转速（E6KS）<br>FAN Speed | | | 1rpm | U16 | Range: 0~5000<br>Default: | 04H |
| 3916 | 风扇占空比（E6KS）<br>FAN Duty | | | 1% | U16 | Range: 0%~100%<br>Default: | 04H/06H |
| 3917 | ATE 测试使能（E6KS）<br>ATE Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3918 | ATE 测试结果（E6KS）<br>ATE Result | | | | U32 | 表 3.1.13 | 04H |
| 3920 | R 相 Backup 电压校准系数<br>R-Backup Volt Calibrate | | | | U16 | Default:4096<br>Range:3686~4505 | 04H/06H |
| 3921 | 预留 | | | | U16 | | 04H/06H |
| 3922 | 预留 | | | | U16 | | 04H/06H |
| 3923 | R 相 Backup 电流校准系数<br>R-Backup Current Calibrate | | | | U16 | Default:4096<br>Range:3686~4505 | 04H/06H |
| 3924 | 预留 | | | | U16 | | 04H/06H |
| 3925 | 预留 | | | | U16 | | 04H/06H |
| 3926 | R 相逆变电压校准系数<br>R-INV Volt Calibrate | | | | U16 | Default:4096<br>Range:3686~4505 | 04H/06H |
| 3927 | 预留 | | | | U16 | | 04H/06H |
| 3928 | 预留 | | | | U16 | | 04H/06H |
| 3929 | R 相逆变电流校准系数<br>R-INV Current Calibrate | | | | U16 | Default:4096<br>Range:3686~4505 | 04H/06H |
| 3930 | 预留 | | | | U16 | | 04H/06H |
| 3931 | 预留 | | | | U16 | | 04H/06H |
| 3932 | 老化使能（E6KS）<br>Aging Enable | | | | U16 | 0: Disable 1:Enable<br>Default: 0 | 04H/06H |
| 3933~3949 | 预留 | | | | | | 04H |
| 3950 | Active power rating at unity power factor (nameplate active power rating) | | | 1 watts | U16 | Only for CSA E15KD | 04H |
| 3951 | Active power rating at specified over-excited power factor | | | 1 watts | U16 | | 04H |
| 3952 | Specified over-excited power | | | 0.01 | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| | factor | | | | | | |
| 3953 | Active power rating at specified under-excited power factor | | | 1 watts | U16 | | 04H |
| 3954 | Specified under-excited power factor | | | 0.01 | U16 | | 04H |
| 3955 | Apparent power maximum rating | | | 1 voltamperes | U16 | | 04H |
| 3956 | Normal operating performance category | | | | U16 | | 04H |
| 3957 | Abnormal operating performance category | | | | U16 | | 04H |
| 3958 | Reactive power injected maximum rating | | | 1 vars | U16 | | 04H |
| 3959 | Ractive power absorbed maximum rating | | | 1 vars | U16 | | 04H |
| 3960 | Active power charge maximum rating | | | 1 watts | U16 | | 04H |
| 3961 | Apprarent power charge maximum rating | | | 1 voltamperes | U16 | | 04H |
| 3962 | AC voltage nominal rating | | | 1 rms volts | U16 | | 04H |
| 3963 | AC voltage maximum rating | | | 1 rms volts | U16 | | 04H |
| 3964 | AC voltage minimum rating | | | 1 rms volts | U16 | | 04H |
| 3965,3966 | Supported control mode functions | | | | U32 | | 04H |
| 3967 | Reactive susceptance that remains connected to the Area EPS in the cease to energize and trip state | | | 1 siemens | U16 | | 04H |
| 3968,3969 | Manufacturer | | | | U32 | | 04H |
| 3970~3979 | Reserved 预留 | | | | | | |
| 3980 | Operational state | | | | U16 | | 04H |

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|---|---|---|---|---|---|---|---|
| 3981 | Connection status | | | | U16 | | 04H |
| 3982 | Alarm status | | | | U16 | | 04H |
| 3983 | InverterStatusType | | | | U16 | | 04H |
| ~3999 | Reserved 预留 | | | | | | 04H |
| 4050 | 削峰填谷 充电开始时间 3 | 4 | 320 | ASCII | U32 | 表 3.3.3 | 04H/10H |
| 4051 | TOU Charge Start Time-3 | | | 字符 | | | 04H |
| 4052 | 削峰填谷 充电截止时间 3 | 4 | 324 | ASCII | U32 | | 04H |
| 4053 | TOU Charge End Time-3 | | | 字符 | | | 04H |
| 4054 | 削峰填谷 放电开始时间 3 | 4 | 328 | ASCII | U32 | | 04H |
| 4055 | TOU Discharge Start Time-3 | | | 字符 | | | 04H |
| 4056 | 削峰填谷 放电截止时间 3 | 4 | 332 | ASCII | U32 | | 04H |
| 4057 | TOU Discharge End Time-3 | | | 字符 | | | 04H |
| 4058 | 削峰填谷 充电开始时间 4 | 4 | 320 | ASCII | U32 | | 04H/10H |
| 4059 | TOU Charge Start Time-4 | | | 字符 | | | 04H |
| 4060 | 削峰填谷 充电截止时间 4 | 4 | 324 | ASCII | U32 | | 04H |
| 4061 | TOU Charge End Time-4 | | | 字符 | | | 04H |
| 4062 | 削峰填谷 放电开始时间 4 | 4 | 328 | ASCII | U32 | | 04H |
| 4063 | TOU Discharge Start Time-4 | | | 字符 | | | 04H |
| 4064 | 削峰填谷 放电截止时间 4 | 4 | 332 | ASCII | U32 | | 04H |
| 4065 | TOU Discharge End Time-4 | | | 字符 | | | 04H |
| 4066 | 削峰填谷 充电开始时间 5 | 4 | 320 | ASCII | U32 | | 04H/10H |
| 4067 | TOU Charge Start Time-5 | | | 字符 | | | 04H |
| 4068 | 削峰填谷 充电截止时间 5 | 4 | 324 | ASCII | U32 | | 04H |
| 4069 | TOU Charge End Time-5 | | | 字符 | | | 04H |
| 4070 | 削峰填谷 放电开始时间 5 | 4 | 328 | ASCII | U32 | | 04H |
| 4071 | TOU Discharge Start Time-5 | | | 字符 | | | 04H |
| 4072 | 削峰填谷 放电截止时间 5 | 4 | 332 | ASCII | U32 | | 04H |
| 4073 | TOU Discharge End Time-5 | | | 字符 | | | 04H |
| 4074 | Reserved | | | | | | |

Table 3.1.2

| S/N | Content | Code | Chinese description | English description |
|---|---|---|---|---|
| 0 | Bit0 | W00 | 电网电压低 | Grid Volt Low |
| 1 | Bit1 | W01 | 电网电压高 | Grid Volt High |
| 2 | Bit2 | W02 | 电网频率低 | Grid Frequency Low |

| | | | | |
|---|---|---|---|---|
| 3 | Bit3 | W03 | 电网频率高 | Grid Frequency High |
| 4 | Bit4 | W04 | PV 未接 | Solar Loss |
| 5 | Bit5 | W05 | 电池未连接 | Bat Loss |
| 6 | Bit6 | W06 | 电池欠压 | Bat Under Volt |
| 7 | Bit7 | W07 | 电池电压低 | Bat Volt Low |
| 8 | Bit8 | W08 | 电池电压高 | Bat Volt High |
| 9 | Bit9 | W09 | 过载报警 | Over Load |
| 10 | Bit10 | W10 | 漏电流高 | GFCI Over |
| 11 | Bit11 | W11 | LN 反接 | LN Fault |
| 12 | Bit12 | W12 | 风扇故障 | Fan Fault |
| 13 | Bit13 | W13 | 电池容量低关机 | Bat CapUnder |
| 14 | Bit14 | W14 | BMS 放电过流 | Bms DisChg Over |
| 15 | Bit15 | W15 | BMS 充电过流 | Bms Chg Over |
| 16 | Bit16 | W16 | BMS 总压高 | Bms Volt Over |
| 17 | Bit17 | W17 | BMS 过温 | Bms Temp Over |
| 18 | Bit18 | W18 | BMS 放电低温 | Bms Dis Temp Low |
| 19 | Bit19 | W19 | BMS 单体不平衡 | Bms Volt Imbalance |
| 20 | Bit20 | W20 | BMS 通讯异常 | Bms Communicate Fault |
| 21 | Bit21 | W21 | BMS 电池欠压 | Bms Volt Under |
| 22 | Bit22 | W22 | BMS 充电低温保护 | Bms Chg Temp Low |
| 23 | Bit23 | W23 | BMS 电池轻微过压 | Bms_VoltHigh |
| 24 | Bit24 | W24 | BMS 电池轻微过温 | Bms_TempHigh |
| 25 | Bit25 | W25 | BMS 内部程序升级中 | Bms_Updating |
| 26 | Bit26 | W26 | BMS 程序版本号不一致 | Bms_VersionErr |
| 27 | Bit27 | W27 | BMS 程序升级失败 | Bms_UpdateFail |
| 28 | Bit28 | W28 | CT 接反 | CT Converse |
| 29 | Bit29 | W29 | 时钟告警 | Clock Fail |
| 30 | Bit30 | W30 | PV 关机 | PV off |
| 31 | Bit31 | W31 | 系统复位 | System Reset |

Table 3.1.3

| S/N | Content | Code | Chinese description | English description |
|---|---|---|---|---|
| 0 | Bit0 | F00 | 软启超时 | Soft Time Out |
| 1 | Bit1 | F01 | 逆变器输出短路 | INV Volt Short |
| 2 | Bit2 | F02 | GFCI 传感器异常 | GFCI Sensor Fault |
| 3 | Bit3 | F03 | | |

| | | | | |
|---|---|---|---|---|
| 4 | Bit4 | F04 | 母线电压低 | Bus Low Fault |
| 5 | Bit5 | F05 | 母线电压高 | Bus High Fault |
| 6 | Bit6 | F06 | 母线短路 | Bus Short Fault |
| 7 | Bit7 | F07 | PV 绝缘阻抗低 | PV ISO Under Fault |
| 8 | Bit8 | F08 | PV 输入短路 | PV Input Short |
| 9 | Bit9 | F09 | 旁路继电器故障 | Op Relay Fault |
| 10 | Bit10 | F10 | 逆变过流 | INV Curr Over |
| 11 | Bit11 | F11 | 直流分量高 | INV DC Over |
| 12 | Bit12 | F12 | 箱体内环境过温 | Ambient Over Temp |
| 13 | Bit13 | F13 | 散热器过温 | Sink Over Temp |
| 14 | Bit14 | F14 | 并网继电器异常 | Grid Relay Fault |
| 15 | Bit15 | F15 | 电池放电过流 | DisChg Curr Over |
| 16 | Bit16 | F16 | 电池充电过流 | Chg Curr Over |
| 17 | Bit17 | F17 | 电流传感器错误 | Current Sensor Fault |
| 18 | Bit18 | F18 | 逆变输出异常 | INV Abnormal |
| 19 | Bit19 | F19 | 后备继电器错误 | EPS Relay Fault |
| 20 | Bit20 | F20 | 总是过载 | Always over load |
| 21 | Bit21 | F21 | DSP 之间 SPI 通讯故障 | SPI Fault Between DSP |
| 22 | Bit22 | F22 | 并机通讯故障 | Parallel Communicate Fault |
| 23 | Bit23 | F23 | 并机市电异常 | Parallel Grid Abnormal |
| 24 | Bit24 | F24 | BackUp 空开异常 | BackUp Air Switch Abnormal |
| 25 | Bit25 | F25 | 并机功率不平衡 | Parallel Power Imbalance |
| 26 | Bit26 | F26 | 并机逆变器电网相序异常 | Parallel Inverter Grid Phase Sequence Abnormal |
| 31 | Bit31 | F31 | 主从通讯错误 | SCI Fault |

Table 3.1.4

| S/N | Content | Chinese description description |
|---|---|---|
| 0 | 00H | initialize |
| 1 | 01H | standby |
| 2 | 02H | Hybrid grid |
| 3 | 03H | off-network |
| 4 | 04H | Mains charging |
| 5 | 05H | PV charging |
| 6 | 06H | Mains bypass |

| | | |
|---|---|---|
| 7 | 07H | fault |
| 8 | 08H | Debug |
| 9 | 09H | forced charge |
| 10 | 0AH | Power on the device separately from the |
| 11 | 0BH | DSP burn |
| 12 | 0CH | MCU burn |
| 13 | 0DH | permanent error |

Note: When the inverter is in system initialization, the communication data is invalid.。

Table 3.1.5

| S/N | Content | Inverter Model | Rated Power | Type |
|---|---|---|---|---|
| 0 | 00H | KSE-2K-048S | 2k | Single Phase Model |
| 1 | 01H | KSE-3K-048S | 3k | |
| 2 | 02H | KSE-3.6K-048S | 3.6k | |
| 3 | 03H | KSE-4.6K-048S | 4.6k | |
| 4 | 04H | KSE-5K-048S | 5k | |
| 5 | 05H | KSE-3.6K-048 | 3.6k | |
| 6 | 06H | KSE-4.6K-048 | 4.6k | |
| 7 | 07H | KSE-5K-048 | 5k | |
| 8 | 08H | KSE-6K-048 | 6k | |
| 9 | 09H | BluE-S 3680D | 3.68k | |
| 10 | 0AH | reserve | | |
| 11 | 0BH | BluE-S 5000D | 5k | |
| 12 | 0CH | BluE-S 6000D | 6k | |
| 13 | 0DH | reserve | | |
| 14 | 0EH | KSE-3K-048S M1 | 3k | |
| 15 | 0FH | BluE-S 3680D M1 | 3.68k | |
| 16 | 10H | reserve | | |
| 17 | 11H | BluE-S 5000D M1 | 5k | |
| 18 | 12H | BluE-S 6000D M1 | 6k | |
| 19~31 | 13H~1FH | reserve | | |
| 32 | 20H | E10KT | 10k | Three phase model |
| 33 | 21H | E8KT | 8k | |
| 34 | 22H | E12KT | 12k | |
| 35~47 | 23H~2FH | reserve | | |

Table 3.1.7

| S/N | Content | Code | Chinese description | English description description |
| --- | --- | --- | --- | --- |
| 0 | 0 位 | F32 | Communication | Error in communication with the DSP |

Table 3.1.8

| S/N | Content | Input Model |
| --- | --- | --- |
| 0 | 00H | Independent input mode |
| 1 | 01H | Parallel input mode |
| 2 | 02H | Constant voltage input mode |

Table 3.1.9

| S/N | Content | On-Grid standards |
| --- | --- | --- |
| 0 | 00H | China |
| 1 | 01H | Germany |
| 2 | 02H | Australia |
| 3 | 03H | Italy |
| 4 | 04H | Spanish |
| 5 | 05H | UK |
| 6 | 06H | Hungary |
| 7 | 07H | Belgium |
| 8 | 08H | West Australia |
| 9 | 09H | Greece |
| 10 | 0AH | France |
| 11 | 0BH | Bankok |
| 12 | 0CH | Tailand |
| 13 | 0DH | South Africa |
| 14 | 0EH | EN50549 |
| 15 | 0FH | Brazil |
| 16 | 10H | VDE0126 |
| 17 | 11H | Ireland |
| 18 | 12H | Israel |
| 19 | 13H | Poland |
| 20 | 14H | Chile |
| 21 | 15H | Local |
| 22 | 16H | 60Hz |

| | | |
|---|---|---|
| 23 | 17H | Danmark |
| 24 | 18H | Sweden |
| 25 | 19H | Austria |
| 26 | 1AH | Czech |
| 27-255 | 1AH-FFH | Reserved |

Table 3.1.9.1

| GridSubdivide | 0 | 1 | 2 |
|---|---|---|---|
| Italy | CEI0-21 | CEI0-21 ACEA | |
| Australia | AUS_A | AUS_B | AUS_C |
| Chile | CHILE_BT | CHILE_HD | CHILE_LD |

Table 3.1.10

| S/N | Content | Remark |
|---|---|---|
| 0 | 00H | Standby |
| 1 | 01H | Off-grid |
| 2 | 02H | On-grid |
| 3 | 03H | Off-grid to On-grid |
| 4 | 04H | On-grid to Off-grid |

Table 3.1.11

| S/N | Content | Remark |
|---|---|---|
| 0 | 00H | Standby |
| 1 | 01H | Soft boot |
| 2 | 02H | Charging mode |
| 3 | 03H | Discharging mode |

Table 3.1.12

| Working Mode | Remark | |
|---|---|---|
| Self Consumption/Battery Priority | Invalid | |
| PEAK SFT | 0 | Untimed Charge/Discharge |
| | 1 | Timing Discharge |
| | 2 | Timing Charge |

Table 3.1.13

| S/N | Content | Remark |
|---|---|---|
| 0 | 00H | Normal |
| 1 | 01H | GFCI high |
| 2 | 02H | Grid Voltage loss |

| | | |
|---|---|---|
| 3 | 03H | Grid Frequency loss |

description-1

| | Warning Flag |
|---|---|
| BIT0 | The battery core overvoltage alarm is generated |
| BIT1 | Battery core overvoltage Alarm Battery core low voltage alarm If the fault is reported during discharge and the fault is not reported during charging, it can be interpreted as being cleared |
| BIT2 | The battery pack overvoltage alarm is generated |
| BIT3 | The battery pack low voltage alarm is generated |
| BIT4 | Charging overcurrent alarm is generated |
| BIT5 | The discharge overcurrent alarm is generated |
| BIT6 | reserved |
| BIT7 | reserved |
| BIT8 | Charging high temperature alarm (core temperature) |
| BIT9 | Discharge high temperature alarm (core temperature) |
| BIT10 | Charging low temperature alarm (core temperature) |
| BIT11 | Discharge low temperature alarm (core temperature) |
| BIT12 | The ambient temperature is too high |
| BIT13 | The ambient temperature is too low |
| BIT14 | MOSFET High temperature alarm |

| | |
| --- | --- |
| BIT15 | SOC low alarm |

description-2

| | Protecting Flag |
| --- | --- |
| BIT0 | Battery cell overvoltage protection |
| BIT1 | Battery cell low voltage protection |
| BIT2 | Battery pack overvoltage protection |
| BIT3 | Battery pack low voltage protection |
| BIT4 | Charging overcurrent protection |
| BIT5 | Discharge overcurrent protection |
| BIT6 | Short circuit current protection |
| BIT7 | Charging overvoltage protection |
| BIT8 | Charging high temperature protection (cell temperature) |
| BIT9 | Discharge high temperature protection (cell temperature) |
| BIT10 | Charge low temperature protection (cell temperature) |
| BIT11 | Discharge low temperature protection (cell temperature) |
| BIT12 | MOSFET high temperature protection |
| BIT13 | High ambient temperature protection |
| BIT14 | Low ambient temperature protection |
| BIT15 | reserved |

description-3

| | Status/Fault Flag |
| --- | --- |
| BIT0 | The charging MOSFET is faulty |

| | |
|---|---|
| BIT1 | The discharge MOSFET is faulty |
| BIT2 | Temperature sensor failure |
| BIT3 | Cell sampling failure |
| BIT4 | The battery core is faulty |
| BIT5 | The front-end sampling communication is faulty |
| BIT6 | Heated Mos fault |
| BIT7 | The inverter shuts down the battery pack |
| BIT8 | charging state |
| BIT9 | Dischargung state |
| BIT10 | 1: Charging MOSFET is on<br>0: The charging MOSFET is off |
| BIT11 | 1: The discharge MOSFET is on<br>0: The discharge MOSFET is off |
| BIT12 | 1: Discharge limit is enabled<br>0: The discharge limit is off |
| BIT13 | Circuit breaker on/off state (0 off and 1 in) |
| BIT14 | Charging the reverse |
| BIT15 | 1: The heater is turned on<br>0: The heater is off |

### 3.1. Inverter system information (03H)

Table 3.2.1

| Register Address | Item | Byte | Byte No. | Data Type | Remark | FUNC |
|---|---|---|---|---|---|---|
| 3200-3207 | Inverter Model（char） | 16 | | U8 | ASCII char | 03H |
| 3208-3215 | Battery name（char） | 16 | | U8 | ASCII char | 03H |
| 3216 | ARM version number | 1 | | U8 | 10 refers to V1.0 | 03H |
| | ARM testing version number | 1 | | U8 | Note 1 | 03H |
| 3217 | DSP version number | 1 | | U8 | 10 refers to V1.0 | 03H |
| | DSP testing version number | 1 | | U8 | Note 1 | 03H |
| 3218 | DSP2 version number | 1 | | U8 | Only for Three Phase Model | 03H |
| | DSP2 testing version number | 1 | | U8 | | 03H |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | （refer to 3.1.5） | |
| 3219-3237 | Reserved | | | | | 03H |

Note 1: the test version number range is 0-99. If the DSP1 version number is v1.0, the DSP1 test version number is 2, and the DSP1 full version number is v1.0.2

### 3.2. Inverter setting (10H)

Table 3.3.1

| Register Address | Item | Byte | Byte No. | Data Type | Remark | FUNC |
|---|---|---|---|---|---|---|
| 3160-3167 | Charge_START_TIME-1, set(time) | 4 | | ASCII | Table 3.3.3 | 10H |
| | Charge_END_TIME-1 , set(time) | 4 | | ASCII | Table 3.3.3 | 10H |
| | Discharge_START_TIME-1, set(time) | 4 | | ASCII | Table 3.3.3 | 10H |
| | Discharge_END_TIME-1, set(time) | 4 | | ASCII | Table 3.3.3 | 10H |
| 3168~3175 | Charge_START_TIME-2, set(time) | 4 | | ASCII | | 10H |
| | Charge_END_TIME-2, set(time) | 4 | | ASCII | | 10H |
| | Discharge_START_TIME-2, set(time) | 4 | | ASCII | | 10H |
| | Discharge_END_TIME-2, set(time) | 4 | | ASCII | | 10H |
| 3176-3199 | Reserved | | | | | 10H |
| 3200-3207 | Inverter Model（char） | 16 | | U8 | ASCII char | 10H |
| 3208-3215 | Battery Name（char） | 16 | | U8 | ASCII char | 10H |
| 3216-3227 | Reserved | | | | | 10H |
| 3228-3238 | Inverter SN | 22 | | U8 | ASCII char | 10H |
| 3239-3245 | Clock Information | 14 | | U8 | Table 3.3.2 | 10H |
| 3246 | Reserved | | | | | 10H |

Note: The setting information should be written into the corresponding address at one time. For example, the clock setting

information should be written into the address of register 3239-3245 at the same time, and the PEAK SFT setting information should be written into the address of register 3160-3167 at the same time

Table 3.3.2

| Register Address | Item | Byte | Byte No. | Data Type | Remark |
|---|---|---|---|---|---|
| 3239 | Year(tens) | 1 | 0 | U8 | ASCII char |
| | Year(unit) | 1 | 1 | U8 | ASCII char |
| 3240 | Month(tens) | 1 | 2 | U8 | ASCII char |
| | Month (unit) | 1 | 3 | U8 | ASCII char |
| 3241 | Day(tens) | 1 | 4 | U8 | ASCII char |
| | Day (unit) | 1 | 5 | U8 | ASCII char |
| 3242 | Hour(tens) | 1 | 6 | U8 | ASCII char |
| | Hour (unit) | 1 | 7 | U8 | ASCII char |
| 3243 | Minute(tens) | 1 | 8 | U8 | ASCII char |
| | Minute (unit) | 1 | 9 | U8 | ASCII char |
| 3244 | Second(tens) | 1 | 10 | U8 | ASCII char |
| | Second (unit) | 1 | 11 | U8 | ASCII char |
| 3245 | Week | 1 | 12 | U8 | ASCII char |
| | | 1 | 13 | U8 | ASCII char |

Table 3.3.3

| Register Address | Item | Byte | Data Type | Remark |
|---|---|---|---|---|
| High word | Hour(tens) | 1 | U8 | ASCII char |
| | Hour (unit) | 1 | U8 | ASCII char |
| Low word | Minute(tens) | 1 | U8 | ASCII char |
| | Minute (unit) | 1 | U8 | ASCII char |

## 3.3. Execution commands (06H 遥调)

Table 3.4.1

| Register Address | Item | Byte | Byte No. | Unit | Data Type | Remark | FUNC |
|---|---|---|---|---|---|---|---|
| 3240 | Clear statistics | 2 | | | U16 | DATA arbitrary | 06H |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | number | |
| 3241 | Remote Shutdown | 2 | | | U16 | DATA arbitrary number | 06H |
| 3242 | Disable Remote Shutdown | 2 | | | U16 | DATA arbitrary number | 06H |
| 3243 | Reboot inverter | 2 | | | U16 | DATA arbitrary number | 06H |

Table 3.4.2

| Value | Power factor set |
|---|---|
| 80-100 | Reactive work is negative, leading work is 0.8-1 |
| -(80-100) | Reactive work is positive, lagging work 0.8-1 |

Table 3.4.3

| Range of | Description |
|---|---|
| 0-100 | Limit maximum power |

Table 3.4.4

| Range of Value | Description |
|---|---|
| -60 - +60 | Set the reactive power percentage |

Table 3.4.5

| Value | Description |
|---|---|
| 0 | Control by power factor |
| 1 | Control by reactive power factor |
| 2 | Control by QU curve |
| 3 | Control by QP curve |

Table 3.4.6

| Value | Battery type |
|---|---|
| 0x01 | Lead-Acid |
| 0x02 | Reserved |

| | |
|---|---|
| 0x03 | Reserved |
| 0x04 | Reserved |
| 0x05 | Reserved |
| 0x06 | LFP |
| 0x07 | Reserved |

Table 3.4.7

| Description | Only valid when the battery type is lead-acid |
|---|---|
| Capacity range of Lead acid battery | 50~1000；Default is 100 |

# 4. Protocol Implementation Example(for reference only)

## 4.1. Querying basic information

Read input register, starting address 3000, length 1 cell (2 bytes)

Master

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 04 | 0B | B8 | 00 | 01 | B3 | CB |
| Formate | ID | FUNC | ADDR | | LENGTHE: 1 register (2 bytes) | | CRC | |

Slave

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Content | 01 | 04 | 02 | 00 | 65 | 79 | 1B |
| Formate | ID | FUNC | BYTE LEN | DATA | DATA | CRC | |

## 4.2. Querying System Information

Read holding register, starting address 3200, length 1 cell (2 bytes)

Master

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 03 | 0C | 80 | 00 | 01 | 86 | B2 |
| Formate | ID | FUNC | ADDR | | DATA | DATA | CRC | |

Slave

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Content | 01 | 03 | 02 | 4B | 53 | CE | 89 |
| Formate | ID | FUNC | BYTE LEN | DATA | DATA | CRC | |

**4.3.** Setting the Inverter Clock

Set Inverter Clock Message: Tuesday, November 2, 2010 14:30:00

Master

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 10 | 0C | A7 | 00 | 07 | 0E | 31 |
| Formate | ID | FUNC | ADDR | | REGISTER QUANTITY | | BYTE COUNT | DATA |

| Byte S/N | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|
| Content | 30 | 31 | 31 | 30 | 32 | 31 | 34 | 33 |
| Formate | DATA | DATA | DATA | DATA | DATA | DATA | DATA | DATA |

| Byte S/N | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| Content | 30 | 30 | 30 | 32 | 30 | 17 | 2E |
| Formate | DATA | DATA | DATA | DATA | DATA | CRC | |

Slave

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 10 | 0C | A7 | 00 | 07 | 33 | 78 |
| Formate | ID | FUNC | ADDR | | DATA | DATA | CRC | |

**4.4.** Setting the weak_peak time

Charging start time: 11:24
Charging deadline: 11:25
Discharge start time: 11:26
Discharge deadline: 11:27

Master

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|

| Content | 01 | 10 | 0C | 58 | 00 | 08 | 10 | 31 |
|---|---|---|---|---|---|---|---|---|
| Formate | ID | FUNC | ADDR | | REGISTER QUANTIT | | BYTE COUN | DATA |

| Byte S/N | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|
| Content | 31 | 32 | 34 | 31 | 31 | 32 | 35 | 31 |
| Formate | DATA | DATA | DATA | DATA | DATA | DATA | DATA | DATA |

| Byte S/N | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|
| Content | 31 | 32 | 36 | 31 | 31 | 32 | 37 | 09 | 91 |
| Formate | DATA | DATA | DATA | DATA | DATA | DATA | DATA | CRC | |

Slave

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 10 | 0C | 58 | 00 | 08 | 43 | 4C |
| Formate | ID | FUNC | ADDR | | DATA | DATA | CRC | |

**4.5.** Executing remote commands

Limit maximum power 85%

Master

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 06 | 0F | B3 | 00 | 55 | BB | 06 |
| Formate | ID | FUNC | ADDR | | DATA | DATA | CRC | |

Slave

| Byte S/N | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Content | 01 | 06 | 0F | B3 | 00 | 55 | BB | 06 |
| Formate | ID | FUNC | ADDR | | DATA | DATA | CRC | |