***Measuring class parameter [Integer format data]***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Holding Register Parameter**  **[ Read : Function code : 03H ]** | | | | **Register Address**  **[Hex]** | |
| **Description** | **Length**  **(bytes)** | **Data**  **Format** | **Units** | **High**  **Byte** | **Low**  **Byte** |
| Phase 1 line to neutral volts. | 4 | ULONG | 0.01V | 00 | 00 |
| Phase 2 line to neutral volts. | 4 | ULONG | 0.01V | 00 | 02 |
| Phase 3 line to neutral volts. | 4 | ULONG | 0.01V | 00 | 04 |
| Phase 1 current. | 4 | ULONG | 0.001A | 00 | 06 |
| Phase 2 current. | 4 | ULONG | 0.001A | 00 | 08 |
| Phase 3 current. | 4 | ULONG | 0.001A | 00 | 0A |
| Phase 1 active power. | 4 | LONG | 0.001kW | 00 | 0C |
| Phase 2 active power. | 4 | LONG | 0.001kW | 00 | 0E |
| Phase 3 active power. | 4 | LONG | 0.001kW | 00 | 10 |
| Phase 1 reactive power. | 4 | LONG | 0.001kvar | 00 | 12 |
| Phase 2 reactive power. | 4 | LONG | 0.001kvar | 00 | 14 |
| Phase 3 reactive power. | 4 | LONG | 0.001kvar | 00 | 16 |
| Phase 1 apparent power. | 4 | ULONG | 0.001kVA | 00 | 18 |
| Phase 2 apparent power. | 4 | ULONG | 0.001kVA | 00 | 1A |
| Phase 3 apparent power. | 4 | ULONG | 0.001kVA | 00 | 1C |
| Phase 1 power factor (1). | 2 | INT | 0.001 | 00 | 1E |
| Phase 2 power factor (1). | 2 | INT | 0.001 | 00 | 1F |
| Phase 3 power factor (1). | 2 | INT | 0.001 | 00 | 20 |
| Phase 1 phase angle. | 2 | INT | 0.01° | 00 | 21 |
| Phase 2 phase angle. | 2 | INT | 0.01° | 00 | 22 |
| Phase 3 phase angle. | 2 | INT | 0.01° | 00 | 23 |
| Line 1 to Line 2 volts. | 4 | ULONG | 0.01V | 00 | 24 |
| Line 2 to Line 3 volts. | 4 | ULONG | 0.01V | 00 | 26 |
| Line 3 to Line 1 volts. | 4 | ULONG | 0.01V | 00 | 28 |
| Frequency of supply voltages. | 2 | UINT | 0.01Hz | 00 | 2A |
| Total system active power. | 4 | LONG | 0.001kW | 00 | 2C |
| Total system reactive power. | 4 | LONG | 0.001kvar | 00 | 2E |
| Total system apparent power. | 4 | LONG | 0.001kVA | 00 | 30 |
| Total system power factor (1). | 2 | INT | 0.001 | 00 | 32 |
| Total system phase angle. | 2 | INT | 0.01° | 00 | 33 |
| Sum of line currents. | 4 | ULONG | 0.001A | 00 | 34 |
| Average line to neutral volts. | 4 | ULONG | 0.01V | 00 | 36 |
| Average line to line volts. | 4 | ULONG | 0.01V | 00 | 38 |
| Average line current. | 4 | ULONG | 0.001A | 00 | 3A |
| Neutral current. | 4 | ULONG | 0.001A | 00 | 3C |
| Total system active power demand (3). | 4 | LONG | 0.001kW | 00 | 66 |
| Total system reactive power demand (3). | 4 | LONG | 0.001kvar | 00 | 68 |
| Total system apparent power demand. | 4 | LONG | 0.001kVA | 00 | 6A |
| Phase 1 current demand. | 4 | ULONG | 0.001A | 00 | 6C |
| Phase 2 current demand. | 4 | ULONG | 0.001A | 00 | 6E |
| Phase 3 current demand. | 4 | ULONG | 0.001A | 00 | 70 |
| Maximum total system active power demand (3). | 4 | LONG | 0.001kW | 00 | 7C |
| Maximum total system reactive power demand (3). | 4 | LONG | 0.001kvar | 00 | 7E |
| Maximum total system apparent power demand. | 4 | ULONG | 0.001kVA | 00 | 80 |
| Maximum phase 1 current demand. | 4 | ULONG | 0.001A | 00 | 82 |
| Maximum phase 2 current demand. | 4 | ULONG | 0.001A | 00 | 84 |
| Maximum phase 3 current demand. | 4 | ULONG | 0.001A | 00 | 86 |
| Total import active energy. | 4 | ULONG | 0.01kWh | 04 | 00 |
| Total export active energy. | 4 | ULONG | 0.01kWh | 04 | 02 |
| Total active Energy. | 4 | ULONG | 0.01kWh | 04 | 04 |
| Total import reactive energy. | 4 | ULONG | 0.01kvarh | 04 | 08 |
| Total export reactive energy. | 4 | ULONG | 0.01kvarh | 04 | 0A |
| Total reactive Energy. | 4 | ULONG | 0.01kvarh | 04 | 0C |
| Total active energy of rate 1 | 4 | ULONG | 0.01kWh | 04 | 38 |
| Total active energy of rate 2 | 4 | ULONG | 0.01kWh | 04 | 3A |
| Total active energy of rate 3 | 4 | ULONG | 0.01kWh | 04 | 3C |
| Total active energy of rate 4 | 4 | ULONG | 0.01kWh | 04 | 3E |
| Import active energy of rate 1 | 4 | ULONG | 0.01kWh | 04 | 40 |
| Import active energy of rate 2 | 4 | ULONG | 0.01kWh | 04 | 42 |
| Import active energy of rate 3 | 4 | ULONG | 0.01kWh | 04 | 44 |
| Import active energy of rate 4 | 4 | ULONG | 0.01kWh | 04 | 46 |
| Export active energy of rate 1 | 4 | ULONG | 0.01kWh | 04 | 48 |
| Export active energy of rate 2 | 4 | ULONG | 0.01kWh | 04 | 4A |
| Export active energy of rate 3 | 4 | ULONG | 0.01kWh | 04 | 4C |
| Export active energy of rate 4 | 4 | ULONG | 0.01kWh | 04 | 4E |
| Total reactive energy of rate 1 | 4 | ULONG | 0.01kvarh | 04 | 50 |
| Total reactive energy of rate 2 | 4 | ULONG | 0.01kvarh | 04 | 52 |
| Total reactive energy of rate 3 | 4 | ULONG | 0.01kvarh | 04 | 54 |
| Total reactive energy of rate 4 | 4 | ULONG | 0.01kvarh | 04 | 56 |
| Import reactive energy of rate 1 | 4 | ULONG | 0.01kvarh | 04 | 58 |
| Import reactive energy of rate 2 | 4 | ULONG | 0.01kvarh | 04 | 5A |
| Import reactive energy of rate 3 | 4 | ULONG | 0.01kvarh | 04 | 5C |
| Import reactive energy of rate 4 | 4 | ULONG | 0.01kvarh | 04 | 5E |
| Export reactive energy of rate 1 | 4 | ULONG | 0.01kvarh | 04 | 60 |
| Export reactive energy of rate 2 | 4 | ULONG | 0.01kvarh | 04 | 62 |
| Export reactive energy of rate 3 | 4 | ULONG | 0.01kvarh | 04 | 64 |
| Export reactive energy of rate 4 | 4 | ULONG | 0.01kvarh | 04 | 66 |
| **Monthly energy consumption for the last 12 months** | | | | | |
| Total active energy category  (Each set of data includes the energy of all rate segments, the energy of rate 1, the energy of rate 2, the energy of rate 3 and the energy of rate 4 respectively) | | | | | |
| The total active energy consumption of the current months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 0C |
| The total active energy consumption of the last 1 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 16 |
| The total active energy consumption of the last 2 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 20 |
| The total active energy consumption of the last 3 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 2A |
| The total active energy consumption of the last 4 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 34 |
| The total active energy consumption of the last 5 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 3E |
| The total active energy consumption of the last 6 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 48 |
| The total active energy consumption of the last 7 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 52 |
| The total active energy consumption of the last 8 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 5C |
| The total active energy consumption of the last 9 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 66 |
| The total active energy consumption of the last 10 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 70 |
| The total active energy consumption of the last 11 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 7A |
| The total active energy consumption of the last 12 months (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 09 | 84 |
| **Daily energy consumption for the last 31 days** | | | | | |
| Total active energy category  (Each set of data includes the energy of all rate segments, the energy of rate 1, the energy of rate 2, the energy of rate 3 and the energy of rate 4 respectively) | | | | | |
| The total active energy consumption of the current days (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 18 |
| The total active energy consumption of the last 1 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 22 |
| The total active energy consumption of the last 2 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 2C |
| The total active energy consumption of the last 3 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 36 |
| The total active energy consumption of the last 4 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 40 |
| The total active energy consumption of the last 5 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 4A |
| The total active energy consumption of the last 6 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 54 |
| The total active energy consumption of the last 7 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 5E |
| The total active energy consumption of the last 8 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 68 |
| The total active energy consumption of the last 9 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 72 |
| The total active energy consumption of the last 10 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 7C |
| The total active energy consumption of the last 11 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 86 |
| The total active energy consumption of the last 12 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 90 |
| The total active energy consumption of the last 13 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | 9A |
| The total active energy consumption of the last 14 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | A4 |
| The total active energy consumption of the last 15 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | AE |
| The total active energy consumption of the last 16 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | B8 |
| The total active energy consumption of the last 17 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | C2 |
| The total active energy consumption of the last 18 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | CC |
| The total active energy consumption of the last 19 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | D6 |
| The total active energy consumption of the last 20 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | E0 |
| The total active energy consumption of the last 21 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | EA |
| The total active energy consumption of the last 22 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | F4 |
| The total active energy consumption of the last 23 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0C | FE |
| The total active energy consumption of the last 24 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 08 |
| The total active energy consumption of the last 25 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 12 |
| The total active energy consumption of the last 26 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 1C |
| The total active energy consumption of the last 27 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 26 |
| The total active energy consumption of the last 28 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 30 |
| The total active energy consumption of the last 29 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 3A |
| The total active energy consumption of the last 30 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 44 |
| The total active energy consumption of the last 31 days  (Total、Rate1、Rate2、Rate3、Rate4) | 20 | ULONG | 0.01kWh | 0D | 4E |

**Notes:**

1. The power factor has its sign adjusted to indicate the direction of the current. Positive refers to forward current, negative refers to reverse current.

2. The power sum demand calculation is for import – export.

***Set class parameters***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Holding Register Parameter**  **[ Read : Function code : 03H ; Write : Function code : 10H ]** | | | | **Register Address**  **[Hex]** | |  |
| **Parameter** | **Description** | **Length**  **(bytes)** | **Data**  **Format** | **High**  **Byte** | **Low**  **Byte** | **Mode** |
| Key Parameter Programming Authorization (KPPA) | Read: to get the status of the KPPA  0 = not authorized；1 = authorized  Write the correct password to get KPPA, enable to program key parameters. | 2 | UINT | 50 | 00 | **R/W** |
| Demand Period | Write demand period: 0~60 minutes, Default 60.  Range: 0~60, 0 means function update every second. | 2 | UINT | 50 | 02 | **R/W** |
| Slide time | Default 1, min.  Range：1 ~ (Demand Period -1). | 2 | UINT | 50 | 03 | **R/W** |
| Modbus address | Write the modbus address  Range: 1 to 247 for MODBUS Protocol, default 1. | 2 | UINT | 50 | 05 | **R/W** |
| Network Baud Rate | Write the network port baud rate for MODBUS Protocol, where:  0 = 1200 baud.  1 = 2400 baud.  2 = 4800 baud.  3 = 9600 baud, default. | 2 | UINT | 50 | 06 | **R/W** |
| Parity and stop bit | Write the network port parity/stop bits for MODBUS Protocol, where:  0 = One stop bit and no parity, default.  1 = One stop bit and even parity.  2 = One stop bit and odd parity.  3 = Two stop bits and no parity. | 2 | UINT | 50 | 07 | **R/W** |
| Password | Read: to get the password of the meter  Write: to program the new password of the meter  Default : 0000  **(KPPA is asked)** | 2 | UINT | 50 | 08 | **R/W** |
| Pulse 1 Energy Type | Write MODBUS Protocol  input parameter for pulse  output 1：  1: import active energy  2: total active energy  4: export active energy, default  5: import reactive energy  6: total reactive energy  8: export reactive energy | 2 | UINT | 50 | 09 | **R/W** |
| Pulse 1 constant | Write pulse constant index: n  = 0 to 3  0 : 1000 imp/kWh(kvarh), default  1 : 100 imp/kWh(kvarh)  2 : 10 imp/kWh(kvarh)  3 : 1 imp/kWh(kvarh)  Note: When the pulse constant is set to 1000 imp, the pulse output width is automatically modify to 35ms. | 2 | UINT | 50 | 0A | **R/W** |
| Pulse 1 Width | Write pulse on period in milliseconds: 60, 100 or 200, default 100.  Note: When the pulse constant is set to 1000 imp, the pulse output width is automatically modify to 35ms, which cannot be setting. | 2 | UINT | 50 | 0B | **R/W** |
| Automatic Scroll Display Time | Automatic scroll display time, unit : second  Range 0~60，default : 0  Note: 0 mean stop automatic scroll display | 2 | UINT | 50 | 18 | **R/W** |
| Backlit time | Backlit time, unit : minute.  Default 60.  Range 0~120 or 255，0 means backlit always on，255 means backlit always off. | 2 | UINT | 50 | 19 | **R/W** |
| System time | Data definition：  20-Year-Month-Date-Week-Hour-Minute-Second | 8 | BCD | 50 | 1A | **R/W** |
| Tariff | Data definition：  Tariff number-Min-Hour  Tariff number：00，01，02，03，04；00 mean invalid tariff number  Min：00-59  Hour：00-23 | 24 | BCD | 50 | 1E | **R/W** |
| Alarm object(1) | Range: 0~31，and 255；  Default: 255 = null | 2 | UINT | 51 | 80 | **R/W** |
| Alarm action delay time | Alarm action delay time，unit: ms  Range:0~9999；default: 0 ms  Note:  When an alarm event occurs, the alarm action will be performed only after the delay time. If the delay time is set to 0, the alarm action will be executed immediately. | 2 | UINT | 51 | 81 | **R/W** |
| Alarm threshold (2) | The factor for the alarm threshold value is 0.001.  Example: If you need to set the alarm threshold value to 10.123, the actual value written to the register is 10123.  (10123 \* 0.001 = 10.123) | 4 | LONG | 51 | 82 | **R/W** |
| Reset historical data | 0 = reset max. demand  5 = reset SOE information  7 = reset relay control record  8 = reset monthly energy consumption  9 = reset daily energy consumption  **(KPPA is asked)** | 2 | UINT | 56 | 00 | **W** |
| Meter code | The code of the meter | 2 | HEX | 56 | 01 | **R** |
| Serial number | The serial number of the meter | 4 | ULONG | 56 | 02 | **R** |
| Software version number | Software version number : XX.YY  Data definition : The first byte represents XX, and the second byte represents YY | 2 | HEX | 56 | 04 | **R** |
| Hardware version number | Hardware version number : XX.YY  Data definition : The first byte represents XX, and the second byte represents YY | 2 | HEX | 56 | 05 | **R** |
| version number of displayed | version number of displayed : XX.YY  Data definition : The first byte represents XX, and the second byte represents YY | 2 | HEX | 56 | 06 | **R** |
| Fault code | The data format is defined as follows :  Bit 0: indicates the fault bit of the L1 phase relay. 1 indicates that the relay cannot be disconnected, and 0 indicates that there is no fault.  Bit 1: indicates the fault bit of the L2 phase relay. 1 indicates that the relay cannot be disconnected, and 0 indicates that there is no fault.  Bit 2: indicates the fault bit of the L3 phase relay. 1 indicates that the relay cannot be disconnected, and 0 indicates that there is no fault.  Bit 3: Indicates the battery fault. 1 indicates that the battery voltage is too low. 0 indicates that the battery voltage is normal.  Bits 4 to 7 are always 0. | 2 | HEX | 56 | 07 | **R** |
| Control Relay | Write FF 00 to the register to control the connect of the relay;  Write 00 00 to the register to control the disconnect of the relay; | 2 | HEX | 56 | 09 | **R/W** |
| **Relay control record class** | | | | | | |
| Relay control record - 01 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 20 | **R** |
| Relay control record - 02 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 24 | **R** |
| Relay control record - 03 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 28 | **R** |
| Relay control record - 04 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 2C | **R** |
| Relay control record - 05 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 30 | **R** |
| Relay control record - 06 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 34 | **R** |
| Relay control record - 07 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 38 | **R** |
| Relay control record - 08 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 3C | **R** |
| Relay control record - 09 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 40 | **R** |
| Relay control record - 10 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 44 | **R** |
| Relay control record - 11 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 48 | **R** |
| Relay control record - 12 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 4C | **R** |
| Relay control record - 13 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 50 | **R** |
| Relay control record - 14 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 54 | **R** |
| Relay control record - 15 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 58 | **R** |
| Relay control record - 16 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 5C | **R** |
| Relay control record - 17 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 60 | **R** |
| Relay control record - 18 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 64 | **R** |
| Relay control record - 19 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 68 | **R** |
| Relay control record - 20 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 6C | **R** |
| Relay control record - 21 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 70 | **R** |
| Relay control record - 22 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 74 | **R** |
| Relay control record - 23 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 78 | **R** |
| Relay control record - 24 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 7C | **R** |
| Relay control record - 25 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 80 | **R** |
| Relay control record - 26 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 84 | **R** |
| Relay control record - 27 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 88 | **R** |
| Relay control record - 28 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 8C | **R** |
| Relay control record - 29 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 90 | **R** |
| Relay control record - 30 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 94 | **R** |
| Relay control record - 31 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 98 | **R** |
| Relay control record - 32 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | 9C | **R** |
| Relay control record - 33 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | A0 | **R** |
| Relay control record - 34 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | A4 | **R** |
| Relay control record - 35 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | A8 | **R** |
| Relay control record - 36 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | AC | **R** |
| Relay control record - 37 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | B0 | **R** |
| Relay control record - 38 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | B4 | **R** |
| Relay control record - 39 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | B8 | **R** |
| Relay control record - 40 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | BC | **R** |
| Relay control record - 41 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | C0 | **R** |
| Relay control record - 42 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | C4 | **R** |
| Relay control record - 43 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | C8 | **R** |
| Relay control record - 44 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | CC | **R** |
| Relay control record - 45 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | D0 | **R** |
| Relay control record - 46 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | D4 | **R** |
| Relay control record - 47 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | D8 | **R** |
| Relay control record - 48 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | DC | **R** |
| Relay control record - 49 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | E0 | **R** |
| Relay control record - 50 | The format is:  control type-year-month-date -hour-min-second.  Control type is 2 byte, FF 00 is mean control relay connect, 00 00 is mean control relay disconnect.  “year-month-date -hour-min-second “ indicates the occurrence time of the control relay action, and its data format is BCD. | 8 | Custom | 57 | E4 | **R** |
| **SOE Event logging class** | | | | | | |
| SOE-01 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 00 | **R** |
| SOE-02 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 06 | **R** |
| SOE-03 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 0C | **R** |
| SOE-04 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 12 | **R** |
| SOE-05 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 18 | **R** |
| SOE-06 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 1E | **R** |
| SOE-07 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 24 | **R** |
| SOE-08 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 2A | **R** |
| SOE-09 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 30 | **R** |
| SOE-10 (3) | SOE information; the format is:  type-event cause-alarm value-year-month-date -hour-min-second  Note:  Type : 1 byte, BCD.  event cause : 1 byte, BCD.  alarm value : 4 byte, LONG, factor is 0.001.  year-month-date -hour-min-second : 6 byte, BCD.  Note: The unit of alarm value please refer to Table 2. | 12 | Custom | 53 | 36 | **R** |

**Note:**

1. Table-1 Alarm object index table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Alarm object** | **No.** | **Alarm object** | **No.** | **Alarm object** |
| 0 | L1-N voltage | 11 | Average current | 22 | L2 apparent power |
| 1 | L2-N voltage | 12 | Neutral current | 23 | L3 apparent power |
| 2 | L3-N voltage | 13 | L1 active power | 24 | Total apparent power |
| 3 | Average voltage of L-N | 14 | L2 active power | 25 | Frequency |
| 4 | L1-2 voltage | 15 | L3 active power | 26 | Per phase L-N voltage |
| 5 | L2-3 voltage | 16 | Total active power | 27 | Per phase L-L voltage |
| 6 | L3-1 voltage | 17 | L1 reactive power | 28 | Per phase current |
| 7 | Average voltage of L-L | 18 | L2 reactive power | 29 | Per phase active power |
| 8 | L1 current | 19 | L3 reactive power | 30 | Per phase reactive power |
| 9 | L2 current | 20 | Total reactive power | 31 | Per phase apparent power |
| 10 | L3 current | 21 | L1 apparent power |  |  |

Note: If the alarm parameter set by the meter is per phase parameter, the meter will trigger the alarm action (disconnect the relay) as long as any phase parameter of the three-phase parameter is detected to exceed the set alarm threshold.

1. Table-2 Unit of alarm object

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Alarm parameter** | **Unit** | **Alarm parameter** | **Unit** | **Alarm parameter** | **Unit** |
| L1-N voltage | 0.001V | L3 current | 0.001A | Total reactive power | 0.001kvar |
| L2-N voltage | 0.001V | Average current | 0.001A | L1 apparent power | 0.001kVA |
| L3-N voltage | 0.001V | Neutral current | 0.001A | L2 apparent power | 0.001kVA |
| Average voltage of L-N | 0.001V | L1 active power | 0.001kW | L3 apparent power | 0.001kVA |
| L1-2 voltage | 0.001V | L2 active power | 0.001kW | Total apparent power | 0.001kVA |
| L2-3 voltage | 0.001V | L3 active power | 0.001kW | Frequency | 0.001kHz |
| L3-1 voltage | 0.001V | Total active power | 0.001kW |  |  |
| Average voltage of L-L | 0.001V | L1 reactive power | 0.001kvar |  |  |
| L1 current | 0.001A | L2 reactive power | 0.001kvar |  |  |
| L2 current | 0.001A | L3 reactive power | 0.001kvar |  |  |

1. SOE information format：type-event cause-alarm value-year-month-date -hour-min-second；

Type: 0~67, 99 (Table-3)

Event cause: 0 = null, 1 indicates that the event is an alarm event.

Alarm value: The value that causes an alarm

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

Month: the month when event happened.

Date: the date when event happened;

Hour: the hour when event happened;

Min: the Minute when event happened

Second: the second when event happened

1. Table-3 Event descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type** | **Event description** | **Type** | **Event description** | **Type** | **Event description** |
| 0 | L1-N voltage alarm | 13 | L1 active power alarm | 60 | L1 phase relay can not be disconnected alarm |
| 1 | L2-N voltage alarm | 14 | L2 active power alarm | 61 | L2 phase relay can not be disconnected alarm |
| 2 | L3-N voltage alarm | 15 | L3 active power alarm | 62 | L1 and L2 phase relay can not be disconnected alarm |
| 3 | Average voltage of L-N alarm | 16 | Total active power alarm | 63 | L3 phase relay can not be disconnected alarm |
| 4 | L1-2 voltage alarm | 17 | L1 reactive power alarm | 64 | L1 and L3 phase relay can not be disconnected alarm |
| 5 | L2-3 voltage alarm | 18 | L2 reactive power alarm | 65 | L2 and L3 phase relay can not be disconnected alarm |
| 6 | L3-1 voltage alarm | 19 | L3 reactive power alarm | 66 | All relays can not be disconnect alarm |
| 7 | Average voltage of L-L alarm | 20 | Total reactive power alarm | 99 | NULL |
| 8 | L1 current alarm | 21 | L1 apparent power alarm |  |  |
| 9 | L2 current alarm | 22 | L2 apparent power alarm |  |  |
| 10 | L3 current alarm | 23 | L3 apparent power alarm |  |  |
| 11 | Average current alarm | 24 | Total apparent power alarm |  |  |
| 12 | Neutral current alarm | 25 | Frequency alarm |  |  |

(5). Example for setting the tariff segment：

Example A: Setting T1 = 00:00 to 03:00, T2 = 03:00 to 06:00, T3 = 06:00 to 08:00, T4 = 08:00 to 00:00,

Send the following command (Hex):

**01 10 50 1E 00 0C 18 01 00 00 02 00 03 03 00 06 04 00 08 00 00 00 00 00 00 00 00 00 00 00 00 F6 2D**

**Among them, red character 01 represents the Modbus communication address of the meter, and 50 1E represents the register address of the tariff. The red character F6 2D is the CRC check code.**

**01 00 00 represents the start time of T1,**

**02 00 03 represents the start time of T2,**

**03 00 06 represents the start time of T3,**

**04 00 08 represents the start time of T4.**

**If the remaining four time points are not used, write them all to 00 00 00**

Example B: Setting T1 = 00:00 to 03:00 and 12:00 to 14:00; T2 = 03:00 to 06:00 and 14:00 to 16:00; T3 = 06:00 to 08:00 and 16:00 to 18:00; T4 = 08:00 to 12:00 and 18:00 to 00:00

Send the following command (Hex):

**01 10 50 1E 00 0C 18 01 00 00 02 00 03 03 00 06 04 00 08 01 00 12 02 00 14 03 00 16 04 00 18 A3 60**

**Among them, red character 01 represents the Modbus communication address of the meter, and 50 1E represents the register address of the tariff. The red character A3 60 is the CRC check code.**

**01 00 00, 01 00 12 represents the start time of T1,**

**02 00 03, 02 00 14 represents the start time of T2,**

**03 00 06, 03 00 16 represents the start time of T3,**

**04 00 08, 04 00 18 represents the start time of T4.**

**Example:**

1, Read Input Registers

Example: Read “Phase 1 line to neutral volts”

Request: 01 04 00 00 00 02 71 CB

Where, 01 = Meter address

03 = Function code

00 = High byte of registers starting address

00 = Low byte of registers starting address

00 = High byte of registers number

02 = Low byte of registers number

71 = CRC Low

CB = CRC High

Response: 01 04 04 43 66 33 34 1B 38

Where, 01 = Meter address

04 = Function code

04= Byte count

43 = Data, (High Word, High Byte)

66 = Data, (High Word, Low Byte)

33 = Data, (Low Word, High Byte)

34 = Data, (Low Word, Low Byte)

1B = CRC Low

38 = CRC High

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

Example: Read “Phase 1 line to neutral volts” (ULONG Format)

Request: 01 03 00 00 00 02 C4 B0

Where, 01 = Meter address

03 = Function code

00 = High byte of registers starting address

00 = Low byte of registers starting address

00 = High byte of registers number

02 = Low byte of registers number

C4 = CRC Low

B0 = CRC High

Response: 01 03 04 00 00 61 AA 53 DC

Where, 01 = Meter address

04 = Function code

04= Byte count

00 = Data, (High Word, High Byte)

00 = Data, (High Word, Low Byte)

61 = Data, (Low Word, High Byte)

AA = Data, (Low Word, Low Byte)

53 = CRC Low

DC = CRC High

Note: 00 00 61 AA(Hex) = 25002(ULONG) \* 0.01V = 250.02V

2, Read Holding Registers

Example: Read “Slide time”

Request: 01 03 50 03 00 01 65 0A

Where, 01 = Meter address

03 = Function code

50 = High byte of registers starting address

03 = Low byte of registers starting address

00 = High byte of registers number

01 = Low byte of registers number

65 = CRC Low

0A = CRC High

Response: 01 03 02 00 05 78 47

Where, 01 = Meter address

03 = Function code

04= Byte Count

00 = Data, (High Byte)

05 = Data, (Low Byte)

78 = CRC Low

47 = CRC High

Note: 00 05 (Hex) = 5 (UINT)

3, Write Holding Registers

Example: Write “Demand Period” = 30

Request: 01 10 50 02 00 01 02 00 1E 77 BF

Where, 01 = Meter address

10 = Function code

50 = High byte of registers starting address

02 = Low byte of registers starting address

00 = High byte of registers number

01 = Low byte of registers number

02 = Byte Count

00 = Data, (High Byte)

1E = Data, (Low Byte)

77 = CRC Low

BF = CRC High

Note: 00 1E (Hex) = 30(UINT)

Response: 01 10 50 02 00 01 B1 09

Where, 01 = Meter address

10 = Function code

50 = High byte of registers starting address

02 = Low byte of registers starting address

00 = High byte of registers number

01 = Low byte of registers number

B1 = CRC Low

09 = CRC High