

List of mailing addresses Input register, function code (Hex) : 04

| Address Register | Enter the registers                       |                | Format | Units   | The first address of the register |           |
|------------------|-------------------------------------------|----------------|--------|---------|-----------------------------------|-----------|
|                  | Data                                      | Length (bytes) |        |         | High bytes                        | Low bytes |
| 30001            | L1 phase voltage                          | 4              | Float  | V       | 00                                | 00        |
| 30003            | L2 phase voltage                          | 4              | Float  | V       | 00                                | 02        |
| 30005            | L3 phase voltage                          | 4              | Float  | V       | 00                                | 04        |
| 30007            | L1 current                                | 4              | Float  | A       | 00                                | 06        |
| 30009            | L2 current                                | 4              | Float  | A       | 00                                | 08        |
| 30011            | L3 current                                | 4              | Float  | A       | 00                                | 0A        |
| 30013            | L1 active power                           | 4              | Float  | In      | 00                                | 0C        |
| 30015            | L2 active power                           | 4              | Float  | In      | 00                                | 0E        |
| 30017            | L3 active power                           | 4              | Float  | In      | 00                                | 10        |
| 30019            | L1 apparent power                         | 4              | Float  | VA      | 00                                | 12        |
| 30021            | L2 apparent power                         | 4              | Float  | VA      | 00                                | 14        |
| 30023            | L3 apparent power                         | 4              | Float  | VA      | 00                                | 16        |
| 30025            | L1 reactive power                         | 4              | Float  | VAR     | 00                                | 18        |
| 30027            | L2 reactive power                         | 4              | Float  | VAR     | 00                                | 1A        |
| 30029            | L3 reactive power                         | 4              | Float  | VAR     | 00                                | 1C        |
| 30031            | L1 power factor                           | 4              | Float  | None    | 00                                | 1E        |
| 30033            | L2 power factor                           | 4              | Float  | None    | 00                                | 20        |
| 30035            | L3 power factor                           | 4              | Float  | None    | 00                                | 22        |
| 30037            | L1 voltage VA current angle               | 4              | Float  | Degrees | 00                                | 24        |
| 30039            | L2 voltage VA current angle               | 4              | Float  | Degrees | 00                                | 26        |
| 30041            | L3 voltage VA current angle               | 4              | Float  | Degrees | 00                                | 28        |
| 30043            | Three-phase phase voltage average         | 4              | Float  | V       | 00                                | 2A        |
| 30047            | Three-phase current average               | 4              | Float  | A       | 00                                | 2E        |
| 30049            | Three-phase current VA                    | 4              | Float  | A       | 00                                | 30        |
| 30053            | Total active power                        | 4              | Float  | W       | 00                                | 34        |
| 30057            | Total apparent power                      | 4              | Float  | VA      | 00                                | 38        |
| 30061            | Total reactive power                      | 4              | Float  | VAR     | 00                                | 3C        |
| 30063            | Total power factor                        | 4              | Float  | None    | 00                                | 3E        |
| 30067            | Total voltage VA current angle            | 4              | Float  | Degrees | 00                                | 42        |
| 30071            | frequency                                 | 4              | Float  | Hz      | 00                                | 46        |
| 30073            | Import active Energy                      | 4              | Float  | kWh     | 00                                | 48        |
| 30075            | Export active Energy                      | 4              | Float  | kWh     | 00                                | 4A        |
| 30077            | Forward reactive Energy                   | 4              | Float  | kVArh   | 00                                | 4C        |
| 30079            | Export reactive Energy                    | 4              | Float  | kVArh   | 00                                | 4E        |
| 30081            | Apparent Energy                           | 4              | Float  | kVAh    | 00                                | 50        |
| 30083            | Ampere-hour                               | 4              | Float  | Ah      | 00                                | 52        |
| 30085            | The current total active power demand     | 4              | Float  | W       | 00                                | 54        |
| 30087            | The maximum demand for total active power | 4              | Float  | W       | 00                                | 56        |

|       |                                                                                               |   |       |      |    |    |
|-------|-----------------------------------------------------------------------------------------------|---|-------|------|----|----|
| 30089 | Forward active power demand                                                                   | 4 | Float | W    | 00 | 58 |
| 30091 | The maximum demand for forward active power                                                   | 4 | Float | W    | 00 | 5A |
| 30093 | Export active power demand                                                                    | 4 | Float | W    | 00 | 5C |
| 30095 | Export the maximum active power demand                                                        | 4 | Float | W    | 00 | 5E |
| 30101 | Current total apparent power demand                                                           | 4 | Float | W    | 00 | 64 |
| 30103 | The current total apparent power is the maximum demand                                        | 4 | Float | W    | 00 | 66 |
| 30105 | The current neutral current demand                                                            | 4 | Float | Amps | 00 | 68 |
| 30107 | The maximum demand for neutral current                                                        | 4 | Float | Amps | 00 | 6A |
| 30109 | Total reactive power required                                                                 | 4 | Float | VAR  | 00 | 6C |
| 30111 | The maximum demand for total reactive power                                                   | 4 | Float | VAR  | 00 | 6E |
| 30113 | L1 displacement power factor                                                                  | 4 | Float | None | 00 | 70 |
| 30115 | L2 displacement power factor                                                                  | 4 | Float | None | 00 | 72 |
| 30117 | L3 displacement power factor                                                                  | 4 | Float | None | 00 | 74 |
| 30119 | Total displacement power factor                                                               | 4 | Float | None | 00 | 76 |
| 30161 | Three-phase voltage phase sequence (Import sequence = 1, Export sequence = 2, lack phase = 3) | 4 | Float | None | 00 | A0 |
| 30163 | Three-phase current phase sequence (Import sequence = 1, Export sequence = 2, lack phase = 3) | 4 | Float | None | 00 | A2 |
| 30165 | L1 voltage crest factor                                                                       | 4 | Float | None | 00 | A4 |
| 30167 | L2 voltage crest factor                                                                       | 4 | Float | None | 00 | A6 |
| 30169 | L3 voltage crest factor                                                                       | 4 | Float | None | 00 | A8 |
| 30183 | L1 K coefficient                                                                              | 4 | Float | None | 00 | B6 |
| 30185 | L2 K coefficient                                                                              | 4 | Float | None | 00 | B8 |
| 30187 | L3 K coefficient                                                                              | 4 | Float | None | 00 | BA |
| 30193 | Total load characteristics: 1.resistive, 2. Sensibility, 3 capacitance.                       | 4 | Float | None | 00 | C0 |
| 30195 | L1 Load Characteristics:(1.)resistive, 2Sensibility, 3 capacitance).                          | 4 | Float | None | 00 | C2 |
| 30197 | L2 Load Characteristics:(1.)resistive, 2Sensibility, 3 capacitance).                          | 4 | Float | None | 00 | C4 |
| 30199 | L3 Load Characteristics:(1.) resistive, 2 Sensibility, 3 capacitance).                        | 4 | Float | None | 00 | C6 |
| 30201 | L1-2-line voltage                                                                             | 4 | Float | V    | 00 | C8 |
| 30203 | L2-3-line voltage                                                                             | 4 | Float | V    | 00 | CA |
| 30205 | L3-1 line voltage                                                                             | 4 | Float | V    | 00 | CC |
| 30207 | Three-phase line voltage average                                                              | 4 | Float | V    | 00 | CE |
| 30225 | Neutral current                                                                               | 4 | Float | A    | 00 | E0 |
| 30235 | L1 -N voltage total harmonic content                                                          | 4 | Float | %    | 00 | EA |
| 30237 | L2 -N voltage total harmonic content                                                          | 4 | Float | %    | 00 | EC |
| 30239 | L3 -N voltage total harmonic content                                                          | 4 | Float | %    | 00 | EE |

|       |                                                                                               |   |       |      |    |    |
|-------|-----------------------------------------------------------------------------------------------|---|-------|------|----|----|
| 30241 | The total harmonic content of the L1 current                                                  | 4 | Float | %    | 00 | F0 |
| 30243 | The total harmonic content of L2 current                                                      | 4 | Float | %    | 00 | F2 |
| 30245 | The total harmonic content of the L3 current                                                  | 4 | Float | %    | 00 | F4 |
| 30249 | The average value of the total harmonic content of the three-phase phase voltage              | 4 | Float | %    | 00 | F8 |
| 30251 | The average value of the total harmonic content of the three-phase current                    | 4 | Float | %    | 00 | FA |
| 30259 | Current L1 current demand                                                                     | 4 | Float | A    | 01 | 02 |
| 30261 | Current L2 current demand                                                                     | 4 | Float | A    | 01 | 04 |
| 30263 | Current L3 current demand                                                                     | 4 | Float | A    | 01 | 06 |
| 30265 | L1 maximum current demand                                                                     | 4 | Float | A    | 01 | 08 |
| 30267 | L2 maximum current demand                                                                     | 4 | Float | A    | 01 | 0A |
| 30269 | L3 maximum current demand                                                                     | 4 | Float | A    | 01 | 0C |
| 30101 | Current total apparent power demand                                                           | 4 | Float | VA   | 00 | 64 |
| 30103 | The current total apparent power is the maximum demand                                        | 4 | Float | VA   | 00 | 66 |
| 30105 | The current neutral current demand                                                            | 4 | Float | Amps | 00 | 68 |
| 30107 | The maximum demand for neutral current                                                        | 4 | Float | Amps | 00 | 6A |
| 30109 | Total reactive power required                                                                 | 4 | Float | VAR  | 00 | 6C |
| 30111 | The maximum demand for total reactive power                                                   | 4 | Float | VAR  | 00 | 6E |
| 30113 | L1 displacement power factor                                                                  | 4 | Float | None | 00 | 70 |
| 30115 | L2 displacement power factor                                                                  | 4 | Float | None | 00 | 72 |
| 30117 | L3 displacement power factor                                                                  | 4 | Float | None | 00 | 74 |
| 30119 | Total displacement power factor                                                               | 4 | Float | None | 00 | 76 |
| 30161 | Three-phase voltage phase sequence (Import sequence = 1, Export sequence = 2, lack phase = 3) | 4 | Float | None | 00 | A0 |
| 30163 | Three-phase current phase sequence (Import sequence = 1, Export sequence = 2, lack phase = 3) | 4 | Float | None | 00 | A2 |
| 30165 | L1 voltage crest factor                                                                       | 4 | Float | None | 00 | A4 |
| 30167 | L2 voltage crest factor                                                                       | 4 | Float | None | 00 | A6 |
| 30169 | L3 voltage crest factor                                                                       | 4 | Float | None | 00 | A8 |
| 30183 | L1 K coefficient                                                                              | 4 | Float | None | 00 | B6 |
| 30185 | L2 K coefficient                                                                              | 4 | Float | None | 00 | B8 |
| 30187 | L3 K coefficient                                                                              | 4 | Float | None | 00 | BA |
| 30193 | Total load characteristics: (1.)resistive, 2Sensibility, 3 capacitance).                      | 4 | Float | None | 00 | C0 |

|       |                                                                                  |   |       |       |    |    |
|-------|----------------------------------------------------------------------------------|---|-------|-------|----|----|
| 30195 | L1 Load Characteristics:(1.)resistive, 2Sensibility, 3 capacitance).             | 4 | Float | None  | 00 | C2 |
| 30197 | L2 Load Characteristics:(1.)resistive, 2Sensibility, 3 capacitance).             | 4 | Float | None  | 00 | C4 |
| 30199 | L3 Load Characteristics:(1.) resistive, 2Sensibility, 3 capacitance).            | 4 | Float | None  | 00 | C6 |
| 30201 | L1-2-line voltage                                                                | 4 | Float | V     | 00 | C8 |
| 30203 | L2-3-line voltage                                                                | 4 | Float | V     | 00 | CA |
| 30205 | L3-1 line voltage                                                                | 4 | Float | V     | 00 | CC |
| 30207 | Three-phase line voltage average                                                 | 4 | Float | V     | 00 | CE |
| 30225 | Neutral current                                                                  | 4 | Float | A     | 00 | E0 |
| 30235 | L1 -N voltage total harmonic content                                             | 4 | Float | %     | 00 | EA |
| 30237 | L2 -N voltage total harmonic content                                             | 4 | Float | %     | 00 | EC |
| 30239 | L3 -N voltage total harmonic content                                             | 4 | Float | %     | 00 | EE |
| 30241 | The total harmonic content of the L1 current                                     | 4 | Float | %     | 00 | F0 |
| 30243 | The total harmonic content of L2 current                                         | 4 | Float | %     | 00 | F2 |
| 30245 | The total harmonic content of the L3 current                                     | 4 | Float | %     | 00 | F4 |
| 30249 | The average value of the total harmonic content of the three-phase phase voltage | 4 | Float | %     | 00 | F8 |
| 30251 | The average value of the total harmonic content of the three-phase current       | 4 | Float | %     | 00 | FA |
| 30259 | Current L1 current demand                                                        | 4 | Float | A     | 01 |    |
| 30261 | Current L2 current demand                                                        | 4 | Float | A     | 01 |    |
| 30263 | Current L3 current demand                                                        | 4 | Float | A     | 01 |    |
| 30265 | L1 maximum current demand                                                        | 4 | Float | A     | 01 | 08 |
| 30267 | L2 maximum current demand                                                        | 4 | Float | A     | 01 | 0A |
| 30269 | L3 maximum current demand                                                        | 4 | Float | A     | 01 | 0C |
| 30335 | L1-2-line voltage total harmonic content                                         | 4 | Float | %     | 01 | 4E |
| 30337 | L2-3-line voltage total harmonic content                                         | 4 | Float | %     | 01 | 50 |
| 30339 | L3-1 line voltage total harmonic content                                         | 4 | Float | %     | 01 | 52 |
| 30341 | The average value of the total harmonic content of the three-phase line voltage  | 4 | Float | %     | 01 | 54 |
| 30343 | Total active energy                                                              | 4 | Float | kWh   | 01 | 56 |
| 30345 | Total reactive energy                                                            | 4 | Float | kVarh | 01 | 58 |
| 30347 | L1 forward active energy                                                         | 4 | Float | kWh   | 01 | 5A |
| 30349 | L2 forward active energy                                                         | 4 | Float | kWh   | 01 | 5C |
| 30351 | L3 forward active energy                                                         | 4 | Float | kWh   | 01 | 5E |
| 30353 | L1 reverses active energy                                                        | 4 | Float | kWh   | 01 | 60 |
| 30355 | L2 Export active energy                                                          | 4 | Float | kWh   | 01 | 62 |
| 30357 | L3 reverses active energy                                                        | 4 | Float | kWh   | 01 | 64 |

|       |                                                       |     |       |       |    |    |
|-------|-------------------------------------------------------|-----|-------|-------|----|----|
| 30359 | L1 always has active energy                           | 4   | Float | kWh   | 01 | 66 |
| 30361 | L2 always has active energy power                     | 4   | Float | kWh   | 01 | 68 |
| 30363 | L3 always has active energy r                         | 4   | Float | kWh   | 01 | 6A |
| 30365 | L1 forward reactive energy                            | 4   | Float | kVArh | 01 | 6C |
| 30367 | L2 forward reactive energy                            | 4   | Float | kVArh | 01 | 6E |
| 30369 | L3 forward reactive energy                            | 4   | Float | kVArh | 00 | 6E |
| 30371 | L1 Export reactive energy                             | 4   | Float | kVArh | 00 | 70 |
| 30373 | L2 Export reactive energy                             | 4   | Float | kVArh | 00 | 72 |
| 30375 | L3 reverses reactive energy                           | 4   | Float | kVArh | 00 | 74 |
| 30377 | L1 total reactive energy                              | 4   | Float | kVArh | 00 | 76 |
| 30379 | L2 total reactive energy                              | 4   | Float | kVArh | 00 | A0 |
| 30381 | L3 total reactive energy                              | 4   | Float | kVArh | 00 | A2 |
| 30403 | The 2-63rd harmonic content of the L1 phase voltage   | 248 | Float | %     | 00 | A4 |
| 30527 | The 2nd-63rd harmonic content of the L2 phase voltage | 248 | Float | %     | 00 | A6 |
| 30651 | The 2nd-63rd harmonic content of the L3 phase voltage | 248 | Float | %     | 00 | A8 |
| 30775 | The 2nd-63rd harmonic content of the L1 current       | 248 | Float | %     | 00 | B6 |
| 30899 | The 2nd-63rd harmonic content of the L2 current       | 248 | Float | %     | 00 | B8 |
| 31023 | The 2nd-63rd harmonic content of the L3 current       | 248 | Float | %     | 00 | BA |
| 31147 | L1 voltage total harmonics                            | 4   | Float | %     | 00 | C0 |
| 31149 | L2 voltage total harmonics                            | 4   | Float | %     | 00 | C2 |
| 31151 | L3 voltage total harmonics                            | 4   | Float | %     | 00 | C4 |
| 31153 | L1 current total harmonics                            | 4   | Float | %     | 00 | C6 |
| 31155 | L2 current total harmonics                            | 4   | Float | %     | 00 | C8 |
| 31157 | L3 current total harmonics                            | 4   | Float | %     | 00 | CA |
| 32649 | Total active power maximum                            | 4   | Float | In    | 00 | CC |
| 32651 | Total reactive power maximum                          | 4   | Float | VAR   | 00 | CE |
| 32653 | Total apparent power maximum                          | 4   | Float | VA    | 00 | E0 |
| 32655 | The maximum active power of the L1 phase              | 4   | Float | W     | 00 | EA |
| 32657 | L2 phase active power maximum                         | 4   | Float | W     | 00 | EC |
| 32659 | L3 phase active power maximum                         | 4   | Float | W     | 00 | EE |
| 32661 | L1 phase reactive power maximum                       | 4   | Float | VAR   | 00 | F0 |
| 32663 | L2 phase reactive power maximum                       | 4   | Float | VAR   | 00 | F2 |
| 32665 | L3 phase reactive power maximum                       | 4   | Float | VAR   | 00 | F4 |
| 32667 | L1 phase is at the maximum power value                | 4   | Float | VA    | 00 | F8 |
| 32669 | L2 phase apparent at power maximum                    | 4   | Float | VA    | 00 | FA |
| 32671 | L3 phase is at the maximum power value                | 4   | Float | VA    | 01 | 02 |
| 32673 | L1 current maximum                                    | 4   | Float | A     | 01 | 04 |

|       |                                               |   |       |      |    |    |
|-------|-----------------------------------------------|---|-------|------|----|----|
| 32675 | L2 current maximum                            | 4 | Float | A    | 01 | 06 |
| 32677 | L3 current maximum                            | 4 | Float | A    | 01 | 08 |
| 32679 | The maximum value of the Current neutral line | 4 | Float | A    | 01 | 0A |
| 32681 | Total current maximum                         | 4 | Float | A    | 01 | 0C |
| 32683 | L1-N phase voltage maximum                    | 4 | Float | V    | 01 | 4E |
| 32685 | L2-N phase voltage maximum                    | 4 | Float | V    | 01 | 50 |
| 32687 | L3-N phase voltage maximum                    | 4 | Float | V    | 01 | 52 |
| 32689 | L1-2 line voltage maximum                     | 4 | Float | V    | 01 | 54 |
| 32691 | L2-3 line voltage maximum                     | 4 | Float | V    | 01 | 56 |
| 32693 | L3-1 line voltage maximum                     | 4 | Float | V    | 01 | 58 |
| 32695 | The minimum value of total active power       | 4 | Float | W    | 01 | 5A |
| 32697 | The minimum value of Total reactive power     | 4 | Float | VAR  | 01 | 5C |
| 32699 | Total apparent power minimum                  | 4 | Float | VA   | 01 | 5E |
| 32701 | L1 minimum active power                       | 4 | Float | W    | 01 | 60 |
| 32703 | L2minimum active power                        | 4 | Float | W    | 01 | 62 |
| 32705 | L3minimum active power                        | 4 | Float | W    | 01 | 64 |
| 32707 | L1 minimum reactive power                     | 4 | Float | VAR  | 01 | 66 |
| 32709 | L2minimum reactive power                      | 4 | Float | VAR  | 01 | 68 |
| 32711 | L3reactive power minimum                      | 4 | Float | VAR  | 01 | 6A |
| 32713 | L1 apparent power minimum                     | 4 | Float | VA   | 01 | 6C |
| 32715 | L2 apparent power minimum                     | 4 | Float | VA   | 01 | 6E |
| 32717 | L3 apparent power minimum                     | 4 | Float | VA   | 01 | 70 |
| 32719 | L1 current minimum                            | 4 | Float | A    | 01 | 72 |
| 32721 | L2 current minimum                            | 4 | Float | A    | 01 | 74 |
| 32723 | L3 current minimum                            | 4 | Float | A    | 01 | 76 |
| 32725 | The minimum value of the neutral current line | 4 | Float | A    | 01 | 78 |
| 32727 | The minimum total current                     | 4 | Float | A    | 01 | 7A |
| 32729 | L1-N Minimum phase voltage                    | 4 | Float | V    | 01 | 7C |
| 32731 | L2-N Minimum phase voltage                    | 4 | Float | V    | 01 | 92 |
| 32733 | L3-N Minimum phase voltage                    | 4 | Float | V    | 02 | 0E |
| 32735 | L1-2-line voltage minimum                     | 4 | Float | V    | 02 | 8A |
| 32737 | L2-3 line voltage minimum                     | 4 | Float | V    | 03 | 06 |
| 32739 | L3-1 line voltage minimum                     | 4 | Float | V    | 03 | 82 |
| 32763 | Total power factor maximum                    | 4 | Float | None | 03 | FE |
| 32765 | L1 power factor maximum                       | 4 | Float | None | 04 | 7A |
| 32767 | L2 power factor maximum                       | 4 | Float | None | 04 | 7C |
| 32769 | L3 power factor maximum                       | 4 | Float | None | 04 | 7E |
| 32771 | L1 voltage total harmonic maximum             | 4 | Float | %    | 04 | 80 |
| 32773 | L2 voltage total harmonic maximum             | 4 | Float | %    | 04 | 82 |
| 32775 | L3 voltage total harmonic maximum             | 4 | Float | %    | 04 | 84 |
| 32777 | L1 current total harmonic maximum             | 4 | Float | %    | 0A | 58 |
| 32779 | L2 current total harmonic maximum             | 4 | Float | %    | 0A | 5A |
| 32781 | L3 current total harmonic maximum             | 4 | Float | %    | 0A | 5C |

|       |                                             |   |       |      |    |    |
|-------|---------------------------------------------|---|-------|------|----|----|
| 32783 | The minimum value of the total power factor | 4 | Float | None | 0A | 5E |
| 32785 | L1 power factor minimum                     | 4 | Float | None | 0A | 60 |
| 32787 | L2 power factor minimum                     | 4 | Float | None | 0A | 62 |
| 32789 | L3 power factor minimum                     | 4 | Float | None | 0A | 64 |
| 32791 | L1 voltage total harmonic minimum           | 4 | Float | %    | 0A | 66 |
| 32793 | L2 voltage total harmonic minimum           | 4 | Float | %    | 0A | 68 |
| 32795 | L3 voltage total harmonic minimum           | 4 | Float | %    | 0A | 6A |
| 32797 | L1 current total harmonic minimum           | 4 | Float | %    | 0A | 6C |
| 32799 | L2 current total harmonic minimum           | 4 | Float | %    | 0A | 6E |
| 32801 | L3 current total harmonic min               | 4 | Float | %    | 0A | 70 |
| 34877 | Rate 1: Total active energy                 | 4 | Float | kWh  | 0A | 72 |
| 34879 | Rate 2: Total active energy                 | 4 | Float | kWh  | 0A | 74 |
| 34881 | Rate 3: Total active energy                 | 4 | Float | kWh  | 0A | 76 |
| 34883 | Rate 4 Total Active energy                  | 4 | Float | kWh  | 0A | 78 |
| 34885 | Rate 1 Import active energy                 | 4 | Float | kWh  | 0A | 7A |
| 34887 | Rate 2 Forward active energy                | 4 | Float | kWh  | 0A | 7C |
| 34889 | Rate 3: Forward active energy               | 4 | Float | kWh  | 0A | 7E |
| 34891 | Rate 4 Forward active energy                | 4 | Float | kWh  | 0A | 80 |
| 34893 | Rate 1: Export active power                 | 4 | Float | kWh  | 0A | 82 |
| 34895 | Rate 2 reverse active power                 | 4 | Float | kWh  | 0A | 84 |
| 34897 | Rate 3 Reverse Active Watt-Hours            | 4 | Float | kWh  | 0A | 86 |
| 34899 | Rate 4 Reverse Active Watt-Hours            | 4 | Float | kWh  | 0A | 88 |
| 34901 | Rate 1: Total reactive energy               | 4 | Float | kWh  | 0A | 8A |
| 34903 | Rate 2: Total reactive energy               | 4 | Float | kWh  | 0A | 8C |
| 34905 | Rate 3: Total reactive energy               | 4 | Float | kWh  | 0A | 8E |
| 34907 | Rate 4: Total reactive energy               | 4 | Float | kWh  | 0A | 90 |
| 34909 | Rate 1: Forward reactive energy             | 4 | Float | kWh  | 0A | 92 |
| 34911 | Rate 2 Forward Reactive Energy Degree       | 4 | Float | kWh  | 0A | 94 |
| 34913 | Rate 3: Forward reactive power              | 4 | Float | kWh  | 0A | 96 |
| 34915 | Rate 4 Forward Reactive Electricity         | 4 | Float | kWh  | 0A | 98 |
| 34917 | Rate 1 Reverse Reactive Energy Degree       | 4 | Float | kWh  | 0A | 9A |
| 34919 | Rate 2 reverse reactive power               | 4 | Float | kWh  | 0A | 9C |
| 34921 | Rate 3 reverse reactive power               | 4 | Float | kWh  | 0A | 9E |
| 34923 | Rate 4 Reverse Reactive Electricity         | 4 | Float | kWh  | 0A | A0 |

Prompt:

- The power factor symbol indicates the direction of the current, the Import sign indicates the forward current, VA the negative sign indicates the Export current.
- The total active power demand is calculated as follows: forward reverse
- The total active/reactive energy is equal to forward + reverse
- The temperature range is 0-2000, which means -50-150°C. Calculate the temperature value: (val - 500) \* 0.1. The temperature value returned by Modbus is uint16\_t, VA the lower 11 bits are valid, so the temperature value is: ((val & 0x07FF) - 500) \* 0.1.

Hold register, function code (Hex): 03 (read) / 10 (write).

| Register address | parameter                 | The first address of the register |                     | Feasible range                                                                                                                                                                                                                                                           | Mode |
|------------------|---------------------------|-----------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
|                  |                           | High letters section              | Low letters section |                                                                                                                                                                                                                                                                          |      |
| 40001            | Demand time               | 00                                | 00                  | The requirement to read the minute calculation first. When the demand time reaches the demand period demand The value is valid.Length:4bytes<br>Data Type: Float                                                                                                         | ro   |
| 40003            | Demand cycle              | 00                                | 02                  | Demand cycle time, unit: min, default: 60 min<br>Configurable range: 0~60, 0 represents real-time update (1s update is required once.) Volume)<br>Length:4bytes<br>Data Type: Floating-point number                                                                      | r/w  |
| 40005            | Slip time                 | 00                                | 04                  | Default 1 point.<br>Range: 1 ~ (Demand period -1).<br>Length:4bytes<br>Data Type: Floating-point number                                                                                                                                                                  | r/w  |
| 40007            | Demand Calculator style   | 00                                | 06                  | Default: Slip calculation,<br>Configurable range:<br>0 = How the slip is calculated<br>1 = How the interval is calculated<br>Length :4-byte Data<br>Format: Float                                                                                                        | r/w  |
| 40011            | Meter system module style | 00                                | 0A                  | Meter System Mode:<br>DEFAULT: 3P4W<br>Configurable range:<br>1 = 1P2W.<br>2 = 3P3W.<br>3 = 3P4W,<br>4 = 1P3W.<br>5 = 3P3W Balance load.<br>6 = 3P4W Balance load.<br>Length:4bytes<br>Data Type: Floating-point number<br>Note: Access rights are required to set it up | r/w  |

|       |                                                                                                       |    |    |                                                                                                                                                                                                                                                                                                              |     |
|-------|-------------------------------------------------------------------------------------------------------|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 40015 | Access Permissions (Write password.) Obtaining permissions, Read the certificate of permission state) | 00 | 0E | Read Operation: Obtain the status of the current access permission.<br>0= Access not obtained; 1= Access permissions have been obtained.<br>Write operation: Write the correct password to obtain access permission.<br>Length:4bytes<br>Data Type: Floating-point number                                    | r/w |
| 40019 | Communication check digits VA stop bits                                                               | 00 | 12 | Communication check digits<br>VA stop bits: Default: 1-bit<br>stop bit VA no check<br>Configurable range:<br>0 = 1 stop bit VA<br>no check 1 = 1 bit<br>stop bit VA even<br>check.<br>2 = 1 bit stop bit VA odd check<br>3 = 2-bit stop bit VA no check<br>Length:4bytes<br>Data Type: Floating-point number | r/w |
| 40021 | Meter mailing address                                                                                 | 00 | 14 | Meter mailing address:<br>Default 1.<br>Configurable range:<br>1~247 length: 4 bytes<br>Data Type: Floating-point number                                                                                                                                                                                     | r/w |
| 40025 | password                                                                                              | 0  | 18 | Read operation: obtain the system password;<br>Write operation: change the system password;<br>Default: 1000 Length:4bytes<br>Data Type: Floating-point number                                                                                                                                               | r/w |
| 40029 | Newsletter baud rate                                                                                  | 00 | 1C | Newsletter Baud Rate:<br>0 = 2400 baud. 1 = 4800 baud.<br>2 = 9600 baud, default.<br>= 19200 baud. 4 = 38400 baud Length:4bytes<br>2 Data Type: Floating-point number                                                                                                                                        | r/w |
| 40047 | PT1                                                                                                   | 00 | 2E | PT1 range: 100- 500000V, default: 230<br>Length:4bytes<br>Data Type: Floating-point number<br>Note: Access rights are required to set it up                                                                                                                                                                  | r/w |
| 40049 | PT2                                                                                                   | 00 | 30 | PT2 Range: 100- 480V, Default: 230<br>Length:4bytes<br>Data Type: Floating-point number                                                                                                                                                                                                                      | r/w |
| 40051 | CT1                                                                                                   | 00 | 32 | Note: Access rights are required to set it up<br>CT1 Range: 1-9999A, Default: 5,<br>Length:4bytes<br>Data Type: Floating-point number<br>Note: Access rights are required to set it up                                                                                                                       | r/w |

|       |                                                                       |    |    |                                                                                                                                                                                                                                                                                                                                                               |     |
|-------|-----------------------------------------------------------------------|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 40053 | CT2                                                                   | 00 | 34 | CT2Range: 1A or 5A, Default: 5A<br>Length: 4 byte<br>Data Format: Float<br>Note: Access rights are required to set it up                                                                                                                                                                                                                                      | r/w |
| 40057 | The current is set in reverse (Used when the transformer is reversed) | 00 | 38 | 0 = L1 Frd, L2 Frd, L3 Frd<br>1 = L1 Rev, L2 Frd, L3 Frd<br>2 = L1 Frd, L2 Rev, L3 Frd<br>3 = L1 Rev, L2 Rev, L3 Frd<br>4 = L1 Frd, L2 Frd, L3 Rev<br>5 = L1 Rev, L2 Frd, L3 Rev<br>6 = L1 Frd, L2 Rev, L3 Rev<br>7=L1Rev, L2Rev, L3Rev<br>Defaultis0<br>Length: 4 bytes<br>Data Type: Floating-point number<br>Note: Access rights are required to set it up | r/w |
| 40059 | LCD display rotation time                                             | 00 | 3A | The default is 5 seconds<br>Configurable range: 1~255 seconds<br>Length:4bytes<br>Data Type: Floating-point number                                                                                                                                                                                                                                            | r/w |
| 40061 | Backlight lights up the time                                          | 00 | 3C | Default is 60, points<br>Therangeis0~121,0representsthebacklightconstant, VA121representsthebacklightlong VA dark<br>Length: 4 bytes<br>Data Type: Floating-point number                                                                                                                                                                                      | r/w |
| 40513 | DO-1 output mode                                                      | 02 | 00 | DO-1 output mode<br>00 00 = level; 00 01= pulse<br>Length: 2 bytes<br>Data Type: Hex                                                                                                                                                                                                                                                                          | r/w |
| 40514 | DO-2 output mode                                                      | 02 | 01 | DO-2 output mode<br>00 00 = level; 00 01= pulse<br>Length: 2 bytes<br>Data Type: Hex                                                                                                                                                                                                                                                                          | r/w |
| 40521 | DO-1 pulse output width                                               | 02 | 08 | DO-1 Pulse output time width (1000ms: 50 ~ 3000)<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                                                                                                                                                                                                                                                       | r/w |
| 40522 | DO-2 pulse output is wide degree                                      | 02 | 09 | DO-2 Pulse output time width (1000ms: 50 ~ 3000)<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                                                                                                                                                                                                                                                       | r/w |
| 40769 | DI input anti-resist Jitter filter Time                               | 03 | 00 | DI filtering time attempt(0ms: 0~255) ,<br>The default is 100ms<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                                                                                                                                                                                                                                        | r/w |

|       |                                           |    |    |                                                                                                                                                                             |     |
|-------|-------------------------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 40770 | DI-1 counter                              | 03 | 01 | DI-1 counter<br>Length:4bytes<br>Data Type: Unsigned integer 32-bit<br>Write 0 to the register, which is clear, write other values to the register except 0, Not responding | r/w |
| 40772 | DI-2 counter                              | 03 | 03 | DI-2 counter Length:4bytes<br>Data Type: Unsigned integer 32-bit<br>Write 0 to the register, which is clear, write other values register except 0, Not responding           |     |
| 40774 | DI-3 counter                              | 03 | 05 | DI-3 counter<br>Length:4bytes<br>Data Type: Unsigned integer 32-bit<br>Write 0 to the register, which is clear, write other values register except 0, Not responding        | r/w |
| 40776 | DI-4 counter                              | 03 | 07 | DI-4 counter<br>Length:4bytes<br>Data Type: Unsigned integer 32-bit<br>Write 0 to the register, which is clear, write other values register except 0, Not responding        | r/w |
| 41025 | DO-1 Alarm Parameters(1)                  | 04 | 00 | DO-1 alarm parameters<br>Range: 0~29, VA 255;<br>Default: 255 = Length without associated parameters : 2 bytes Data Type: Unsigned integer 16-bit                           | r/w |
| 41026 | DO-1 action delay                         | 04 | 01 | DO-1 action delay, unit: ms<br>Range:0~9999; Default: 200ms<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                                                          | r/w |
| 41027 | DO-1 Closure High Value(2)                | 04 | 02 | High value length of DO-1 closure: 4 bytes Data Type: Floating-point number                                                                                                 | r/w |
| 41029 | The high value of DO-1 disconnection (2). | 04 | 04 | DO-1 Broken high-value length: 4 byte Data Type: Floating-point number                                                                                                      | r/w |
| 41031 | DO-1 Low value disconnected (2)           | 04 | 06 | DO-1 Broken low value length: 4 byte Data Type: Floating-point number                                                                                                       | r/w |
| 41033 | DO-1 Closed low value (2)                 | 04 | 08 | DO-1 Closed low value length : 4 byte Data Type: Floating-point number                                                                                                      | r/w |

|       |                                           |    |    |                                                                                                                                                                 |     |
|-------|-------------------------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 41035 | DO-2 Alarm Parameters(1)                  | 04 | 0A | DO-2 alarm parameters<br>Range: 0~29, VA 255;<br>Default: 255 = No associated parameter<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                  | r/w |
| 41036 | DO-2 action delay                         | 04 | 0B | DO-2 action delay in ms<br>Range:0~9999; Default: 200ms<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                                                  | r/w |
| 41037 | The high value of DO-2 closure (2).       | 04 | 0C | DO-2 Closed high-value length: 4 byte Data Type: Floating-point number                                                                                          | r/w |
| 41039 | The high value of DO-2 disconnection (2). | 04 | 0E | DO-2 Broken high-value length: 4 byte Data Type: Floating-point number                                                                                          | r/w |
| 41041 | DO-2 Low value disconnected (2)           | 04 | 10 | DO-2 Broken low value length: 4 byte Data Type: Floating-point number                                                                                           | r/w |
| 41043 | DO-2 Closed low value (2)                 | 04 | 12 | DO-2 Closed low value length: 4 byte Data Type: Floating-point number                                                                                           | r/w |
| 41105 | DO-1 state                                | 04 | 50 | DO-1 status<br>0 = Disconnect (HO 或 LO)<br>1 = HC (closed high value)<br>2 = LC (closed low value)<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit       | ro  |
| 41106 | DO-2 state                                | 04 | 51 | DO-2 status<br>0 = Broken<br>1 = HC (closed high value)<br>2 = LC (closed low value)<br>Length:2bytes<br>Data Type: Unsigned integer 16-bit                     | ro  |
| 41281 | SOE-01 (3) Event logging                  | 05 | 00 | SOE-01 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second Length: 8 bytes<br>Data Type: BCD    | ro  |
| 41285 | SOE-02 (3) Event logging                  | 05 | 04 | SOE-02 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro  |

|       |                             |    |    |                                                                                                                                                                 |    |
|-------|-----------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 41289 | SOE-03 (3)<br>Event logging | 05 | 08 | SOE-03 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41293 | SOE-04 (3)<br>Event logging | 05 | 0C | SOE-04 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41297 | SOE-05 (3)<br>Event logging | 05 | 10 | SOE-05 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41301 | SOE-06(3) Event logging     | 05 | 14 | SOE-06 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41305 | SOE-07 (3)<br>Event logging | 05 | 18 | SOE-07 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41309 | SOE-08 (3)<br>Event logging | 05 | 1C | SOE-08 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41313 | SOE-09 (3)<br>Event logging | 05 | 20 | SOE-09 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41317 | SOE-10 (3)<br>Event logging | 05 | 24 | SOE-10 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41321 | SOE-11 (3)<br>Event logging | 05 | 28 | SOE-11 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |

|       |                             |    |    |                                                                                                                                                                 |    |
|-------|-----------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 41325 | SOE-12 (3)<br>Event logging | 05 | 2C | SOE-12 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41329 | SOE-13 (3)<br>Event logging | 05 | 30 | SOE-13 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41333 | SOE-14 (3)<br>Event logging | 05 | 34 | SOE-14 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41337 | SOE-15 (3)<br>Event logging | 05 | 38 | SOE-15 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second Length: 8 bytes Data Type: BCD       | ro |
| 41341 | SOE-16 (3)<br>Event logging | 05 | 3C | SOE-16 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Seconds Length: 8 bytes<br>Data Type: BCD   | ro |
| 41345 | SOE-17 (3)<br>Event logging | 05 | 40 | SOE-17 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41349 | SOE-18 (3)<br>Event logging | 05 | 44 | SOE-18 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41353 | SOE-19 (3)<br>Event logging | 05 | 48 | SOE-19 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41357 | SOE-20 (3)<br>Event logging | 05 | 4C | SOE-20 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |

|       |                             |    |    |                                                                                                                                                                 |    |
|-------|-----------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 41361 | SOE-21 (3)<br>Event logging | 05 | 50 | SOE-21 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41365 | SOE-22 (3)<br>Event logging | 05 | 54 | SOE-22 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41369 | SOE-23 (3)<br>Event logging | 05 | 58 | SOE-23 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41373 | SOE-24 (3)<br>Event logging | 05 | 5C | SOE-24 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41377 | SOE-25 (3)<br>Event logging | 05 | 60 | SOE-25 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41381 | SOE-26 (3)<br>Event logging | 05 | 64 | SOE-26 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41385 | SOE-27 (3)<br>Event logging | 05 | 68 | SOE-27 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41389 | SOE-28 (3)<br>Event logging | 05 | 6C | SOE-28 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second<br>Length: 8 bytes<br>Data Type: BCD | ro |
| 41393 | SOE-29 (3)<br>Event logging | 05 | 70 | SOE-29 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second                                      | ro |

|        |                             |    |    |                                                                                                                                                                                                                 |     |
|--------|-----------------------------|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|        |                             |    |    | Length: 8 bytes<br>Data Type: BCD                                                                                                                                                                               |     |
| 41397  | SOE-30 (3)<br>Event logging | 05 | 74 | SOE-30 Event Log Information; The form is as follows:<br>Type - Event Reason - Year - Month - Day - Hour - Minute - Second Length: 8 bytes                                                                      | ro  |
| 461441 | Time                        | F0 | 00 | Data Type: BCD<br>Second-minute-hour-week-day-month-year-20<br>Length: 8 bytes<br>Data Type: BCD                                                                                                                | r/w |
| 461445 | Running time                | F0 | 04 | Day-hour-minute,<br>Day = 2 bytes; time = 1 byte; Minutes = 1 byte                                                                                                                                              | r/w |
|        |                             |    |    | Length: 4 bytes Data type: BCD For example:<br>04 23 21 57 indicated<br>Runtime = 423 days + 21 hours + 57 minutes<br>Write 00 00 00 00 00 to reset the run time                                                |     |
| 461457 | Reset historical data       | F0 | 10 | 00 00= Reset demand information<br>00 03 = Reset battery information<br>00 04 = Reset the maximum VA minimum values<br>00 05 = Reset SOE records<br>00 06 = Reset DI Counter<br>Length:2bytes<br>Data Type: Hex | r/w |
| 461697 | Meter information           | F1 | 00 | Meter information: model VA version number<br>Length:16bytes<br>Data type: AscII(Character ASCII)                                                                                                               | ro  |
| 463233 | Rates                       | F7 | 00 | Rate code-minute-hour<br>Rate code: 01, 02, 03,<br>04, 05, 06, 07, 08 min:<br>00-59 Hours: 00-23<br>Length:36 bytes<br>Data type: BCD                                                                           | r/w |
| 463793 | Continuous uptime           | F9 | 30 | Meter duration : 4 bytes<br>Data Type: Floating-point number                                                                                                                                                    | r/w |

Hint:

Table-1 Alarm Parameters

| serial number | Alarm parameters      | Number | Alarm parameters     | Number | Alarm parameters                       |
|---------------|-----------------------|--------|----------------------|--------|----------------------------------------|
| 0             | L1-N phase voltage    | 10     | L3 current           | 20     | Total reactive power of the system     |
| 1             | L2-N phase voltage    | 11     | Average line current | 21     | L1 apparent power                      |
| 2             | L3-N phase voltage    | 12     | Neutral current      | 22     | L2 apparent power                      |
| 3             | Average phase voltage | 13     | L1 active power      | 23     | L3 apparent power                      |
| 4             | L1-2-line voltage     | 14     | L2 active power      | 24     | The total apparent power of the system |
| 5             | L2-3-line voltage     | 15     | L3 active power      | 25     | L1 power factor                        |
| 6             | L3-1 line voltage     | 16     | Total system power   | 26     | L2 power factor                        |

|   |                      |    |                   |    |                           |
|---|----------------------|----|-------------------|----|---------------------------|
| 7 | Average line voltage | 17 | L1 reactive power | 27 | L3 power factor           |
| 8 | L1 current           | 18 | L2 reactive power | 28 | Total system power factor |
| 9 | L2 current           | 19 | L3 reactive power | 29 | Grid frequency            |

2. Pay attention to the highest VA lowest values of DO: HC>HO >LO >LC

3. SOE information form: type - event cause (status) - year - month - day - hour - minute -Second; Type: 0~67 VA99 (4

forms-2).

Event Reason: 0 = No Affiliation; 1 VA 2 indicate the cause of the event. 1 = HC alarm triggered; 2 = LC alarm trigger year:

Year of the event. For example: 2017, year=17;

Month: The month in which the event occurred;

Day: The date of the event;

Time: The time period during which the event occurred;

Minutes: The minute segment in which the event occurred;

Second: The second period in which the event occurred;

Table-2 Event Record Information

| serial number | Description of the event record | serial number | Description of the event record | serial number | Description of the event record  |
|---------------|---------------------------------|---------------|---------------------------------|---------------|----------------------------------|
| 0             | L1 voltage alarm                | 14            | L2 active power alarm           | 28            | Total power factor alarm         |
| 1             | L2 voltage alarm                | 15            | L3 active power alarm           | 29            | Frequency alarm                  |
| 2             | L3 voltage alarm                | 16            | Total active power alarm        | 60            | Power on the power supply        |
| 3             | Average phase voltage alarm     | 17            | L1 reactive power alarm         | 61            | The power supply is de-energized |
| 4             | L1-2 voltage alarm              | 18            | L2 reactive power alarm         | 62            | CT2 changes                      |
| 5             | L2-3 voltage alarm              | 19            | L3 reactive power alarm         | 63            | CT1 changes                      |
| 6             | L3-1 voltage alarm              | 20            | Total reactive power alarm      | 64            | PT2 changes                      |
| 7             | L-L Current alarm               | 21            | L1 apparent power alarm         | 65            | PT1 changes                      |
| 8             | L1 current alarm                | 22            | L2 apparent power alarm         | 66            | The battery level resets         |

|    |                       |    |                            |    |                      |
|----|-----------------------|----|----------------------------|----|----------------------|
| 9  | L2 current alarm      | 23 | L3 apparent power alarm    | 67 | Demand resets        |
| 10 | L3 current alarm      | 24 | Total apparent power alarm | 99 | No associated events |
| 11 | Average current alarm | 25 | L1 power factor alarm      |    |                      |
| 12 | Neutral current alarm | 26 | L2 Power factor alarm      |    |                      |
| 13 | L1 alarm active power | 27 | L3 Power Alarm factor      |    |                      |

Function code 02 is used to read the input status

| Register address | serial number | parameter  | The first address of the register |           | Scope of feasibility                                         | Mode |
|------------------|---------------|------------|-----------------------------------|-----------|--------------------------------------------------------------|------|
|                  |               |            | High bytes                        | Low bytes |                                                              |      |
| 10001            | 1             | DI-1 state | 00                                | 00        | DI1 state, 1=ON, 0=OFF<br>length: 1 bit<br>Data type: binary | ro   |
| 10002            | 2             | DI-2 state | 00                                | 01        | DI2 state, 1=ON, 0=OFF<br>length: 1 bit<br>Data type: binary | ro   |
| 10003            | 3             | DI-3 state | 00                                | 02        | DI3 state, 1=ON, 0=OFF<br>length: 1 bit<br>Data type: binary | ro   |
| 10004            | 4             | DI-4 state | 00                                | 03        | DI4 state, 1=ON, 0=OFF<br>length: 1 bit Data type: binary    | ro   |

Function code 01 reads the DO status

| Register address | serial number | parameter   | The first address of the register (Hex) |           | Scope of feasibility                                            | mode |
|------------------|---------------|-------------|-----------------------------------------|-----------|-----------------------------------------------------------------|------|
|                  |               |             | High bytes                              | Low bytes |                                                                 |      |
| 00001            | 1             | DO-1 status | 00                                      | 00        | DO-1 status, 1=ON, 0=OFF<br>length : 1 bit<br>Data Type: Binary | ro   |
| 00002            | 2             | DO-2 status | 00                                      | 01        | DO-2 status, 1=ON, 0=OFF<br>length: 1 bit<br>Data Type: Binary  | ro   |

Function code 05 controls the DO status

| Serial number | parameter     | Register start address |           | Scope of feasibility                                       | Mode |
|---------------|---------------|------------------------|-----------|------------------------------------------------------------|------|
|               |               | High bytes             | Low bytes |                                                            |      |
| 1             | Control DO-1  | 00                     | 00        | 0xFF00=ON, 0x0000=OFF<br>Length: 2 bytes<br>Data type: Hex | w    |
| 2             | Control DO- 2 | 00                     | 01        | 0xFF00=ON, 0x0000=OFF<br>Length: 2 bytes<br>Data type: Hex | w    |

## illustrate

### 1. Read the input register

Example: Read "Total active power".

Send: 01 04 01 56 00 02 90 27

thereinto

01 = Modbus address of the meter

04 = Function code

01 = The high byte of the register start address

56 = the low byte of the register start address

00 = the high byte of the number of registers

02 = the low byte of the number of registers

90 = CRC Low byte of checksum

27 = CRC High byte of checksum return: 01 04

04 43 66 33 34 1B 38

thereinto

01 = Modbus address of the meter

04 = Function code

04 = Number of bytes of data returned

43 = data, (high bytes of high words)

66 = data, (high word low byte)

33 = data, (high bytes of low words)

34 = data, (low bytes of low words)

1B = CRC Low byte of checksum

38 = CRC High byte of checksum

Explanation: 43 66 33 34(Hex) = 230.2 (Floating point)

### 2. Read hold registers

Example: Read "Pulse 1 Output Width" send: 01

03 00 0C 00 02 04 08 thereinto

01 = Modbus address of the meter

03 = Function code

00 = the high byte of the register start address

0C = the low byte of the register start address

00 = the high byte of the number of registers

02 = the low byte of the number of registers

04 = CRC Low byte of checksum

08 = CRC High byte of checksum return: 01

03 04 42 C8 00 00 6F B5

thereinto

01 = Modbus address of the meter

03 = Function code

04 = Number of bytes of data returned

42 = data, (high bytes of high words)

C8 = data, (high word low byte)

00 = data, (high byte of low word)  
 00 = data, (low bytes of low words)  
 6F = CRC Low byte of checksum  
 B5 = CRC High byte of checksum explain: 42 C8 00 00  
 (Hex) = 100 (Floating point)

### 3. Write hold registers

Example: Set the Pulse Constant of Pulse 1 = 100 imp/kWh send: 01

10 00 16 00 02 04 3F 80 00 00 7F 75 thereinto

01 = Modbus address of the meter  
 10 = function code  
 00 = the high byte of the register start address  
 16 = the low byte of the register's start address  
 00 = the high byte of the number of registers  
 02 = the low byte of the number of registers  
 04 = The number of bytes in which the data is written  
 3F = data, (high bytes of high words)  
 80 = data, (high word low byte)  
 00 = data, (high byte of low word)  
 00 = data, (low bytes of low words)  
 7F = CRC Low byte of checksum

75 = CRC High byte of checksum explain: 3F 60 00 00 (Hex) = 1 (Floating point), According to the definition of registers, 1 represents 100 imp/kWh return: 01 10 00 16 00 02 A0 0C thereinto

01 = Modbus address of the meter  
 10 = function code  
 00 = the high byte of the register start address  
 16 = the low byte of the register's start address  
 00 = the high byte of the number of registers  
 02 = the low byte of the number of registers  
 A0 = CRC Low byte of checksum  
 0C = CRC High byte of checksum

## Address

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