KPM37 Three phase DIN rail power meter
MODBUS-RTU
Communication protocol_V4.3

HENAN COMPERE SMART TECHNOLOGY CO., LTD.

CONTENT

KPM37 three phase energy meter provides MODBUS-RTU communication protocol, 1 start bit, 8-bit data bits, 1/0 parity bit, 1/2 stop bits, each byte length is 11 bits.

Supported baud rates:：1200bps、2400bps、4800bps、9600bps、19200bps.

Factory default communication parameters: ：9600bps, no parity、1 stop bit.

1. Function code instruction

1.1. Read command function code 03H

The host reads the N-word data frame format from the slave (the data is hexadecimal)：

Slave add	Function code	Start add Hi	Start add Lo	Reading quantity of data Hi	Reading quantity of data Lo	CRC16 Hi	CRC16 Lo
00H	03H	xxH	xxH	00H	xxH	xxH	xxH

Slave response return frame format (data is in hexadecimal)：

Slave add	Function code	Bytes counter	Data0	Data1	……	……	……
00H	03H	N			……	……	……

DataN	CRC16 Hi	CRC16 Lo
	xxH	xxH

1.2. Write command Function code 10H

Query data frame：

Function code 16 (decimal) (10H in hexadecimal) allows the user to change the contents of multiple registers.

The host writes the N-word data frame format to the slave:

Slave add	Function code	Start add Hi	Start add Lo	Data counter Hi	Data counter Lo	Bytes counter
00H	10H	xxH	xxH	00H	N	2N

Data1	Data2	……	Data2N	CRC16 Hi	CRC16 Lo
40H	00H	……		xxH	xxH

Preset multi-register query data frames

Response data frame：

The normal response to a preset multiple register request is to respond to the device

address, function number, data start address, number of data, and CRC checksum after the register value is changed. The following table.

Slave add	Function code	Start add Hi	Start add Lo	Data counter Hi	Data counter Lo	CRC16 Hi	CRC16 Lo
00H	10H	xxH	xxH	00H	N	xxH	xxH

Preset multi-register response data frames

1.3. Relay control status and output status

1.3.1. Relay control（Function code 05H）

Request data frames：

Addr	Fun	DO addr hi	DO addr lo	Value hi	Value lo	CRC16 hi	CRC16 lo
01H	05H	xx	xx	FFH	00H	xxH	xxH

Response data frame：

Addr	Fun	DO addr hi	DO addr lo	Value hi	Value lo	CRC16 hi	CRC16 lo
01H	05H	xx	xx	FFH	00H	xxH	xxH

1.3.2. Read relay output status (function code 01H)

Request data frame：

Read Relay1 and Relay2 status.

Addr	Fun	Relay start reg hi	Relay start regs lo	Relay #of reg hi	Relay #of regs lo	CRC16 hi	CRC16 lo
01H	01H	00H	00H	00H	02H	xxH	xxH

Response data frame:

Response Data Frame from the slave responds to the host's data frame. Contains slave address, function code, number of data byte, relay status data, and CRC check. Each relay in the data packet occupies one bit (1 = ON, 0 = OFF). The first bit of the first byte is the lowest byte of the first byte. Address the relay state value, the rest of the order to the high order, useless bits filled with 0.

Read the contents of the digital output status response example.

Addr	Fun	Byte count	Data	CRC16 hi	CRC16 lo
01H	01H	01H	03H	11H	89H

Data byte content（Relay1 、Relay2、 ON）

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

1.4. Reading digital input status (function code 02H)

Request data frame：

This function allows the user to obtain the status of ON / OFF (1 = ON, 0 = OFF) of the digital input DI. The data frame needs to include the initial address and the number of DIs to be read in the data field except the slave address and the function field. The address of DI starts at 0000H (DI1 = 0000H, DI2 = 0001H ... and so on).

The following example shows the state of the DI1 and DI2 read from the slave address 01

Addr	Fun	DI start reg hi	DI start regs lo	DI num hi	DI num lo	CRC16 hi	CRC16 lo
01H	02H	00H	00H	00H	02H	xx	xx

Response data frame:

The response contains the slave address, function code, data quantity, packet and CRC check, each bit in the packet occupies one bit (1 = ON, 0 = OFF), the least significant bit of the first byte is the addressed DI1 value. The rest are arranged in order of high, and the unused bits are filled with 0.

The following table shows an example of reading the digital output status (DI1=ON, DI2=ON).

Addr	Fun	Byte count	Data	CRC16 hi	CRC16 lo
01H	02H	01H	03H	E1H	89H

Data

7	6	5	4	3	2	1	0
0	0	0	0	0	0	1	1

2. Digital input DI status

This area is the current digital input DI state, the user can read the Modbus protocol by function code 02H.

Address	Parameter	Numerical range	Data type	Attributes
0000H	DI1	1=ON，0=OFF	Bit	R
0001H	DI2	1=ON，0=OFF	Bit	R
0002H	DI3	1=ON，0=OFF	Bit	R
0003H	DI4	1=ON，0=OFF	Bit	R

3. Relay output status

This area stores relay status. Users can use the function code 01H of Modbus protocol to read the current status and use 05H function code to control the output. Note that control

relay 0x0000 is a relay trip, 0xFF55 relay close.

Address	Parameter	Numerical range	Data type	Attributes
0000H	Relay1	1=ON，0=OFF	Bit	R/W
0001H	Relay2	1=ON，0=OFF	Bit	R/W

4. System parameter area

This area stores system parameters related to the device operation, including communication parameters, wiring modes, I/O settings, etc., which can be read by using the Modbus protocol 03H function code or using the 10H function code setting.

Address	Parameter	Numerical range	Data type	MQTT
0000H	Protection password	0~9999	Word	R/W
0001H	Modbus address	Modbus address：1~247	Word	R/W
0002H	Baud rate and data parity mode	Baud rate (BIT0~7)： 0：1200bps 1：2400bps 2：4800bps 3：9600bps 4：19200bps 5：38400bps Data parity mode (BIT8~15)： 0: 8,1,n （No parity） 1: 8,1,even （Even parity） 2: 8,1,odd （Odd parity）	Word	R/W
0003H	Voltage transformation ratio	0~9999	Word	R/W
0004H	Current ratio	0~9999	Word	R/W
0005H	Wiring	0~2（3LN 3CT three phase four wire、2LL 2CT three phase three wire、2LL 3CT）	Word	R/W
0006H	Reserved			R/W
0007H	Backlighting time	0~120（mins）	Word	R/W
0008H	Demand sliding window time	1~30（mins）Using the sliding block method	Word	R/W
0009H	Max and min clearance	0：Never 1：daily clear，2：month clear	Word	R/W

000AH	Function setting	0: Present 1: Not Present Bits 0-7: Reserved Bit 8: Residual Current Bit 9: Reserved Bit 10: Temperature Bit 11: Reserved Bit 12: Reserved Bit 13: Reserved Bit 14: Digital Input Bit 15: Relay Output	Word	R/W
000BH	Clear the max /min value	Input 0xAA78 command, clear the maximum and minimum values immediately.		R/W
000CH	Clear all electrical energy	Input 0x5578 command，clear the energy consumption immediately	Word	R/W
0500H	Rated voltage (V)	10-9999V	Word	
0501H	Rated current (A)	1、5、100、400、600、800	Word	
0502H	Start current setting	0~9999mA	Word	R/W
0503H	Spare			
0504H	Protocol selection	0-ModBus-RTU，1-DL/T645-2007	Word	R/W
0505H	Setting limit value of voltage loss	0~40	Word	R/W
0506H	Undervoltage limit setting	0~100	Word	R/W
0507H	Overvoltage limit setting	0~200	Word	R/W
0508H	Overcurrent limit setting	0~200	Word	R/W
0509H	Overload limit setting	0~200	Word	R/W
050AH	Voltage imbalance setting	0~99	Word	R/W
050BH	Current imbalance setting	0~99	Word	R/W
050CH	LoRa channel settings	4300~5250	Word	R/W
050DH	Spare			
050EH	LoRa wireless rate settings	7~12（7 fastest，12 slowest）		
050FH	Reserved			
0510H	Wireless interface settings	0---LoRa，1---WIFI，2---4G		
0511H	Wireless	0---Transparent mode，1---MQTT		

	communication mode settings	mode（Only work for wifi and 4G）		
0512H	MOTT second-level data upload frequency settings (unit: seconds)	0-30,1-60,2-300,3-600,4-900,5-1200,6-1800,7-3600,8-5		
0513H	MOTT minute-level data upload frequency settings (unit: minutes)	0-1,1-5,2-10,3-15,4-20,5-30,6-60		
0514H	Reserved			
0515H	Time zone settings (primarily used for NTP time synchronization)	0~12：E0~E12, 13~24：W1~W2, 25：Disable NTP timing		

5. System Time Statistics Area

The statistics of the running time of the storage system in the region and the statistics of the system load time. These data can be read using the Modbus protocol 03H function code. The data format is unsigned 32-bit integer data.

Address	Parameter	Data type	Unit
0010H	System running time statistics.	unsigned int	Mins
0012H	System load time statistics	unsigned int	Mins

6. Clock parameter area

This area stores the calendar clock parameters that can be read using the Modbus protocol 03H function code, which can be set using the 10H-function code.

Address	Parameter	Numerical range	Data type
0020H	Year	2000~2099	Word
0021H	Month	1~12	Word
0022H	Day	1~31	Word
0023H	Hour	0~23	Word
0024H	Minute	0~59	Word
0025H	Second	0~59	Word

7. Basic Measurement Parameters Area

Basic measurement area, mainly measuring basic voltage, current, power, power factor, etc.. Demand and unbalance analysis, an important parameter to measure power quality when the voltage and current in the power grid are unbalanced, voltage and current unbalance degree is negative sequence / positive sequence. The zero-sequence voltage and current can reflect the neutral current and the neutral voltage.

The calculation of demand is calculated using the sliding block method, which is to set a window time which is the calculation period of the demand. The window is slid every 1 minute, and the demand value is updated once.
All parameters in this area are real-time measurement parameters and are read using the Modbus protocol 03H function code. The data format is floating-point data, and the data in this area has been multiplied by the transformation ratio.

Address	Parameter	Data type	Unit
0030H	Ua	Float	V
0032H	Ub	Float	V
0034H	Uc	Float	V
0036H	Uab	Float	V
0038H	Ubc	Float	V
003AH	Uca	Float	V
003CH	Ia	Float	A
003EH	Ib	Float	A
0040H	Ic	Float	A
0042H	Pa	Float	W
0044H	Pb	Float	W
0046H	Pc	Float	W
0048H	Psum	Float	W
004AH	Qa	Float	var
004CH	Qb	Float	var
004EH	Qc	Float	var
0050H	Qsum	Float	var
0052H	Sa	Float	VA
0054H	Sb	Float	VA
0056H	Sc	Float	VA
0058H	Ssum	Float	VA
005AH	Phase A PF1	Float	
005CH	Phase B PF2	Float	
005EH	Phase C PF3	Float	
0060H	System PF	Float	
0062H	System F	Float	HZ
0064H	Temperature TA	Float	℃
0066H	Temperature TB	Float	℃
0068H	Temperature TC	Float	℃
006AH	Temperature TN	Float	℃
006CH	Zero sequency voltage	Float	V
006EH	Positive-sequence voltage U1	Float	V
0070H	Negative-sequence voltage U2	Float	V
0072H	Zero sequency current	Float	A

0074H	Positive-sequence current I1	Float	A
0076H	Negative-sequence current I2	Float	A
0078H	Voltage unbalance degree Yv	Float	%
007AH	Current unbalance degree Yi	Float	%
007CH	Total active power demand	Float	W
007EH	Total reactive power demand	Float	var
0080H	Total apparent power demand	Float	VA
0082H	Ia demand	Float	A
0084H	Ib demand	Float	A
0086H	Ic demand	Float	A
0088H	Average three-phase phase voltage	Float	V
008AH	Average three-phase line voltage	Float	V
008CH	Residual current	Float	A
008EH	Phase A voltage deviation	Float	%
0090H	Phase B voltage deviation	Float	%
0092H	Phase C voltage deviation	Float	%
0094H	Uab voltage deviation	Float	%
0096H	Ubc voltage deviation	Float	%
0098H	Uca voltage deviation	Float	%
009AH	Frequency deviation	Float	Hz
009CH	Phase A minute average active power	Float	W
009EH	Phase B minute average active power	Float	W
00A0H	Phase C minute average active power	Float	W
00A2H	Daily load rate (previous day)	Float	%
00A4H	Monthly load rate (previous month)	Float	%
00A6H	Three-phase average current	Float	A

8. Meter running status word

There are 3 status words for device operation, which records the power direction and the operation status, etc. Each status word is represented by 2 bytes, with the high bit in front in serial transmission, and each status represents one bit.

Address	Parameters	Data type	Remarks
00F0H	Meter operation status word 1	Word	
00F1H	Meter operation status word 2	Word	
00F2H	Meter operation status word 3	Word	

Meter operation status word 1：

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Spare	Spare	Reactive power direction (0	Active power direction (0	Spare	Spare	Demand calculation method (0 slip, 1 interval)	Spare

		forward, 1 reverse)	forward, 1 reverse)				
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

Meter operation status word 2：

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Spare	Phase C Reactive power direction	Phase B Reactive power direction	Phase A Reactive power direction	Spare	Phase C active power direction	Phase B active power direction	Phase A active power direction
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

Meter operation status word 3：

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Spare	Spare	Spare	Spare	Programming Allowed (0 prohibited, 1 permitted)	Spare	Spare	Spare
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

9. Electricity meter fault status word

Record the fault status of phases A, B and C. Each status word is represented by 2 bytes, with the high bit first in serial transmission and each status representing one bit.

Address	Parameters	Data type	Remarks
00F3H	Electricity meter fault status word 1	Word	
00F4H	Electricity meter fault status word 2	Word	
00F5H	Electricity meter fault status word 3	Word	
00F6H	Electricity meter fault status word 4	Word	

Electricity meter fault status word 1：（Phase A fault status）

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Phase broken	Spare	Overload	Over-current	No current	Over voltage	Low voltage	No voltage
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

Electricity meter fault status word 2：（Phase B fault status）

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Phase	Spare	Overload	Over-	No	Over	Low	No

broken			current	current	voltage	voltage	voltage
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

Electricity meter fault status word 3：（Phase C fault status）

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Phase broken	Spare	Overload	Over-current	No current	Over voltage	Low voltage	No voltage
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

Electricity meter fault status word 4：（Total fault status）

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Spare	Spare	Spare	Spare	Current imbalance	Voltage imbalance	Spare	Spare
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

10. Power quality measurement parameters area

10.1. Harmonic content rate

This device measures including total distortion rate, 2-31st harmonic inclusion rate, odd distortion rate, even distortion rate, crest factor, and K-factor. This data is expanded 1000 times and represents 18.5% awareness if it is data 185.

The data can be read using the Modbus protocol 03H function code.

Address	Parameter	Numerical range	Instructions	Data type
0100H	UA or UAB Total Harmonic Distortion Rate THD_V1	0~1000	0~100.0%	Word
0101H	UB or UBC total harmonic content（THD_V2）	0~1000	0~100.0%	Word
0102H	UC or UCA total harmonic content（THD_V3）	0~1000	0~100.0%	Word
0103H	Ua or Uab even harmonic distortion	0~1000	0~100.0%	Word
0104H	Ua or Uab odd harmonic distortion	0~1000	0~100.0%	Word
0105H	Ub even harmonic distortion rate	0~1000	0~100.0%	Word
0106H	Ub odd harmonic distortion rate	0~1000	0~100.0%	Word
0107H	Uc or Ubc even harmonic distortion rate	0~1000	0~100.0%	Word
0108H	Uc or Ubc odd harmonic distortion rate			

0109H	Ia Total Harmonic Distortion Rate THD_I1	0~1000	0~100.0%	Word
010AH	Ib Total Harmonic Distortion Rate THD_I2	0~1000	0~100.0%	Word
010BH	Ic Total Harmonic Distortion Rate THD_I3	0~1000	0~100.0%	Word
010CH	I1 even harmonic distortion rate	0~1000	0~100.0%	Word
010DH	I1 odd harmonic distortion	0~1000	0~100.0%	Word
010EH	I2 even harmonic distortion rate	0~1000	0~100.0%	Word
010FH	I2 odd harmonic distortion	0~1000	0~100.0%	Word
0110H	I3 even harmonic distortion rate	0~1000	0~100.0%	Word
0111H	I3 odd harmonic distortion	0~1000	0~100.0%	Word
0112H	Va or Vab Crest factor	0~65535	65.535	Word
0113H	Vb or Vbc Crest factor	0~65535	65.535	Word
0114H	Vc or Vca Crest factor	0~65535	65.535	Word
0115H	Ia K factor	0~65535	65.535	Word
0116H	Ib K factor	0~65535	65.535	Word
0117H	Ic K factor	0~65535	65.535	Word
0120H~013DH	Ua or Uab harmonic content ratio（2-31harmonics）	0~1000	0~100.0%	Word
015EH~017BH	Ub harmonic content ratio（2-31harmonics）	0~1000	0~100.0%	Word
019CH~01B9H	Uc or Ucb harmonic content ratio（2-31harmonics）	0~1000	0~100.0%	Word
01DAH~01F7H	Ia harmonic content ratio（2-31harmonics））	0~1000	0~100.0%	Word
0218H~0235H	Ib harmonic content ratio（2-31harmonics）	0~1000	0~100.0%	Word
0256H~0273H	Ic harmonic content ratio（2-31harmonics））	0~1000	0~100.0%	Word

10.2. Harmonic content

This area is the Modbus register address for the harmonic content, and the data type is single precision floating point.

The data can be read using Modbus protocol function code 03H.

Address	Parameter	Unit	Data type
4700H	UA or UAB total harmonic content	V	Float
4702H	UB or UBC total harmonic content	V	Float
4704H	UC or UCA total harmonic content	V	Float
4706H	Ua or Uab even harmonic content	V	Float
4708H	Ua or Uab odd harmonic content	V	Float
470AH	Ub even harmonic content	V	Float

470CH	Ub odd harmonic content	V	Float
470EH	Uc or Ubc even harmonic contents	V	Float
4710H	Uc or Ubc odd harmonic content	V	Float
4712H	Ia total harmonic content	A	Float
4714H	Ib total harmonic content	A	Float
4716H	Ic total harmonic content	A	Float
4718H	Ia even harmonic content	A	Float
471AH	Ia odd harmonic content	A	Float
471CH	Ib even harmonic content	A	Float
471EH	Ib odd harmonic content	A	Float
4720H	Ic even harmonic content	A	Float
4722H	Ic odd harmonic content	A	Float
4730H ~47ABH	Ua or Uab harmonic content (2-31st)	V	Float
47ACH ~4827H	Ub harmonic content (2-31st)	V	Float
4828H ~48A3H	Uc or Ucb harmonic content (2-31st)	V	Float
48A4H ~491FH	Ia harmonic content (2-31st)	A	Float
4920H ~499BH	Ib harmonic content (2-31st)	A	Float
499CH ~4A17H	Ic harmonic content (2-31st)	A	Float

11. Angle measurement

The phase angle difference is Ub, Uc, and the phase relationship between current and Ua. The angle is from 0 to 360.0. This function can help the user to connect, prevent the user from connecting the wrong line, but also can directly reflect the angle relationship between the voltage and current of the grid. Because the three-phase three-wire and three-phase four-wire connection are different, the reference input voltage is not the same, so the protocol specifically separates the two connection mode data. Users can read different data ranges according to the connection mode.

The data can be read using the Modbus protocol 03H function code.

Address	Parameter	Numerical range	Instructions	Data type
0300H	Ub phase angle difference with respect to Ua	0~3600	Three-phase four-wire：0~360.0°	Word
0301H	Uc phase angle difference with respect to	0~3600	Three-phase four-wire：0~360.0°	Word

	Ua			
0302H	Phase angle difference between Ia and Ua	0~3600	Three-phase four-wire：0~360.0°	Word
0303H	Phase angle difference between Ib and Ua	0~3600	Three-phase four-wire：0~360.0°	Word
0304H	Phase angle difference between Ic and Ua	0~3600	Three-phase four-wire：0~360.0°	Word
0305H	Ubc phase angle difference relative to Uab	0~3600	Three-phase three-wire：0~360.0°	Word
0306H	Phase angle difference between Ia and Uab	0~3600	Three-phase three-wire：0~360.0°	Word
0307H	Phase angle difference between Ib and Uab	0~3600	Three-phase three-wire：0~360.0°	Word
0308H	Phase angle difference between Ic and Uab	0~3600	Three-phase three-wire：0~360.0°	Word

12. Relay settings

When DI is turned on, the software can design the anti-shake time and the relay pulse output width can be set. Only when the relay is set to remote control mode and the output type is pulse output, other modes are invalid.

Can use Modbus protocol 03H function code reading, or use 10H function code settings.

Address	Parameter	Explanation of meaning	Defaults	Data type	MQTT
0460H	Switch input 1 anti-shake time	0-9999 mS (system default 20ms)	20	Word	R/W
0461H	Switch input 2 anti-shake time	0-9999 mS (system default 20ms)	20	Word	R/W
0462H	Spare				R/W
0463H	Spare				R/W
0464H	Relay 1 pulse output width	50-9999, (increase one number is 1mS)	200	Word	R/W
0465H	Relay 2 pulse output width	50~9999，(increase one number is 1mS)	200	Word	R/W
0466H	Spare				R/W
0467H	Spare				R/W
0468H	Relay remote control method	Bit 0-1 Corresponds to the 1st to 2nd relay output patterns 0-Remote control method 1-Alarm method	0	Word	R/W

0469H	0-Remote control method	Bit 0-1 Corresponds to the 1st to 2nd relay output patterns 0 — Pulse output 1 — Level output	0	Word	R/W

13. Alarm event function

The device has 8 sets of alarm records. Each alarm set can be outputted to the relay. Note that the meter relay output must be set to the alarm mode to be effective. If the relay is set to pulse mode, the relay will operate and relay will output a pulse signal after the alarm occurs. If this alarm condition persists, the meter relay will only output a pulse and wait for the alarm condition to disappear, then resume to the next alarm. If the relay is operated in a electrical level output mode, if this alarm condition persists, the relay will always output signal. Once the alarm condition is not established, the relay returns to the open state.

The corresponding parameters of the alarm measured parameters are as follows：

No.	Corresponding parameters
0~35	The basic measurement parameter data corresponding to this group of coefficients.

It can be read using Modbus protocol 03H function code and set by 10H function code.

Address	Parameter	Explanation of meaning	Numerical range	Defaults	Data type
0470H	Whether the alarm group is closed	Bit0~bit8 One alarm group per bit 0：Close 1：Open		0	
0471H	Alarm group and DO1 relay (Relay must be set to alarm mode to be valid)	Bit0~bit8 One alarm group per bit 0：Close 1：Open		0	
0472H	Alarm group and DO2 relay (Relay must be set to alarm mode to be valid)	Bit0~bit8 One alarm group per bit 0：Close 1：Open		0	
0473H	Spare				
0474H	Spare				
0475H	Alarm group delay	0~999S	0~999S	0	Word
0476H	Group 1: Parameter no.	Check record meaning (increase temperature alarm)	0~36	0	Word

0477H	Group 1: Setting value	Related to specific parameters			Float
0479H	Group 1: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
047AH	Group 2: Parameter no.	Check record meaning	0~36	0	Word
047BH	Group 2: Setting value	Related to specific parameters			Float
047DH	Group 2: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
047EH	Group 3: Parameter no.	Check record meaning	0~36	0	Word
047FH	Group 3: Setting value	Related to specific parameters			Float
0481H	Group 3: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
0482H	Group 4: Parameter no.	Check record table meaning	0~36	0	Word
0483H	Group 4: Setting value	Related to specific parameters			Float
0485H	Group 4: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
0486H	Group 5: Parameter no.	Check record meaning	0~36	0	Word
0487H	Group 5: Setting value	Related to specific parameters			Float
0489H	Group 5: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
048AH	Group 6: Parameter no.	Check record meaning	0~36	0	Word
048BH	Group 6: Setting value	Related to specific parameters			Float
048DH	Group 6: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word

048EH	Group 7: Parameter no.	Check record meaning	0~36	0	Word
048FH	Group 7: Setting value	Related to specific parameters			Float
0491H	Group 7: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word
0492H	Group 8: Parameter no.	Check record meaning	0~36	0	Word
0493H	Group 8: Setting value	Related to specific parameters			Float
0495H	Group 8: Comparison method	0: Less than, Lower limit of judgment 1: More than, Upper limit of judgment	0~1	1	Word

14. Multi-rate Energy Parameters

Each parameter in this area is the accumulated power consumption data, which can be read using the Modbus protocol 03H function code.

Address	Parameter	Numerical range	Unit	Data type
Four-quadrant power consumption				
0580H (1408)	Total import active power consumption		kWh	Float
0582H	Total export active power consumption		kWh	Float
0584H	Total inductive reactive power consumption		kvarh	Float
0586H	Total capacitive reactive power consumption		kvarh	Float
Total time slot power consumption				
0588H (1416)	Total active power consumption		kWh	Float
058AH	Total reactive power consumption		kvarh	Float
058CH	Current month total active power consumption		kWh	Float
058EH	Current month total reactive power consumption		kvarh	Float
0590H	Total active power consumption of January		kWh	Float
0592H	Total reactive power consumption of January		kvarh	Float

0594H	Total active power consumption of February		kWh	Float
0596H	Total reactive power consumption of February		kvarh	Float
0598H	Total active power consumption of March		kWh	Float
059AH	Total reactive power consumption of March		kvarh	Float
059CH	Total active power consumption of April		kWh	Float
059EH	Total reactive power consumption of April		kvarh	Float
05A0H	Total active power consumption of May		kWh	Float
05A2H	Total reactive power consumption of May		kvarh	Float
05A4H	Total active power consumption of June		kWh	Float
05A6H	Total reactive power consumption of June		kvarh	Float
05A8H	Total active power consumption of July		kWh	Float
05AAH	Total reactive power consumption of July		kvarh	Float
05ACH	Total active power consumption of August		kWh	Float
05AEH	Total reactive power consumption of August		kvarh	Float
05B0H	Total active power consumption of September		kWh	Float
05B2H	Total reactive power consumption of September		kvarh	Float
05B4H	Total active power consumption of October		kWh	Float
05B6H	Total reactive power consumption of October		kvarh	Float
05B8H	Total active power consumption of November		kWh	Float
05BAH	Total reactive power consumption of November		kvarh	Float
05BCH	Total active power consumption of December		kWh	Float
05BEH	Total reactive power consumption of		kvarh	Float

	December			
Sharp time power consumption				
05C0H (1472)	Total sharp active power consumption		kWh	Float
05C2H	Total sharp reactive power consumption		kvarh	Float
05C4H	Current month Total sharp active power consumption		kWh	Float
05C6H	Current month Total sharp reactive power consumption		kvarh	Float
05C8H	Total sharp active power consumption of January		kWh	Float
05CAH	Total sharp reactive power consumption of January		kvarh	Float
05CCH	Total sharp active power consumption of February		kWh	Float
05CEH	Total sharp reactive power consumption of February		kvarh	Float
05D0H	Total sharp active power consumption of March		kWh	Float
05D2H	Total sharp reactive power consumption of March		kvarh	Float
05D4H	Total sharp active power consumption of April		kWh	Float
05D6H	Total sharp reactive power consumption of April		kvarh	Float
05D8H	Total sharp active power consumption of May		kWh	Float
05DAH	Total sharp reactive power consumption of May		kvarh	Float
05DCH	Total sharp active power consumption of June		kWh	Float
05DEH	Total sharp reactive power consumption of June		kvarh	Float
05E0H	Total sharp active power consumption of July		kWh	Float
05E2H	Total sharp reactive power consumption of July		kvarh	Float
05E4H	Total sharp active power consumption of August		kWh	Float
05E6H	Total sharp reactive power consumption of August		kvarh	Float
05E8H	Total sharp active power		kWh	Float

	consumption of September			
05EAH	Total sharp reactive power consumption of September		kvarh	Float
05ECH	Total sharp active power consumption of October		kWh	Float
05EEH	Total sharp reactive power consumption of October		kvarh	Float
05F0H	Total sharp active power consumption of November		kWh	Float
05F2H	Total sharp reactive power consumption of November		kvarh	Float
05F4H	Total sharp active power consumption of December		kWh	Float
05F6H	Total sharp reactive power consumption of December		kvarh	Float
Peak time power consumption				
05F8H	Total peak active power consumption		kWh	Float
05FAH	Total peak reactive power consumption		kvarh	Float
05FCH	Current month Total peak active power consumption		kWh	Float
05FEH	Current month Total peak reactive power consumption		kvarh	Float
0600H	Total peak active power consumption of January		kWh	Float
0602H	Total peak reactive power consumption of January		kvarh	Float
0604H	Total peak active power consumption of February		kWh	Float
0606H	Total peak reactive power consumption of February		kvarh	Float
0608H	Total peak active power consumption of March		kWh	Float
060AH	Total peak reactive power consumption of March		kvarh	Float
060CH	Total peak active power consumption of April		kWh	Float
060EH	Total peak reactive power consumption of April		kvarh	Float
0610H	Total peak active power consumption of May		kWh	Float
0612H	Total peak reactive power consumption of May		kvarh	Float

0614H	Total peak active power consumption of June		kWh	Float
0616H	Total peak reactive power consumption of June		kvarh	Float
0618H	Total peak active power consumption of July		kWh	Float
061AH	Total peak reactive power consumption of July		kvarh	Float
061CH	Total peak active power consumption of August		kWh	Float
061EH	Total peak reactive power consumption of August		kvarh	Float
0620H	Total peak active power consumption of September		kWh	Float
0622H	Total peak reactive power consumption of September		kvarh	Float
0624H	Total peak active power consumption of October		kWh	Float
0626H	Total peak reactive power consumption of October		kvarh	Float
0628H	Total peak active power consumption of November		kWh	Float
062AH	Total peak reactive power consumption of November		kvarh	Float
062CH	Total peak active power consumption of December		kWh	Float
062EH	Total peak reactive power consumption of December		kvarh	Float
Flat time power consumption				
0630H	Total flat active power consumption		kWh	Float
0632H	Total flat reactive power consumption		kvarh	Float
0634H	Current month Total flat active power consumption		kWh	Float
0636H	Current month Total flat reactive power consumption		kvarh	Float
0638H	Total flat active power consumption of January		kWh	Float
063AH	Total flat reactive power consumption of January		kvarh	Float
063CH	Total flat active power consumption of February		kWh	Float
063EH	Total flat reactive power consumption of February		kvarh	Float

0640H	Total flat active power consumption of March		kWh	Float
0642H	Total flat reactive power consumption of March		kvarh	Float
0644H	Total flat active power consumption of April		kWh	Float
0646H	Total flat reactive power consumption of April		kvarh	Float
0648H	Total flat active power consumption of May		kWh	Float
064AH	Total flat reactive power consumption of May		kvarh	Float
064CH	Total flat active power consumption of June		kWh	Float
064EH	Total flat reactive power consumption of June		kvarh	Float
0650H	Total flat active power consumption of July		kWh	Float
0652H	Total flat reactive power consumption of July		kvarh	Float
0654H	Total flat active power consumption of August		kWh	Float
0656H	Total flat reactive power consumption of August		kvarh	Float
0658H	Total flat active power consumption of September		kWh	Float
065AH	Total flat reactive power consumption of September		kvarh	Float
065CH	Total flat active power consumption of October		kWh	Float
065EH	Total flat reactive power consumption of October		kvarh	Float
0660H	Total flat active power consumption of November		kWh	Float
0662H	Total flat reactive power consumption of November		kvarh	Float
0664H	Total flat active power consumption of December		kWh	Float
0666H	Total flat reactive power consumption of December		kvarh	Float
Valley time power consumption				
0668H	Total valley active power consumption		kWh	Float

066AH	Total valley reactive power consumption		kvarh	Float
066CH	Current month Total valley active power consumption		kWh	Float
066EH	Current month Total valley reactive power consumption		kvarh	Float
0670H	Total valley active power consumption of January		kWh	Float
0672H	Total valley reactive power consumption of January		kvarh	Float
0674H	Total valley active power consumption of February		kWh	Float
0676H	Total valley reactive power consumption of February		kvarh	Float
0678H	Total valley active power consumption of March		kWh	Float
067AH	Total valley reactive power consumption of March		kvarh	Float
067CH	Total valley active power consumption of April		kWh	Float
067EH	Total valley reactive power consumption of April		kvarh	Float
0680H	Total valley active power consumption of May		kWh	Float
0682H	Total valley reactive power consumption of May		kvarh	Float
0684H	Total valley active power consumption of June		kWh	Float
0686H	Total valley reactive power consumption of June		kvarh	Float
0688H	Total valley active power consumption of July		kWh	Float
068AH	Total valley reactive power consumption of July		kvarh	Float
068CH	Total valley active power consumption of August		kWh	Float
068EH	Total valley reactive power consumption of August		kvarh	Float
0690H	Total valley active power consumption of September		kWh	Float
0692H	Total valley reactive power consumption of September		kvarh	Float
0694H	Total valley active power		kWh	Float

	consumption of October			
0696H	Total valley reactive power consumption of October		kvarh	Float
0698H	Total valley active power consumption of November		kWh	Float
069AH	Total valley reactive power consumption of November		kvarh	Float
069CH	Total valley active power consumption of December		kWh	Float
069EH	Total valley reactive power consumption of December		kvarh	Float
Deep valley time power consumption				
06A0H（1696）	Total deep valley active power consumption		kWh	Float
06A2H	Total deep valley reactive power consumption		kvarh	Float
06A4H	Current month Total deep valley active power consumption		kWh	Float
06A6H	Current month Total deep valley reactive power consumption		kvarh	Float
06A8H	Total deep valley active power consumption of January		kWh	Float
06AAH	Total deep valley reactive power consumption of January		kvarh	Float
06ACH	Total deep valley active power consumption of February		kWh	Float
06AEH	Total deep valley reactive power consumption of February		kvarh	Float
06B0H	Total deep valley active power consumption of March		kWh	Float
06B2H	Total deep valley reactive power consumption of March		kvarh	Float
06B4H	Total deep valley active power consumption of April		kWh	Float
06B6H	Total deep valley reactive power consumption of April		kvarh	Float
06B8H	Total deep valley active power consumption of May		kWh	Float
06BAH	Total deep valley reactive power consumption of May		kvarh	Float
06BCH	Total deep valley active power consumption of June		kWh	Float
06BEH	Total deep valley reactive power		kvarh	Float

	consumption of June			
06C0H	Total deep valley active power consumption of July		kWh	Float
06C2H	Total deep valley reactive power consumption of July		kvarh	Float
06C4H	Total deep valley active power consumption of August		kWh	Float
06C6H	Total deep valley reactive power consumption of August		kvarh	Float
06C8H	Total deep valley active power consumption of September		kWh	Float
06CAH	Total deep valley reactive power consumption of September		kvarh	Float
06CCH	Total deep valley active power consumption of October		kWh	Float
06CEH	Total deep valley reactive power consumption of October		kvarh	Float
06D0H	Total deep valley active power consumption of November		kWh	Float
06D2H	Total deep valley reactive power consumption of November		kvarh	Float
06D4H	Total deep valley active power consumption of December		kWh	Float
06D6H	Total deep valley reactive power consumption of December		kvarh	Float
Average power factor				
0780H	Current month average power factor			Float
0782H	January average power factor			Float
0784H	February average power factor			Float
0786H	March average power factor			Float
0788H	April average power factor			Float
078AH	May average power factor			Float
078CH	June average power factor			Float
078EH	July average power factor			Float
0790H	August average power factor			Float
0792H	September average power factor			Float
0794H	October average power factor			Float
0796H	November average power factor			Float
0798H	December average power factor			Float
Split-phase power consumption				
079AH	Phase A import active power consumption		kWh	Float
079CH	Phase A export active power		kWh	Float

	consumption			
079EH	Phase A import reactive power consumption		kvarh	Float
07A0H	Phase A export reactive power consumption		kvarh	Float
07A2H	Phase B import active power consumption		kWh	Float
07A4H	Phase B export active power consumption		kWh	Float
07A6H	Phase B import reactive power consumption		kvarh	Float
07A8H	Phase B export reactive power consumption		kvarh	Float
07AAH	Phase C import active power consumption		kWh	Float
07ACH	Phase C export active power consumption		kWh	Float
07AEH	Phase C import reactive power consumption		kvarh	Float
07B0H	Phase C export reactive power consumption		kvarh	Float
07B2H	1st quadrant reactive power consumption		kvarh	Float
07B4H	2nd quadrant reactive power consumption		kvarh	Float
07B6H	3rd quadrant reactive power consumption		kvarh	Float
07B8H	4th quadrant reactive power consumption		kvarh	Float
Daily power consumption				
07BAH	Today's daily import active power consumption		kWh	Float
07BCH	Today's daily export active power consumption		kWh	Float
07BEH	Today's daily import reactive power consumption		kvarh	Float
07C0H	Today's daily export reactive power consumption		kvarh	Float
07C2H	Last day's daily import active power consumption		kWh	Float
07C4H	Last day's daily export active power consumption		kWh	Float
07C6H	Last day's daily import reactive		kvarh	Float

	power consumption			
07C8H	Last day's daily export reactive power consumption		kvarh	Float
Sharp time import and export power consumption				
07D0H	Sharp time import active power consumption		kWh	Float
07D2H	Sharp time export active power consumption		kWh	Float
07D4H	Sharp time import reactive power consumption		kvarh	Float
07D6H	Sharp time export reactive power consumption		kvarh	Float
Peak time import and export power consumption				
07D8H	Peak time import active power consumption		kWh	Float
07DAH	Peak time export active power consumption		kWh	Float
07DCH	Peak time import reactive power consumption		kvarh	Float
07DEH	Peak time export reactive power consumption		kvarh	Float
Flat time import and export power consumption				
07E0H	Flat time import active power consumption		kWh	Float
07E2H	Flat time export active power consumption		kWh	Float
07E4H	Flat time import reactive power consumption		kvarh	Float
07E6H	Flat time export reactive power consumption		kvarh	Float
Valley time import and export power consumption				
07E8H	Valley time import active power consumption		kWh	Float
07EAH	Valley time export active power consumption		kWh	Float
07ECH	Valley time import reactive power consumption		kvarh	Float
07EEH	Valley time export reactive power consumption		kvarh	Float
Deep valley time import and export power consumption				
07F0H	Deep valley time import active power consumption		kWh	Float
07F2H	Deep valley time export active power		kWh	Float

	consumption			
07F4H	Deep valley time import reactive power consumption		kvarh	Float
07F6H	Deep valley time export reactive power consumption		kvarh	Float
Tarriff 6 import and export power consumption				
07F8H	Tarriff 6 time import active power consumption		kWh	Float
07FAH	Tarriff 6 time export active power consumption		kWh	Float
07FCH	Tarriff 6 time import reactive power consumption		kvarh	Float
07FEH	Tarriff 6 time export reactive power consumption		kvarh	Float
0800H~080FH	Reserved (forward and reverse active and reactive energy of tariff 7 and tariff 8 can be expanded)			Float

15. Maximum and minimum data statistics area

This area records the maximum and minimum voltage current, power, power factor, power demand, frequency, voltage and current imbalance. And the statistical period can be set to "Monthly Clear", "Daily Clear", "Never Clear".

Set to "Monthly Clear", which is the maximum and minimum values will be cleared and re-compared from the start time of the month.

"Daily Clear" starts to clear at 0:00 each day. The maximum and minimum values will be cleared and re-compared.

"Never Clear" is the highest value won't be cleared if no manually clear operation, the value will always be compared.

This area stores the maximum and minimum values of important parameters and their time stamps. The data can be read using the Modbus protocol 03H function code.

Address	Parameter	Numerical range	Data type	Unit
0320H	Ua Maximum value		Float	V
0322H	Ua Maximum value time tag	Year：2000~2099	Word	
0323H		Month：1~12	Word	
0324H		Day：1~31	Word	
0325H		Hour：0~23	Word	
0326H		Minute：0~59	Word	
0327H		Second+ Milliseconds：	Word	

		0~59999		
0328H	Ub Maximum value		Float	V
032AH~032FH	Ub Maximum value time tag	Same with Ua time format	Word	
0330H	Uc Maximum value		Float	V
0332H~0337H	Uc Maximum value time tag	Same with Ua time format	Word	
0338H	Uab Maximum value		Float	V
033AH~033FH	Uab Maximum value time tag	Same with Ua time format		
0340H	Ubc Maximum value		Float	V
0342H~0347H	Ubc Maximum value time tag	Same with Ua time format		
0348H	Uca Maximum value		Float	V
034AH~034FH	Uca Maximum value time tag	Same with Ua time format		
0350H	Ia Maximum value		Float	A
0352H~0357H	Ia Maximum value time tag	Same with Ua time format		
0358H	Ib Maximum value		Float	A
035AH~035FH	Ib Maximum value time tag	Same with Ua time format		
0360H	Ic Maximum value		Float	A
0362H~0367H	Ic Maximum value time tag	Same with Ua time format		
0368H	System active power maximum value		Float	W
036AH~036FH	System active power maximum value time tag	Same with Ua time format		
0370H	System reactive power maximum value		Float	var
0372H~0377H	System reactive power maximum value time tag	Same with Ua time format		
0378H	System apparent power maximum value		Float	VA
037AH~037FH	System apparent power maximum value time tag	Same with Ua time format		
0380H	System power factor maximum value		Float	
0382H~0387H	System power factor maximum value time tag	Same with Ua time format		
0388H	System frequency maximum value		Float	Hz

038AH~038FH	System frequency maximum value time tag	Same with Ua time format		
0390H	Voltage imbalance maximum value			%
0392H~0397H	Voltage imbalance maximum value time tag	Same with Ua time format		
0398H	Current imbalance maximum value			%
039AH~039FH	Current imbalance maximum value time tag	Same with Ua time format		
03A0H	System active power demand maximum value		Float	W
03A2H~03A7H	System active power demand maximum value time tag	Same with Ua time format		
03A8H	System reactive power demand maximum value		Float	var
03AAH~03AFH	System reactive power demand maximum value time tag	Same with Ua time format		
03B0H	System apparent power demand maximum value		Float	VA
03B2H~03B7H	System active power demand maximum value time tag	Same with Ua time format		
The following are recorded minimum values				
03C0H	Ua Minimum value		Float	V
03C2H~03C7H	Ua Minimum value time tag			
03C8H	Ub Minimum value		Float	V
03CAH~03CFH	Ub Minimum value time tag	Same with Ua time format	Word	
03D0H	Uc Minimum value		Float	V
03D2H~03D7H	Uc Minimum value time tag	Same with Ua time format	Word	
03D8H	Uab Minimum value		Float	V
03DAH~03DFH	Uab Minimum value time tag	Same with Ua time format		
03E0H	Ubc Minimum value		Float	V
03E2H~03E7H	Ubc Minimum value time tag	Same with Ua time format		
03E8H	Uca Minimum value		Float	V
03EAH~03EFH	Uca Minimum value time tag	Same with Ua time format		
03F0H	Ia Minimum value		Float	A
03F2H~03F7H	Ia Minimum value time tag	Same with Ua		

		time format		
03F8H	Ib Minimum value		Float	A
03FAH~03FFH	Ib Minimum value time tag	Same with Ua time format		
0400H	Ic Minimum value		Float	A
0402H~0407H	Ic Minimum value time tag	Same with Ua time format		
0408H	System active power Minimum value		Float	W
040AH~040FH	System active power Minimum value time tag	Same with Ua time format		
0410H	System reactive power Minimum value		Float	var
0412H~0417H	System reactive power Minimum value time tag	Same with Ua time format		
0418H	System apparent power Minimum value		Float	VA
041AH~041FH	System apparent power Minimum value time tag	Same with Ua time format		
0420H	System power factor Minimum value		Float	
0422H~0427H	System power factor Minimum value time tag	Same with Ua time format		
0428H	System frequency Minimum value		Float	Hz
042AH~042FH	System frequency Minimum value time tag	Same with Ua time format		
0430H	Voltage imbalance Minimum value			%
0432H~0437H	Voltage imbalance Minimum value time tag	Same with Ua time format		
0438H	Current imbalance Minimum value			%
043AH~043FH	Current imbalance Minimum value time tag	Same with Ua time format		
0440H	System active power demand Minimum value		Float	W
0442H~0447H	System active power demand Minimum value time tag	Same with Ua time format		
0448H	System reactive power demand Minimum value		Float	var
044AH~044FH	System reactive power demand Minimum value time	Same with Ua time format		

	tag			
0450H	System apparent power demand Minimum value		Float	VA
0452H~0457H	System active power demand Minimum value time tag	Same with Ua time format		
Maximum demand record for current month, last month, month before last month				
5000H	Current month active power P maximum demand		Float	
5002H	Current month maximum active power P time tag	Year: 2000~2099	Word	
5003H		Month: 1~12	Word	
5004H		Day: 1~31	Word	
5005H		Hour: 0~23	Word	
5006H		Minute: 0~59	Word	
5007H		Second+ Millisecond: 0~59999	Word	
5008H	Current month reactive power Q maximum demand		float	
500AH-500FH	Current month maximum reactive power Q time tag	Same with P time tag		
5010H	Current month apparent power S maximum demand		float	
5012H-5017H	Current month maximum apparent power S time tag	Same with P time tag		
5018H	Current month IA maximum demand		float	
501AH-501FH		Same with P time tag		
5020H	Current month IB maximum demand		float	
5022H-5027H		Same with P time tag		
5028H	Current month IC maximum demand		float	
502AH-502FH		Same with P time tag		
5030H	Last month active power P maximum demand		float	
5032H-5037H		Same with P time tag		
5038H	Last month active power Q maximum demand		float	

503AH-503FH		Same with P time tag		
5040H	Last month active power S maximum demand		float	
5042H-5047H		Same with P time tag		
5048H	Last month IA maximum demand		float	
504AH-504FH		Same with P time tag		
5050H	Last month IB maximum demand		float	
5052H-5057H		Same with P time tag		
5058H	Last month IC maximum demand		float	
505AH-505FH		Same with P time tag		
5060H	Month before last month active power P maximum demand		float	
5062H-5067H		Same with P time tag		
5068H	Month before last month reactive power Q maximum demand		float	
506AH-506FH		Same with P time tag		
5070H	Month before last month apparent power S maximum demand		float	
5072H-5077H		Same with P time tag		
5078H	Month before last month IA maximum demand		float	
507AH-507FH		Same with P time tag		
5080H	Month before last month IB maximum demand		float	
5082H-5087H		Same with P time tag		
5088H	Month before last month IC maximum demand		float	
508AH-508FH		Same with P		

		time tag		

16. Digital input SOE（100 groups）

This device has 2 digital inputs, which can record its state change information (state, time of occurrence) with a time resolution of 1 millisecond. The first group of data defaults to the most recent SOE event, and the last group defaults to the earliest SOE event. SOE records are stored in a first-in-first-out mode, and the most recently sent SOE event takes over the earliest SOE.

This function is always detecting the change of DI terminal, with the function of SOE, and can record the time and way of change.

It can be read by Modbus protocol 03H function code.

Address	Parameters	Data range	Data type
0A00H	Last 1st SOE descriptions	Bit0~bit7： 1：From low to high (open)； 2：From high to low (close)； Bit8~ Bit15： DI address（1~8）	Word
0A01H	Last 1st SOE time tag	Year：2000~2099	Word
0A02H		Month：1~12	Word
0A03H		Day：1~31	Word
0A04H		Hour：0~23	Word
0A05H		Minute: 0~59	Word
0A06H		Second+millisecond : 0~59999	Word
0A07H~0A0DH	Last 2nd SOE descriptions and time tag	Same as 1st group	Word
0A0EH~0A14H	Last 3rd SOE descriptions and time tag	Same as 1st group	Word
0A15H~0A1BH	Last 4th SOE descriptions and time tag	Same as 1st group	Word
0A1CH~0A22H	Last 5th SOE descriptions and time tag	Same as 1st group	Word
0A23H~0A29H	Last 6th SOE descriptions and time tag	Same as 1st group	Word
0A2AH~0A30H	Last 7th SOE descriptions and time tag	Same as 1st group	Word
0A31H~0A37H	Last 8th SOE descriptions and time tag	Same as 1st group	Word
0A38H~0A3EH	Last 9th SOE descriptions and time tag	Same as 1st group	Word

0A3FH~0A45H	Last 10th SOE descriptions and time tag	Same as 1st group	Word
0A46H~0A4CH	Last 11th SOE descriptions and time tag	Same as 1st group	Word
0A4DH~0A53H	Last 12th SOE descriptions and time tag	Same as 1st group	Word
0A5DH~0A5AH	Last 13th SOE descriptions and time tag	Same as 1st group	Word
0A5BH~0A61H	Last 14th SOE descriptions and time tag	Same as 1st group	Word
0A62H~0A68H	Last 15th SOE descriptions and time tag	Same as 1st group	Word
0A69H~0A6FH	Last 16th SOE descriptions and time tag	Same as 1st group	Word
0A70H~0A76H	Last 17th SOE descriptions and time tag	Same as 1st group	Word
0A77H~0A7DH	Last 18th SOE descriptions and time tag	Same as 1st group	Word
0A7EH~0A84H	Last 19th SOE descriptions and time tag	Same as 1st group	Word
0A85H~0A8BH	Last 20th SOE descriptions and time tag	Same as 1st group	Word
0A8CH~0A92H	Last 21th SOE descriptions and time tag	Same as 1st group	Word
0A93H~0A99H	Last 22th SOE descriptions and time tag	Same as 1st group	Word
0A9AH~0AA0H	Last 23th SOE descriptions and time tag	Same as 1st group	Word
0AA1H~0AA7H	Last 24th SOE descriptions and time tag	Same as 1st group	Word
0AA8H~0AAEH	Last 25th SOE descriptions and time tag	Same as 1st group	Word
0AAFH~0AB5H	Last 26th SOE descriptions and time tag	Same as 1st group	Word
0AB6H~0ABCH	Last 27th SOE descriptions and time tag	Same as 1st group	Word
0ABDH~0AC3H	Last 28th SOE descriptions and time tag	Same as 1st group	Word
0AC4H~0ACAH	Last 29th SOE descriptions and time tag	Same as 1st group	Word
0ACBH~0AD1H	Last 30th SOE descriptions and time tag	Same as 1st group	Word
0AD2H~0CBBH	Last 31th -100th SOE	Same as 1st group	Word

	descriptions and time tag		

17. Digital output SOE (100 group)

Records the relay operation events, the operation mode and time of the relay.
Modbus protocol 03H function code can be used to read.

Address	Parameters	Data range	Data type
0CC0H	Last 1st SOE descriptions	Bit0~bit7： 1：From low to high (open)； 2：From high to low (close)； Bit8~ Bit15： DO address（1~8）	Word
0CC1H	Last 1st SOE time tag	Year：2000~20D9	Word
0CC2H		Month：1~12	Word
0CC3H		Day：1~31	Word
0CC4H		Hour：0~23	Word
0CC5H		Minute：0~59	Word
0CC6H		Second+millisecond：0~59999	Word
0CC7H~0CCDH	Last 2nd SOE descriptions and time tag	Same as 1st group	Word
0CCEH~0CD4H	Last 3rd SOE descriptions and time tag	Same as 1st group	Word
0CD5H~0CDBH	Last 4th SOE descriptions and time tag	Same as 1st group	Word
0CDCH~0CE2H	Last 5th SOE descriptions and time tag	Same as 1st group	Word
0CE3H~0CE9H	Last 6th SOE descriptions and time tag	Same as 1st group	Word
0CEAH~0CF0H	Last 7th SOE descriptions and time tag	Same as 1st group	Word
0CF1H~0CF7H	Last 8th SOE descriptions and time tag	Same as 1st group	Word
0CF8H~0CFEH	Last 9th SOE descriptions and time tag	Same as 1st group	Word
0CFFH~0D05H	Last 10th SOE descriptions and time tag	Same as 1st group	Word
0D06H~0D0CH	Last 11th SOE descriptions and time tag	Same as 1st group	Word
0D0DH~0D13	Last 12th SOE descriptions and	Same as 1st group	Word

H	time tag		
0D1DH~0D1AH	Last 13th SOE descriptions and time tag	Same as 1st group	Word
0D1BH~0D21H	Last 14th SOE descriptions and time tag	Same as 1st group	Word
0D22H~0D28H	Last 15th SOE descriptions and time tag	Same as 1st group	Word
0D29H~0D2FH	Last 16th SOE descriptions and time tag	Same as 1st group	Word
0D30H~0D36H	Last 17th SOE descriptions and time tag	Same as 1st group	Word
0D37H~0D3DH	Last 18th SOE descriptions and time tag	Same as 1st group	Word
0D3EH~0D44H	Last 19th SOE descriptions and time tag	Same as 1st group	Word
0D45H~0D4BH	Last 20th SOE descriptions and time tag	Same as 1st group	Word
0D4CH~0F7BH	Last 21th -100th SOE descriptions and time tag	Same as 1st group	Word

18. Fault alarm records (100 pcs)

This system has 8 groups of alarms, and if an alarm occurs, the area logs the event of the alarm to record the 100pcs recent failure.
It can be read by Modbus protocol 03H function code.

Address	Parameters	Data range	Data type
0F80H	Latest failure event description	Failure events（0~36） Best written as an alarm group	Word
0F81H	Latest failure event time tag	Year：2000~2099	Word
0F82H		Month：1~12	Word
0F83H		Day：1~31	Word
0F84H		Hour：0~23	Word
0F85H		Minute：0~59	Word
0F86H		Second+millisecond：0~59999	Word
0F87H~0F8DH	Latest 2nd failure event description and time tag	Same with 1st group	Word
0F8EH~0F94H	Latest 3rd failure event description and time tag	Same with 1st group	Word
0F95H~0F9BH	Latest 4th failure event description and time tag	Same with 1st group	Word

0F9CH~0FA2H	Latest 5th failure event description and time tag	Same with 1st group	Word
0FA3H~0FA9H	Latest 6th failure event description and time tag	Same with 1st group	Word
0FAAH~0FB0H	Latest 7th failure event description and time tag	Same with 1st group	Word
0FB1H~0FB7H	Latest 8th failure event description and time tag	Same with 1st group	Word
0FB8H~0FBEH	Latest 9th failure event description and time tag	Same with 1st group	Word
0FBFH~0FC5H	Latest 10th failure event description and time tag	Same with 1st group	Word
0FC6H~0FCCH	Latest 11th failure event description and time tag	Same with 1st group	Word
0FCDH~0FD3H	Latest 12th failure event description and time tag	Same with 1st group	Word
0FDDH~0FDAH	Latest 13th failure event description and time tag	Same with 1st group	Word
0FDBH~0FE1H	Latest 14th failure event description and time tag	Same with 1st group	Word
0FE2H~0FE8H	Latest 15th failure event description and time tag	Same with 1st group	Word
0FE9H~0FEFH	Latest 16th failure event description and time tag	Same with 1st group	Word
0FF0H~0FF6H	Latest 17th failure event description and time tag	Same with 1st group	Word
0FF7H~0FFDH	Latest 18th failure event description and time tag	Same with 1st group	Word
0FFEH~1004H	Latest 19th failure event description and time tag	Same with 1st group	Word
1005H~100BH	Latest 20th failure event description and time tag	Same with 1st group	Word
100CH~1012H	Latest 21st failure event description and time tag	Same with 1st group	Word
1013H~1019H	Latest 22nd failure event description and time tag	Same with 1st group	Word
101AH~1020H	Latest 23rd failure event description and time tag	Same with 1st group	Word
1021H~1027H	Latest 24th failure event description and time tag	Same with 1st group	Word
1028H~102EH	Latest 25th failure event description and time tag	Same with 1st group	Word
102FH~1035H	Latest 26th failure event	Same with 1st	Word

	description and time tag	group	
1036H~103CH	Latest 27th failure event description and time tag	Same with 1st group	Word
103DH~1043H	Latest 28th failure event description and time tag	Same with 1st group	Word
1044H~104AH	Latest 29th failure event description and time tag	Same with 1st group	Word
104BH~1051H	Latest 30th failure event description and time tag	Same with 1st group	Word
1052H~123BH	Latest 31st-100th failure event description and time tag	Same with 1st group	Word

19. Multi-rate electricity time segment and rate setting area

This region has two sets of time zones and time slots tables. Each time zone set can have a maximum of 14 time zones, each time slot can have a maximum of 12 time slots, and each time slots can have a maximum of 24 time periods. Each time period can be assigned to any of five tariff types (sharp, peak, flat, valley, and deep valley).

Time zone settings do not require the hour, minute, or second setting; they all default to 0. Time slots settings are based on the hour and minute setting.

Time zone setting format: The first time zone starts at 00:00 on January 1st, and the start time of each subsequent time zone is the end time of the previous period. The last time zone must be set to December 31st. If multiple time zones are not required, only the last time zone needs to be set to December 31st. If a time zone is set incorrectly, the last time zone will default to December 31st.

Time slots setting format: Each time period only requires the end time setting.

Users can select different time zones and time slots to meet their individual needs. However, to ensure that the time settings are valid, the meter will conduct strict time setting checks. If the settings are correct and the time-of-use metering function is enabled, time-of-use metering will occur. Otherwise, time-of-use metering will not occur.

The parameters in this area are for time slot time and rate settings. They can be read using Modbus protocol function code 03H or set using function code 10H. A maximum of 12 registers can be written at a time.

Based on the number of time zones set, the default end time for the last time zone is December 31st, 24:00.

At least one time zone must be enabled. The time zones are checked starting from the

end time of the first time zone in the zone. The rate for the first time zone with a lower end time is added to the rate.

Multi-rate setting parameter requirements:

1. The end time of the last enabled time zone must be December 31st; otherwise, the default is December 31st, 24:00.

2. The end time of the previous time zone must be lower than the end time of the next time zone.

3. Improper user settings will cause time-of-use metering errors.

19.1. Time Zone and Time Period Switching Settings

Two time zone and time slos allow you to set switching times: year, month, day, hour, and minute.

Address	Parameters	Number range	Data type
3800H~3804H	Two time zones switching time settings: year, month, day, hour, minute	Year：0~99 Moth：1~12 Day：1~31 Hour：0~23 Minute：0~59	Word
3805H~3809H	Two time slots switching time settings: year, month, day, hour, minute	Year：0~99 Moth：1~12 Day：1~31 Hour：0~23 Minute：0~59	Word

19.2. 1st time zone and time slot settings

Address	Parameters	Number range	Data type
Time zone settings (Seasonal, Monthly and daily setting)			
380AH	Enabled time zones number	1~14	Word
380BH~380CH	Time Zone 1 End Time: Month, Day	Month：1~12 Day：1~31	Word
380DH~380EH	Time Zone 2 End Time: Month, Day	Month：1~12 Day：1~31	Word
380FH~3810H	Time Zone 3 End Time: Month, Day	Month：1~12 Day：1~31	Word
3811H~3812H	Time Zone 4 End Time: Month, Day	Month：1~12 Day：1~31	Word
3813H~3814H	Time Zone 5 End Time: Month, Day	Month：1~12 Day：1~31	Word

3815H~3816H	Time Zone 6 End Time: Month, Day	Month：1~12　Day：1~31	Word
3817H~3818H	Time Zone 7 End Time: Month, Day	Month：1~12　Day：1~31	Word
3819H~381AH	Time Zone 8 End Time: Month, Day	Month：1~12　Day：1~31	Word
381BH~381CH	Time Zone 9 End Time: Month, Day	Month：1~12　Day：1~31	Word
381DH~381EH	Time Zone 10 End Time: Month, Day	Month：1~12　Day：1~31	Word
381FH~3820H	Time Zone 11 End Time: Month, Day	Month：1~12　Day：1~31	Word
3821H~3822H	Time Zone 12 End Time: Month, Day	Month：1~12　Day：1~31	Word
3823H~3824H	Time Zone 13 End Time: Month, Day	Month：1~12　Day：1~31	Word
3825H~3826H	Time Zone 14 End Time: Month, Day	Month：1~12　Day：1~31	Word
3827H~3834H	Time zone numbers corresponding to time zones 1 to 14	Time zone number：1~12	Word
Time slot setting (hourly setting)			
3835H	Enabled time slots number	1~24	Word
3836H~3837H	End time of 1st time slot 1st segment	Hour：0~24　Minute：0~59	Word
3838H~3839H	End time of 1st time slot 2nd segment	Hour：0~24　Minute：0~59	Word
383AH~383BH	End time of 1st time slot 3rd segment	Hour：0~24　Minute：0~59	Word
383CH~383DH	End time of 1st time slot 4th segment	Hour：0~24　Minute：0~59	Word
383EH~383FH	End time of 1st time slot 5th segment	Hour：0~24　Minute：0~59	Word
3840H~3841H	End time of 1st time slot 6th segment	Hour：0~24　Minute：0~59	Word
3842H~3843H	End time of 1st time slot 7th segment	Hour：0~24　Minute：0~59	Word
3844H~3845H	End time of 1st time slot 8th segment	Hour：0~24　Minute：0~59	Word
3846H~3847H	End time of 1st time slot 9th segment	Hour：0~24　Minute：0~59	Word
3848H~3849H	End time of 1st time slot 10th segment	Hour：0~24　Minute：0~59	Word

384AH~384BH	End time of 1st time slot 11th segment	Hour：0~24 Minute：0~59	Word
384CH~384DH	End time of 1st time slot 12th segment	Hour：0~24 Minute：0~59	Word
384EH~384FH	End time of 1st time slot 13th segment	Hour：0~24 Minute：0~59	Word
3850H~3851H	End time of 1st time slot 14th segment	Hour：0~24 Minute：0~59	Word
3852H~3853H	End time of 1st time slot 15th segment	Hour：0~24 Minute：0~59	Word
3854H~3855H	End time of 1st time slot 16th segment	Hour：0~24 Minute：0~59	Word
3856H~3857H	End time of 1st time slot 17th segment	Hour：0~24 Minute：0~59	Word
3858H~3859H	End time of 1st time slot 18th segment	Hour：0~24 Minute：0~59	Word
385AH~385BH	End time of 1st time slot 19th segment	Hour：0~24 Minute：0~59	Word
385CH~385DH	End time of 1st time slot 20th segment	Hour：0~24 Minute：0~59	Word
385EH~385FH	End time of 1st time slot 21st segment	Hour：0~24 Minute：0~59	Word
3860H~3861H	End time of 1st time slot 22nd segment	Hour：0~24 Minute：0~59	Word
3862H~3863H	End time of 1st time slot 23rd segment	Hour：0~24 Minute：0~59	Word
3864H~3865H	End time of 1st time slot 24th segment	Hour：0~24 Minute：0~59	Word
3866H	Rate for the 1st time slots 1st segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3867H	Rate for the 1st time slots 2nd segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3868H	Rate for the 1st time slots 3rd segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3869H	Rate for the 1st time slots 4th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
386AH	Rate for the 1st time slots 5th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
386BH	Rate for the 1st time slots 6th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
386CH	Rate for the 1st time slots 7th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
386DH	Rate for the 1st time slots 8th	1~5 (corresponding to sharp,	Word

	segment	peak, flat, valley, deep valley)	
386EH	Rate for the 1st time slots 9th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
386FH	Rate for the 1st time slots 10th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3870H	Rate for the 1st time slots 11th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3871H	Rate for the 1st time slots 12th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3872H	Rate for the 1st time slots 13th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3873H	Rate for the 1st time slots 14th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3874H	Rate for the 1st time slots 15th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3875H	Rate for the 1st time slots 16th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3876H	Rate for the 1st time slots 17th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3877H	Rate for the 1st time slots 18th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3878H	Rate for the 1st time slots 19th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
3879H	Rate for the 1st time slots 20th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
387AH	Rate for the 1st time slots 21th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
387BH	Rate for the 1st time slots 22th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
387CH	Rate for the 1st time slots 23th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
387DH	Rate for the 1st time slots 24th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
387EH~38C6H	2nd time slot setting	Same as 1st time slot	Word
38C7H~390FH	3rd time slot setting	Same as 1st time slot	Word
3910H~3958H	4th time slot setting	Same as 1st time slot	Word
3959H~39A1H	5th time slot setting	Same as 1st time slot	Word
39A2H~39EAH	6th time slot setting	Same as 1st time slot	Word
39EBH~3A33H	7th time slot setting	Same as 1st time slot	Word
3A34H~3A7CH	8th time slot setting	Same as 1st time slot	Word
3A7DH~3AC5H	9th time slot setting	Same as 1st time slot	Word
3AC6H~3B0EH	10th time slot setting	Same as 1st time slot	Word
3B0FH~3B57H	11th time slot setting	Same as 1st time slot	Word

3B58H~3BA0H	12th time slot setting	Same as 1st time slot	Word

19.3. 2nd time zone and time slot settings

Address	Parameters	Number range	Data type
Time zone settings (Seasonal, Monthly and daily setting)			
4000H	Enabled time zones number	1~14	Word
4001H~4002H	Time Zone 1 End Time: Month, Day	Month：1~12 Day：1~31	Word
4003H~4004H	Time Zone 2 End Time: Month, Day	Month：1~12 Day：1~31	Word
4005H~4006H	Time Zone 3 End Time: Month, Day	Month：1~12 Day：1~31	Word
4007H~4008H	Time Zone 4 End Time: Month, Day	Month：1~12 Day：1~31	Word
4009H~400AH	Time Zone 5 End Time: Month, Day	Month：1~12 Day：1~31	Word
400BH~400CH	Time Zone 6 End Time: Month, Day	Month：1~12 Day：1~31	Word
400DH~400EH	Time Zone 7 End Time: Month, Day	Month：1~12 Day：1~31	Word
400FH~4010H	Time Zone 8 End Time: Month, Day	Month：1~12 Day：1~31	Word
4011H~4012H	Time Zone 9 End Time: Month, Day	Month：1~12 Day：1~31	Word
4013H~4014H	Time Zone 10 End Time: Month, Day	Month：1~12 Day：1~31	Word
4015H~4016H	Time Zone 11 End Time: Month, Day	Month：1~12 Day：1~31	Word
4017H~4018H	Time Zone 12 End Time: Month, Day	Month：1~12 Day：1~31	Word
4019H~401AH	Time Zone 13 End Time: Month, Day	Month：1~12 Day：1~31	Word
401BH~401CH	Time Zone 14 End Time: Month, Day	Month：1~12 Day：1~31	Word
401DH~402AH	Time zone numbers corresponding to time zones 1 to 14	Time zone number：1~12	Word
Time slot setting (hourly setting)			
402BH	Enabled time slots number	1~24	Word
402CH~402DH	End time of 1st time slot 1st segment	Hour：0~24 Minute：0~59	Word
402EH~402F	End time of 1st time slot 2nd	Hour：0~24 Minute：0~59	Word

H	segment		
4030H~4031H	End time of 1st time slot 3rd segment	Hour：0~24 Minute：0~59	Word
4032H~4033H	End time of 1st time slot 4th segment	Hour：0~24 Minute：0~59	Word
4034H~4035H	End time of 1st time slot 5th segment	Hour：0~24 Minute：0~59	Word
4036H~4037H	End time of 1st time slot 6th segment	Hour：0~24 Minute：0~59	Word
4038H~4039H	End time of 1st time slot 7th segment	Hour：0~24 Minute：0~59	Word
403AH~403BH	End time of 1st time slot 8th segment	Hour：0~24 Minute：0~59	Word
403CH~403DH	End time of 1st time slot 9th segment	Hour：0~24 Minute：0~59	Word
403EH~403FH	End time of 1st time slot 10th segment	Hour：0~24 Minute：0~59	Word
4040H~4041H	End time of 1st time slot 11th segment	Hour：0~24 Minute：0~59	Word
4042H~4043H	End time of 1st time slot 12th segment	Hour：0~24 Minute：0~59	Word
4044H~4045H	End time of 1st time slot 13th segment	Hour：0~24 Minute：0~59	Word
4046H~4047H	End time of 1st time slot 14th segment	Hour：0~24 Minute：0~59	Word
4048H~4049H	End time of 1st time slot 15th segment	Hour：0~24 Minute：0~59	Word
404AH~404BH	End time of 1st time slot 16th segment	Hour：0~24 Minute：0~59	Word
404CH~404DH	End time of 1st time slot 17th segment	Hour：0~24 Minute：0~59	Word
404EH~404FH	End time of 1st time slot 18th segment	Hour：0~24 Minute：0~59	Word
4050H~4051H	End time of 1st time slot 19th segment	Hour：0~24 Minute：0~59	Word
4052H~4053H	End time of 1st time slot 20th segment	Hour：0~24 Minute：0~59	Word
4054H~4055H	End time of 1st time slot 21st segment	Hour：0~24 Minute：0~59	Word
4056H~4057H	End time of 1st time slot 22nd segment	Hour：0~24 Minute：0~59	Word
4058H~4059H	End time of 1st time slot 23rd segment	Hour：0~24 Minute：0~59	Word

405AH~405BH	End time of 1st time slot 24th segment	Hour：0~24 Minute：0~59	Word
405CH	Rate for the 1st time slots 1st segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
405DH	Rate for the 1st time slots 2nd segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
405EH	Rate for the 1st time slots 3rd segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
405FH	Rate for the 1st time slots 4th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4060H	Rate for the 1st time slots 5th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4061H	Rate for the 1st time slots 6th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4062H	Rate for the 1st time slots 7th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4063H	Rate for the 1st time slots 8th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4064H	Rate for the 1st time slots 9th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4065H	Rate for the 1st time slots 10th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4066H	Rate for the 1st time slots 11th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4067H	Rate for the 1st time slots 12th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4068H	Rate for the 1st time slots 13th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4069H	Rate for the 1st time slots 14th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406AH	Rate for the 1st time slots 15th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406BH	Rate for the 1st time slots 16th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406CH	Rate for the 1st time slots 17th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406DH	Rate for the 1st time slots 18th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406EH	Rate for the 1st time slots 19th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
406FH	Rate for the 1st time slots 20th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4070H	Rate for the 1st time slots 21th	1~5 (corresponding to sharp,	Word

	segment	peak, flat, valley, deep valley)	
4071H	Rate for the 1st time slots 22th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4072H	Rate for the 1st time slots 23th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4073H	Rate for the 1st time slots 24th segment	1~5 (corresponding to sharp, peak, flat, valley, deep valley)	Word
4074H~40BCH	2nd time slot setting	Same as 1st time slot	Word
40BDH~4105H	3rd time slot setting	Same as 1st time slot	Word
4106H~414EH	4th time slot setting	Same as 1st time slot	Word
414FH~4197H	5th time slot setting	Same as 1st time slot	Word
4198H~41E0H	6th time slot setting	Same as 1st time slot	Word
41E1H~4229H	7th time slot setting	Same as 1st time slot	Word
422AH~4272H	8th time slot setting	Same as 1st time slot	Word
4273H~42BBH	9th time slot setting	Same as 1st time slot	Word
42BCH~4304H	10th time slot setting	Same as 1st time slot	Word
4305H~434DH	11th time slot setting	Same as 1st time slot	Word
434EH~4396H	12th time slot setting	Same as 1st time slot	Word

20. Special rates for public holidays and weekends

1）Supports 254 public holiday special rate settings. Set the date (month, day) of the public holiday and the corresponding daily time slot number.

2）Set the weekends based on the weekend signature and set the weekend time slot number.

Address	Parameters	Number range	Data type
Time zone setting			
4400H	Weekend feature word setting	BIT0: Rest on Sunday (0 Rest) BIT1: Rest on Monday BIT2: Rest on Tuesday BIT3: Rest on Wednesday	Word

		BIT4: Rest on Thursday BIT5: Rest on Friday BIT6: Rest on Saturday BIT7-15 reserved	
4401H	Weekend corresponding time slots	1~12	Word
4402H	Number of public holidays activated	1~254	Word
4403H~4405H	1st public holiday date: Month, day, time slot	Month：1~12 Day：1~31 Time slot number：1~12	Word
4406H~4408H	2nd public holiday date: Month, day, time slot	Month：1~12 Day：1~31 Time slot number：1~12	Word
……	Nth public holiday date: Month, day, time slot	Month：1~12 Day：1~31 Time slot number：1~12	Word
46FAH~46FCH	254th public holiday date: Month, day, time slot	Month：1~12 Day：1~31 Time slot number：1~12	Word