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ADW2XX series rail type multiloop power instrument

Installation and Operation Instruction V1.9

Acrel Co.,Ltd

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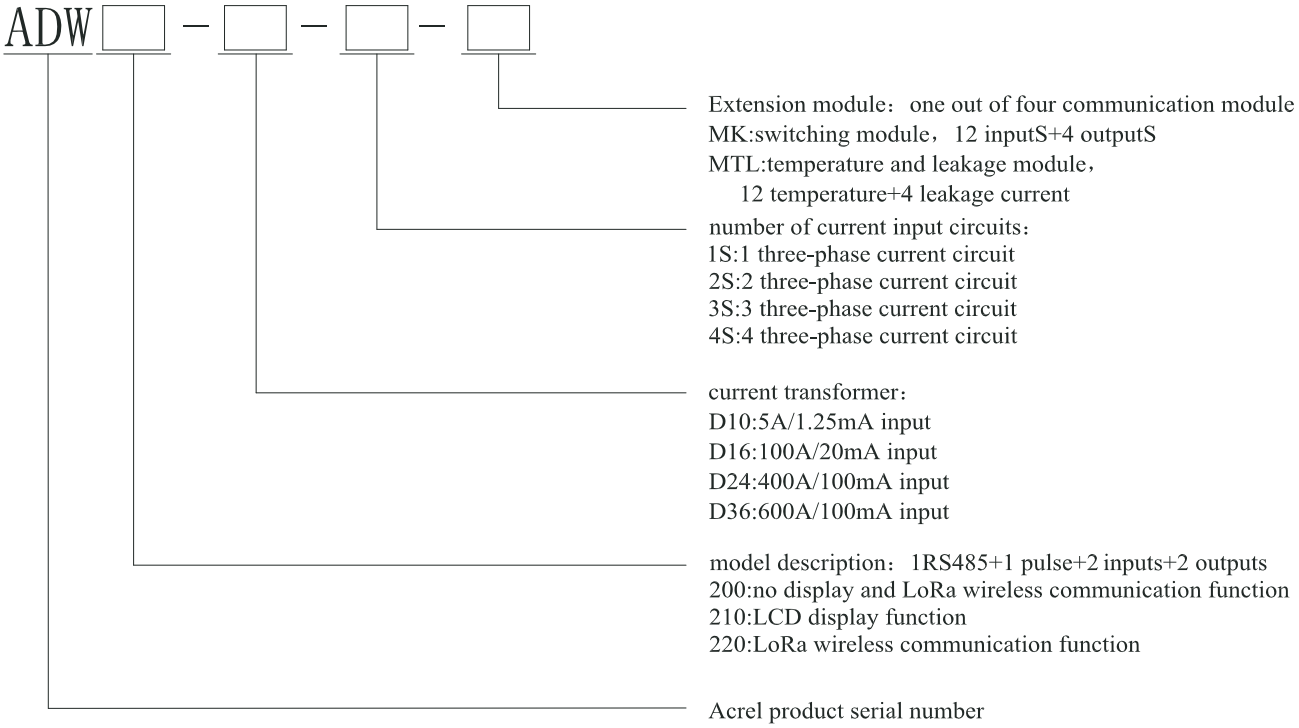
1 General

ADW2XX series rail type multi-loop power meters are mainly used for measuring the full electric parameters of multiple three-phase circuits,Up to four three-phase loop current inputs can be connected simultaneously.It Can measure voltage and current, power, power factor, phase angle, unbalance, harmonic and other parameters.

2 Product type and specification

2.1 Naming rule



Note: 1.Optional external suction cup antenna,standard wiring length：2m

2.The extended function Module can be selected at most simultaneouslyMK+MTL+AWT Wireless CommunicationModule (See section 3.1 for optional wireless expansion module).

3.It is recommend that the distance between AKH-0.66/K- ∅ 10N installation postion and the primary side transformer should be more than 1 meter ;

4.Leakage current transformer is recommended model;

2.2 Specifications and models of auxiliary transformers

Table 1 Specification model of ADW2xx series auxiliary transformer

Voltage specification	Instrument type	Current specification	Matching current transformer
3×220/380V	ADW2xx-D10-NS(5A)	3×5A	AKH-0.66/K-⌀ 10N Class 0.5
	ADW2xx-D16-NS(100A)	3×100A	AKH-0.66/K-⌀ 16N Class 0.5
	ADW2xx-D24-NS(400A)	3×400A	AKH-0.66/K-⌀ 24N Class 0.5
	ADW2xx-D36-NS(600A)	3×600A	AKH-0.66/K-⌀ 36N Class 0.5
/	ADW200-MTL	/	AKH-0.66-L-45 Class 1

Note: It is recommend that the distance between AKH-0.66/K-⌀ 10N installation postion and the primary side transformer should be more than 1 meter

3 Product function and Technical parameter

3.1 Product function

- ✧ Full electric parameter measurement of N(1,2,3,4) three-phase circuit,externalCurrent transformer;
- ✧ Monitoring three Phase Voltage/Current、Zero sequence Current、Frequency;
- ✧ Monitoring three Phase power 、total power (active、reactive、apparent);
- ✧ Monitoring three Phase power-factor、totalpower-factor;
- ✧ Monitoring Voltage/Current Phase Angle、Voltage/Current Degree of unbalance;
- ✧ Monitoring Voltage、Current total Harmonic and 2-31 Fractional harmonics;
- ✧ Record of voltage、current and power extremum of current month and last month;
- ✧ Maximum Current、Maximum power demand and real time Current、real time power demand;
- ✧ 200 event records,Record the action of DIDO;
- ✧ Support over-voltage, over-current, phase failure,DI linkage and other alarm output;
- ✧ 4 time zones 14Periods rate setting;
- ✧ Four quadrant electric energy,12-month multi rate electric energy;
- ✧ 31 days four quadrant and multi rate electric energy freezing,Positive and negative energy metering;
- ✧ 2 channel Switching inputs、2 channel Switching outputs、RS485、Active pulse output(Switchable corresponding circuit).

The following auxiliary functions can be extended through its RJ45 interface:

- ✧ (MK) 12 channel Switching inputs+4 channel Switching outputs;
- ✧ (MTL) 12 channel external NTC temperature +4 channel residual current measurement (leakage current);
- ✧ (AWT100-2G) 2G Wireless Communication
- ✧ (AWT100-4G) 4G Wireless Communication
- ✧ (AWT100-NB) NB-IoT Wireless Communication
- ✧ (AWT100-LoRa) LoRa Wireless Communication
- ✧ (AWT100-LW) LoRaWAN Wireless Communication

3.2 Subject Technical parameters

Table 2 ADW2xx series subject Technicalparameter

Auxiliary power		AC/DC 85～265V, DC 48V, AC 380V;consumption≤10VA;
input	Frequency	45～65Hz;
	Voltage	AC 3×220V/380V;
		Overload: 1.2 times of rated value (continuous); 2 times of rated value / 1s;
		Power consumption:≤ 0.5VA;
	Current	AC 5A、100A、400A、600A;(External opening transformer)
		Overload: 1.2 times of rated value (continuous); 10 times of rated value / 1s;
		Power consumption:≤ 0.5VA;
measurement accuracy		Frequency 0.05Hz, voltage and current 0.5 level, active electric energy level 1, reactive electric energy level 2;

			2-31 times harmonic accuracy: ± 1%;
Features	Pulse output		Output mode: optocoupler pulse with open collector;
	Communication		RS485、Modbus-RTU;Baud rate 1200～38400;
	Switching	input	Dry contact input、Built in power supply;
		output	Output mode:Relay normally open contact output; contact rating:AC 250V/3A　DC 30V/3A;

3.3Module technical parameters

Table 3 ADW2xx series Module technical parameters

Switching Module	Power	RJ45 interface、DC 12V、Power consumption≤1W;
	Communication	RJ45 interface、Modbus-RTU;(Communication with the main Part)
	Switching input	Dry contact input、Built in power supply;
	Switching output	Output mode:Relay normally open contact output; contact rating:AC 250V/3A　DC 30V/3A;
Temperature and leakage module	Power	RJ45 interface、DC 12V、Power consumption≤1W
	Communication	RJ45 interface、Modbus-RTU;(Communication with the main Part)
	temperature measurement	-20～100℃;
	Leakage measurement	10～3000mA;
	measurement accuracy	temperature ±2℃、Leakage1.0%;

3.4 Other technical parameters

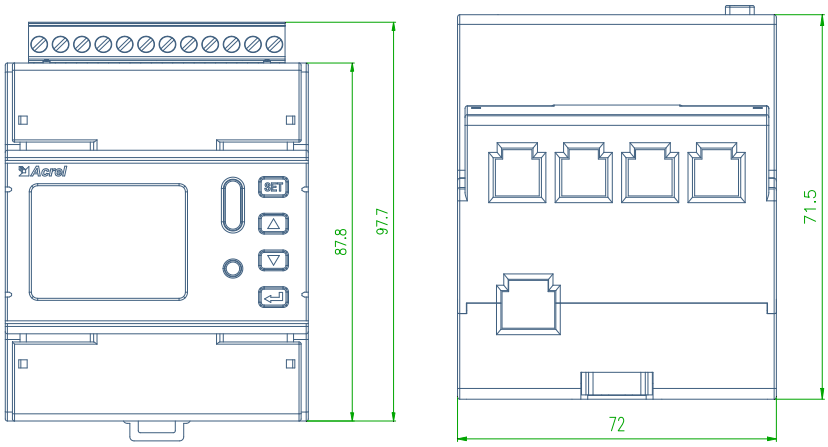
Table 4 Other technical parameters

Safety	Power frequency withstand voltage	>AC 2kV/1min;
	Insulation resistance	>100MΩ;
Environment		working temperature:-20℃～+60℃; Storage temperature:-40℃～+70℃; relative humidity:≤95% No condensation; Altitude:≤2500m;
electromagnetic compatibility		Better than grade 3;

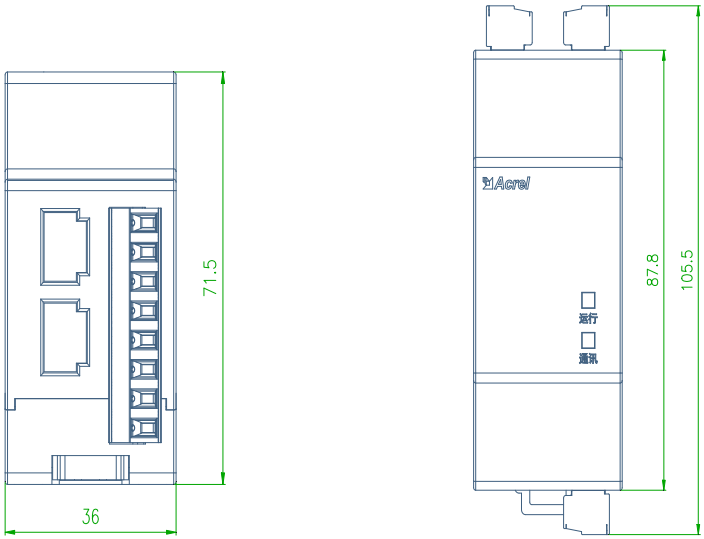
4　Dimension and installation instructions

4.1 Dimension(unit:mm)

(1) ADW2xx series main part and Module dimensions



Picture1 ADW2xx series main partdimensions



Picture2 ADW2xx series Module dimensions

Table 5 ADW2xx series main part and Module dimensions

	Dimension(mm)				Rail size(mm)	tolerance(mm)
	long	width	high	With terminal length		
ADW2xx	87.8	72	71.5	97.7	35	±1
ADW2xx Module	87.8	36	71.5	105.5	35	

(2) dimension of transformer

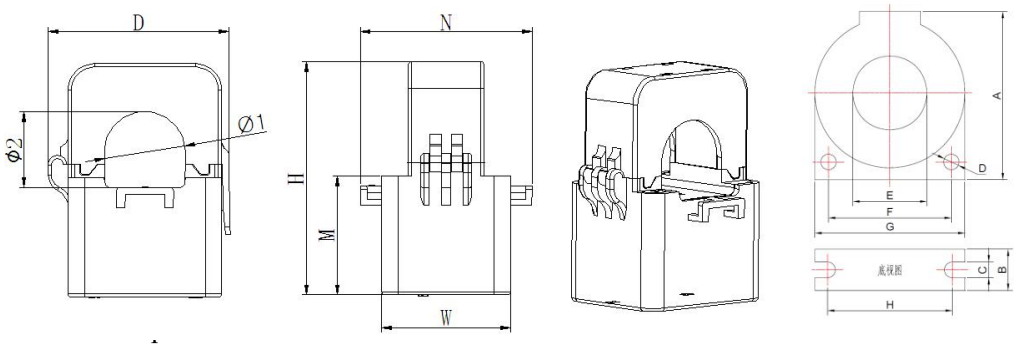


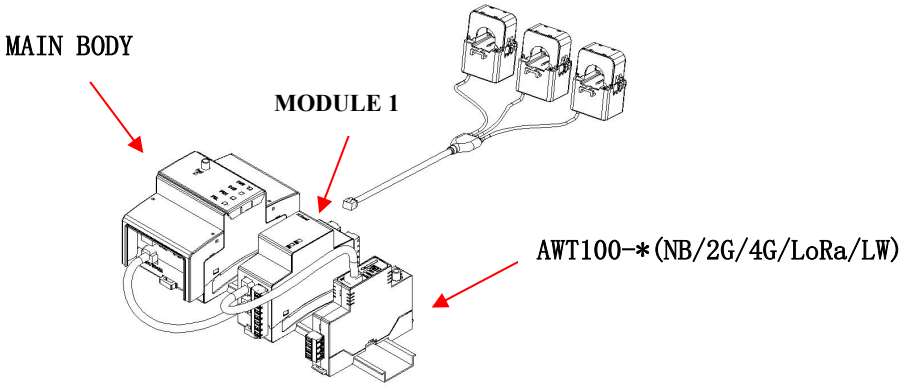
Table 6dimension of transformer

Current Transformer	Dimension(mm)					Perforation size (mm)		tolerance(mm)
	W	H	D	M	N	Φ1	Φ2	
AKH-0.66/K-⌀ 10N	27	44	32	25	36	10	9	±1
AKH-0.66/K-⌀ 16N	31	50	36	27	42	16	17	
AKH-0.66/K-⌀ 24N	39	71	46	36	52	24	23.5	
AKH-0.66/K-⌀ 36N	42.5	82	58	40	56	33.5	35	

Residual Current Transformer	Current	A/mm	B/mm	C/mm	D/mm	E/mm	F/mm	G/mm	H/mm	weight /kg
AKH-0.66-L-45 1s	16-100	77	25	5	6	45	64	75	68	0.18

4.2 Installation instructions

Adw2xx installation mode is rail type; Up to 4 three-phase current connections



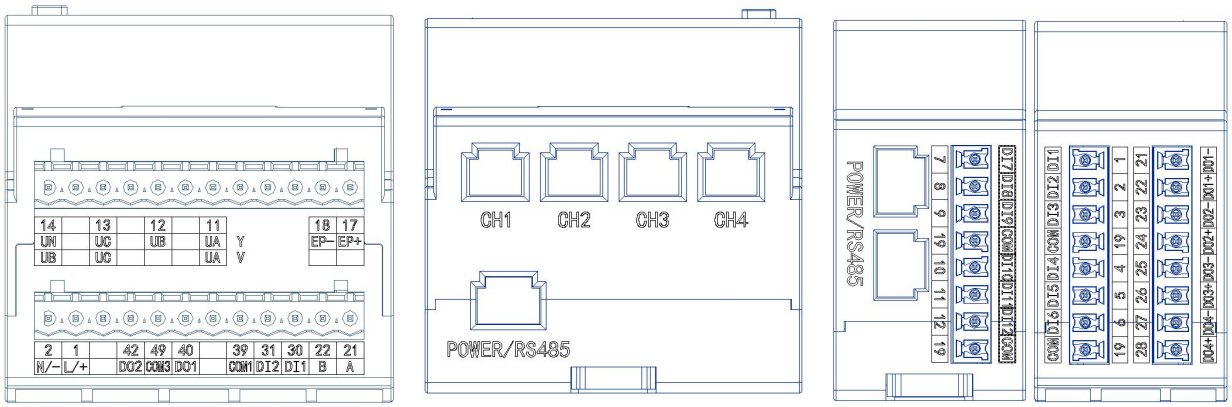
Picture4 Guide rail installation

note: It is recommend that the distance between AKH-0.66/K- ∅ 10N installation postion and the primary side transformer should be more than 1 meter

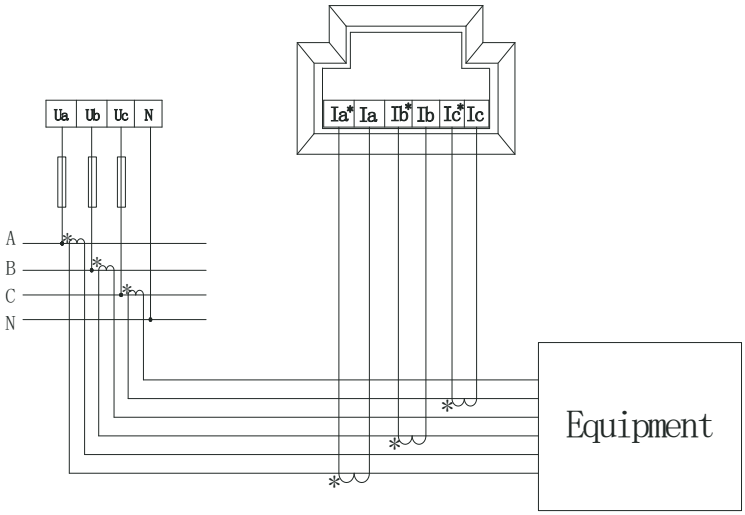
Recommended cable length for module connection:
I. when modules are closely arranged and assembled;
① The recommended length of network cable between and wireless module AWT100 is 20cm;
② Recommended length of network cable for connection between other modules is 15cm;
II. Module decentralized assembly: The length shall be determined according to the actual installation distance of the cus tomer's site.
Ⅲ.According to the connection sequence, the module closest to the main body is defined as module 1；

4.3 Wiring instructions

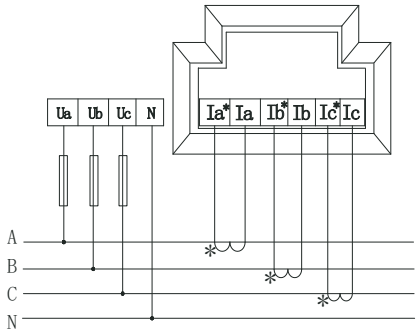
The terminal block is shown in the figure below



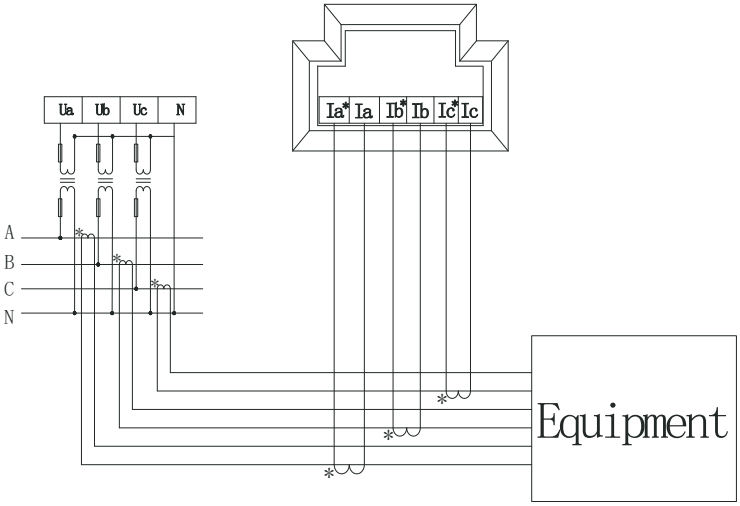
Picture5 subject connecting terminal picture6 Module connecting terminal



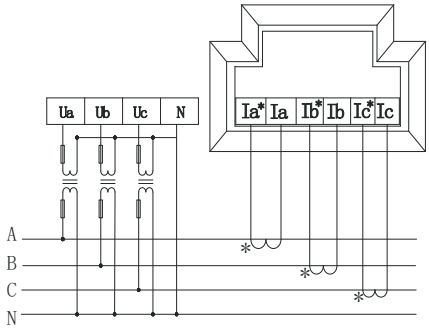
Picture 7 Three-phase four-wire (secondary current access)



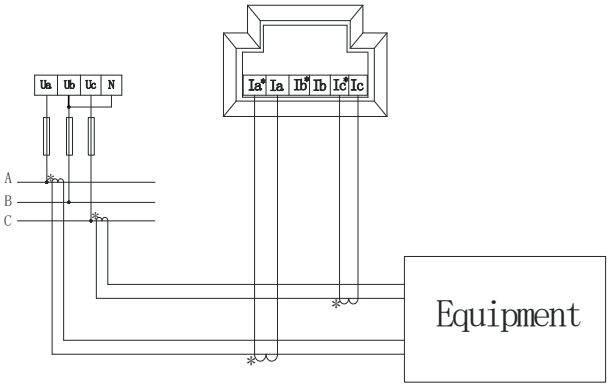
Picture 8 Three-phase four-wire (direct current connection)



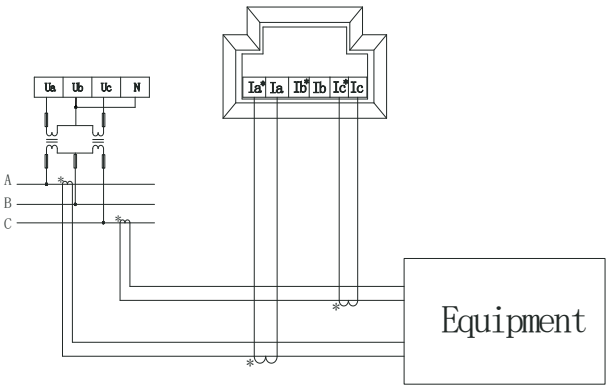
Picture 9 Three-phase four-wire
(secondary connection of voltage and current)



Picture 10 Three-phase four-wire
(direct connection of voltage and current)



Picture 11 Three-phase three-wire
(current is connected via transformer)

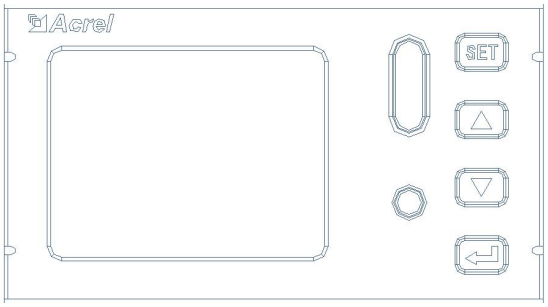


Picture 12 Three-phase three-wire
(voltage and current are connected through the transformer)

5 How to use

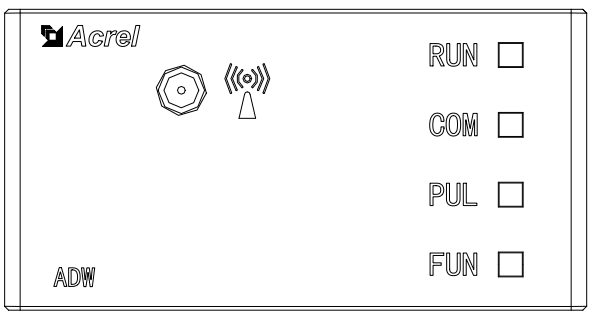
5.1 Panel description

ADW210:



SET key(SET)	In measurement mode, press this key to enter programming mode. The meter prompts for a password. After entering the correct password (0001), the meter can be programmed. In programming mode, it is used to return to the previous menu.
Up key(▲)	In measurement mode, for switching circuits; In programming mode, it is used to switch the number of digits in the same level menu or data..
Down key(▼)	In measurement mode, it is used to switch display items; In programming mode, it is used to switch the menu of the same level or increase the number of digits..
ENTER key(↵)	In measurement mode, it is used to switch display items; In programming mode, it is used to confirm the selection of menu items and confirm the modification of parameters..

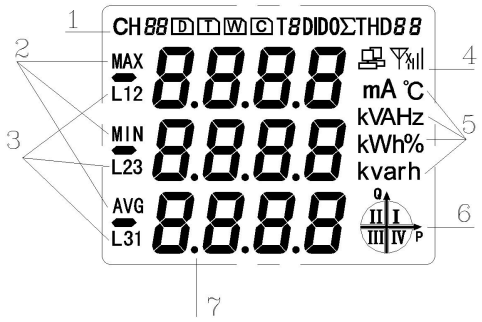
ADW200/ADW220:



RUN	When the device is running and in normal use,the indicator light is on.
COM	When connecting to communication,the indicator light is on.
PUL	Pulse
FUN	Module communication

5.2 Display description

The following figure is the screen when all character fields and indication contents are all lit.



picture 13

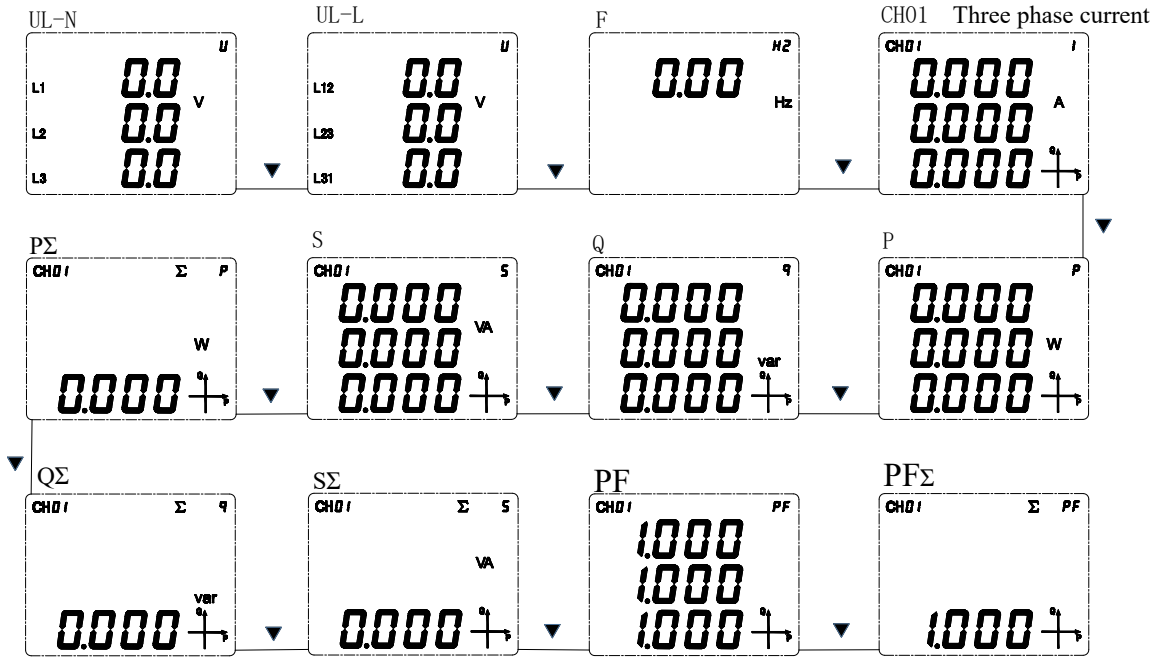
Table 7

Number	Display content	Description
1	CH1,CH2,CH3,CH4	Circuit 1-4
	Σ	sum
	I/P/Q/S/PF/U/HZ/	Identifies the content displayed in the current measurement data display area 88:Current/Active power/Reactive power/apparent power/power-factor/Voltage/Frequency
	THD88	Number of harmonics
	D,T,W,C	Type of expansion module:D: SwitchingModule ,T: Temperature measurement module ,W :Wireless communication module ,C: RS485
	T1,T2,T3,T4	Current rate:T1tip,T2peak,T3level,T4Valley
2	MAX/MIN/AVG	Max / Min / Average Record
3	L1,L2,L3,L12,L23,L31	L1,L2,L3 Phase value,L12,L23,L31 Line value
4		When lit, it indicates that the current communication is normal
5	Indicate the unit of measurement data	Current:A,kA;Voltage:V,kV; Active power:kW; mA:Milliamp; ℃:temperature Reactive power:Kvar; apparent power:kVA; percentage:%
6	angle	Four-quadrant power
7	Measurement data display area	Current, voltage, power, power factor, time, parameter settings, etc.

5.3 Information view

5.3.1 The meter measures voltage, current, power, power factor, frequency, demand, electric energy, extreme value and other electrical parameters, which can be viewed through the meter screen, but some parameters can only be read through communication. For specific information, see the address information table.

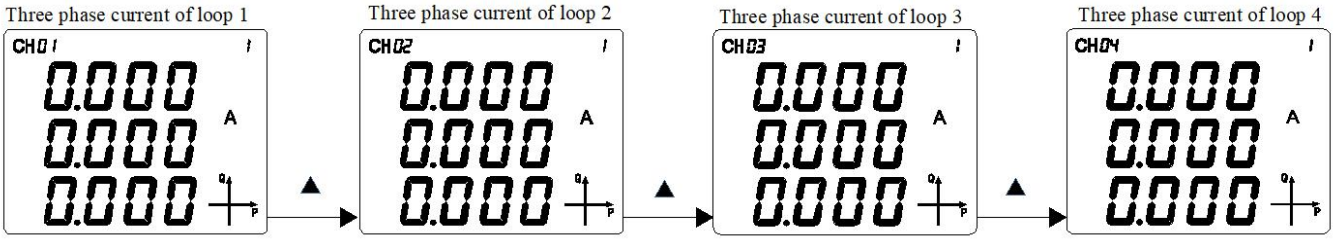
An example of the display of basic power is shown below



Note: 1.L1、L2、L3corresponds toUA、UB、UC， L12、L23、L31corresponds toUab、Ubc、Uca

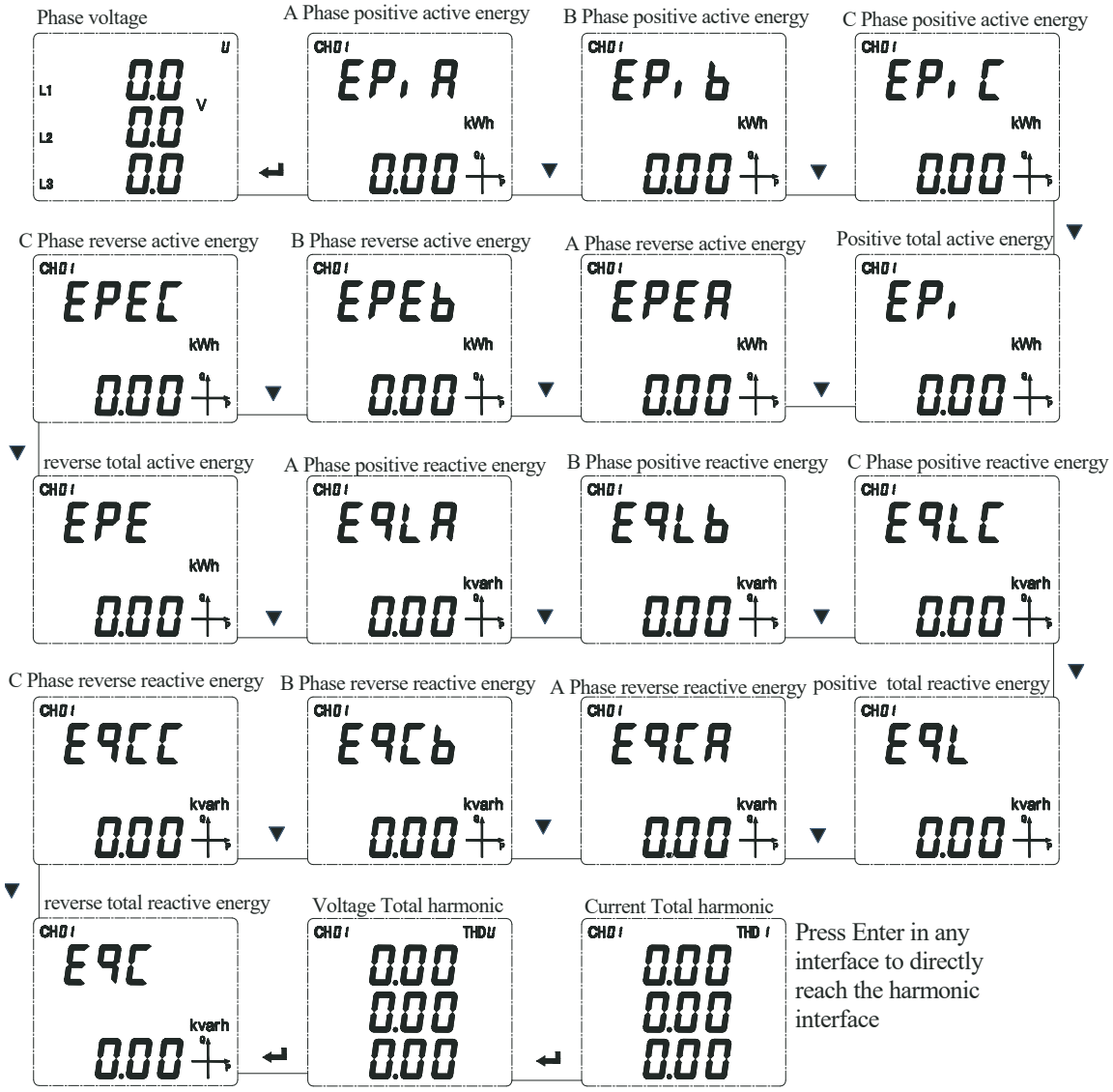
2. "CH1","CH2","CH3","CH4" represents four circuits

3. To view the electrical parameters of the remaining circuits, press the "▲" button to switch to view, for example: to view the three-phase current of the remaining circuit, you can operate to the three-phase current of circuit 1 as shown above, and then press the "▲" button to switch to view the remaining Three-phase current of the loop, as shown below



5.3.2 ELectric energy metering

The meter can measure A / B / C phase positive active energy, forward total active energy, A / B / C reverse active energy, reverse total active energy, A / B / C phase positive reactive energy, forward Total reactive energy, A / B / C reverse reactive energy, reverse total reactive energy, voltage / current fractional harmonics. Users can manually reset the clear energy data according to their own needs (requires user password).



Note:For electrical parameters of other circuits, refer to 5.3.1 Note 3

5.4 Setting Options

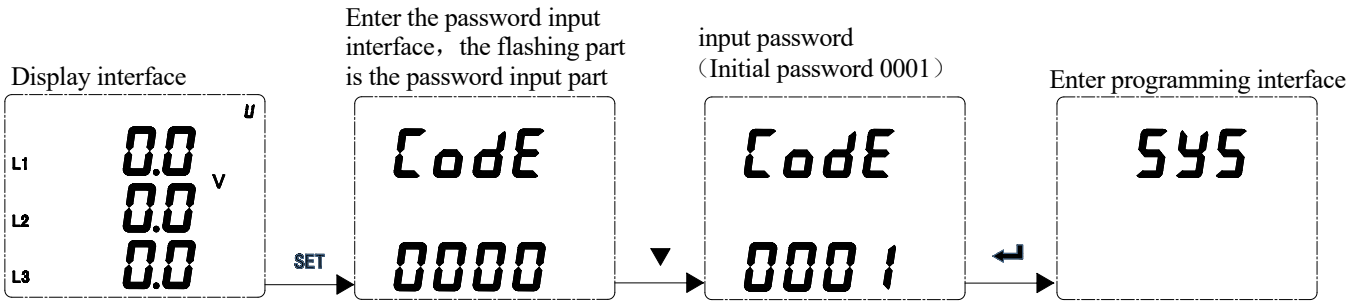
The detailed description of the setup menu is shown below.

First level	second level	Third level	Description
SYS	CodE	0～9999	password
	PLUS	1A:6400 5A:1600 100A:400 400A:100 600A:60	Pulse constant
	bLCd	0～250s	Backlight duration
	AP	L1 L2 L3 L4 t, nE	Energy pulse selection L1-L4:Active energy pulses in 4 loops t, nE:Clock pulse

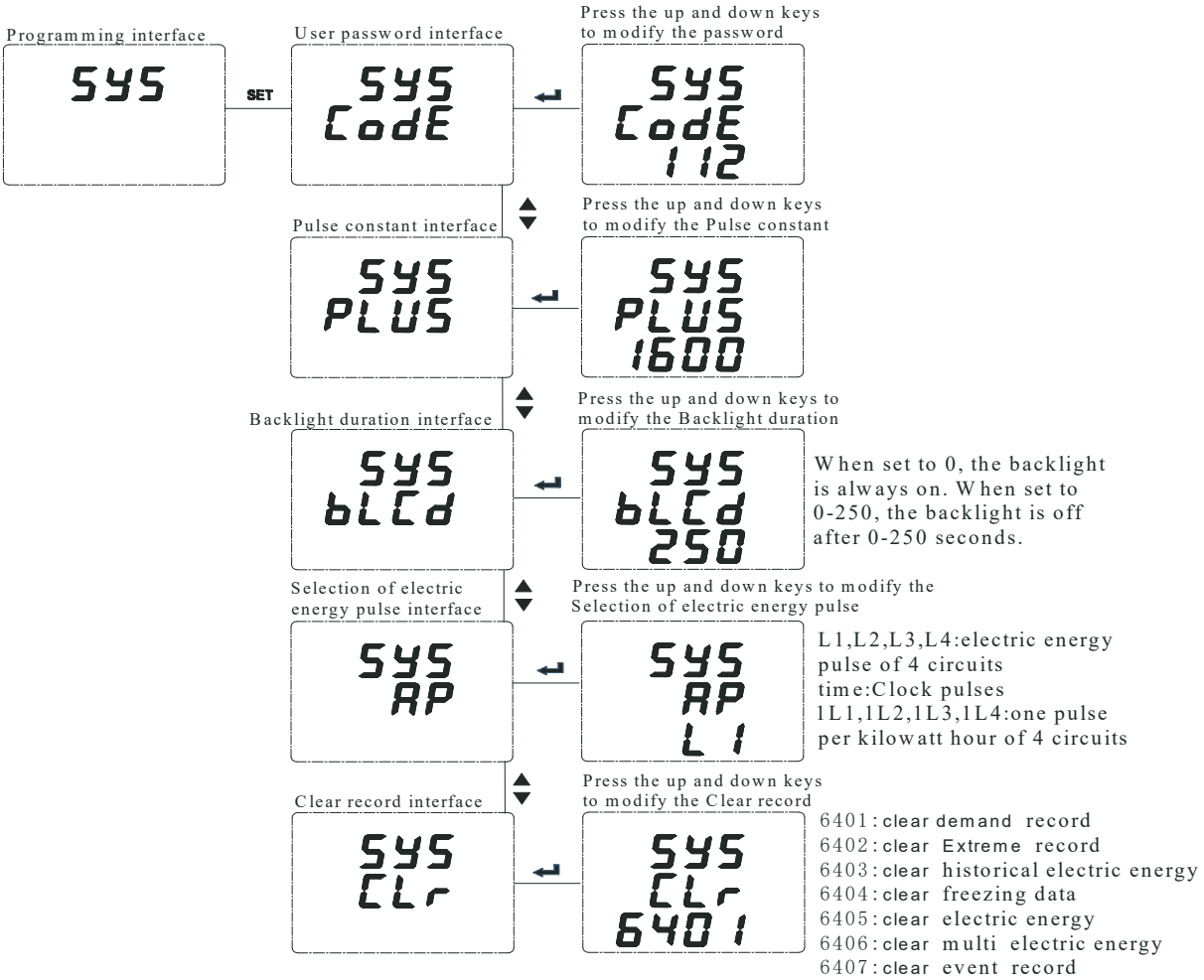
		1L 1 1L2 1L3 1L4	1L1-1L4:1L represents one degree of active energy and one pulse,1-4 represent 4 circuits
	CLr	6401: ClearDemand records 6402:ClearExtreme Record 6403: ClearHistorical power 6404: ClearFrozen data 6405: Clear power 6406: Clear Multiple rates electricity 6407:Clear event records	Clear records
In	LinE	3P4L:3 phase 3 wire 3P3L:3 phase 4 wire	Wiring
	U.Pri	220-65000V	Primary side voltage rating
	U.SEC	100V 220V	Secondary side voltage rating
	I.Pri	5-50000A	Measure the current rating at Primary side, there are four circuits
	I.SEC	1A、5A、100A、400A、600A	Secondary side current rating
	U.non	220-65000V	Nominal secondary voltage
	F.non	45-65Hz	Nominal frequency
Con1	Addr	1～247	Communication address
	bAUd	1200,2400,4800,9600,19200,38400	CommunicationBaud rate
	dAtA	n.8.2 : no check,2 Stop bit n.8.1 : no check,1 Stop bit o.8.1 :Odd parity E.8.1 :Even parity	CommunicationCheck mode
dnd	nodE	SLiP :slip Fix :fix	Demand mode
	Yid	1-999s	Demand slip Time
	Pd	1-30T	Demand calculation period

do-1 do-2	SEL	0:remote control 1-34:alarm	Alarm working mode (See section 5.4.6)
	RL.CH	CH1-4	Alarm loop
	dLY	0-9999S	delay
	bAnd	1	Alarm hysteresis
	RL.Hi	999	High alarm setting
	RL.Lo	0	Low alarm set point
	In.=0	ON or OFF	Zero alarm enable

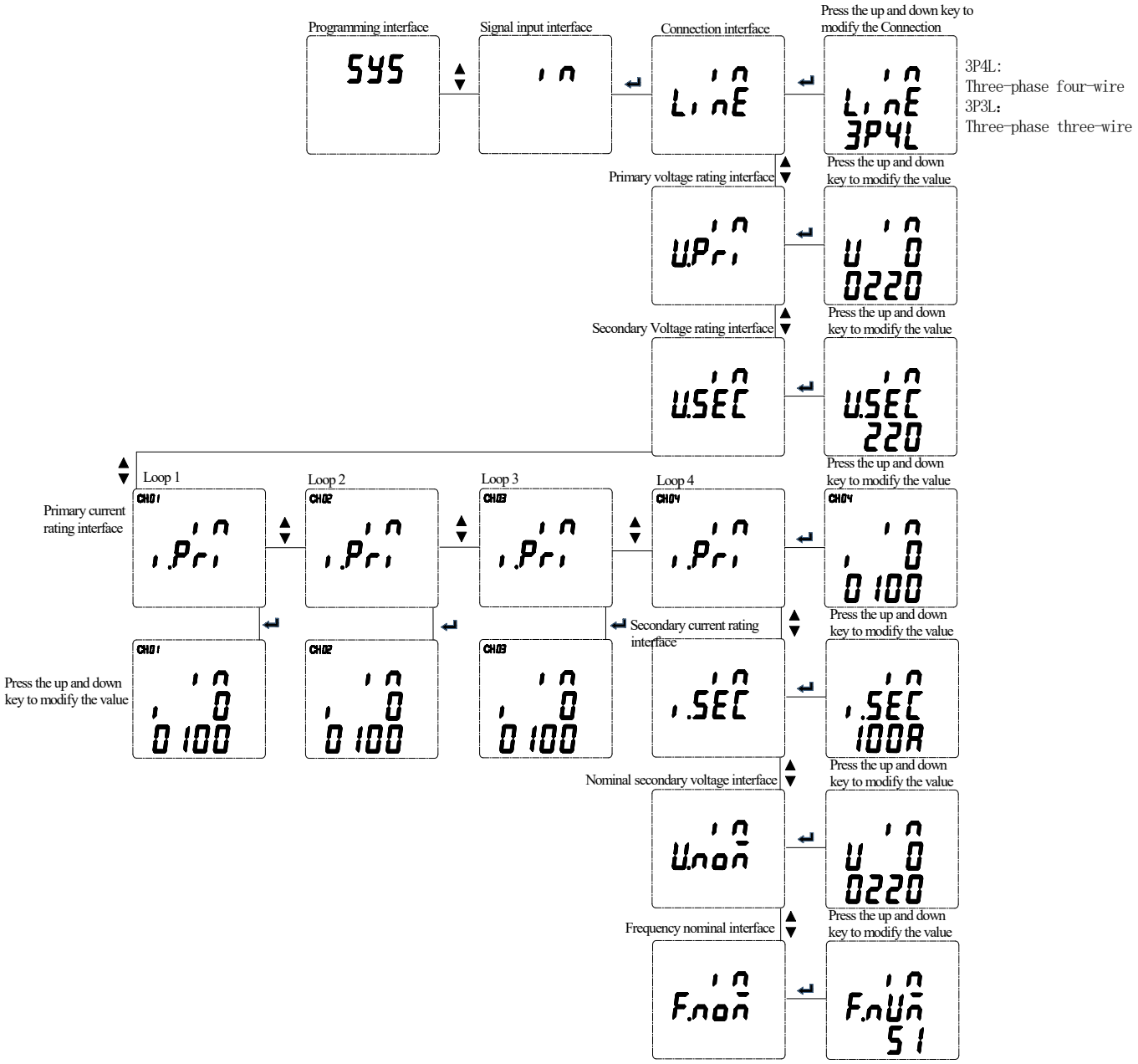
5.4.1Enter programming mode



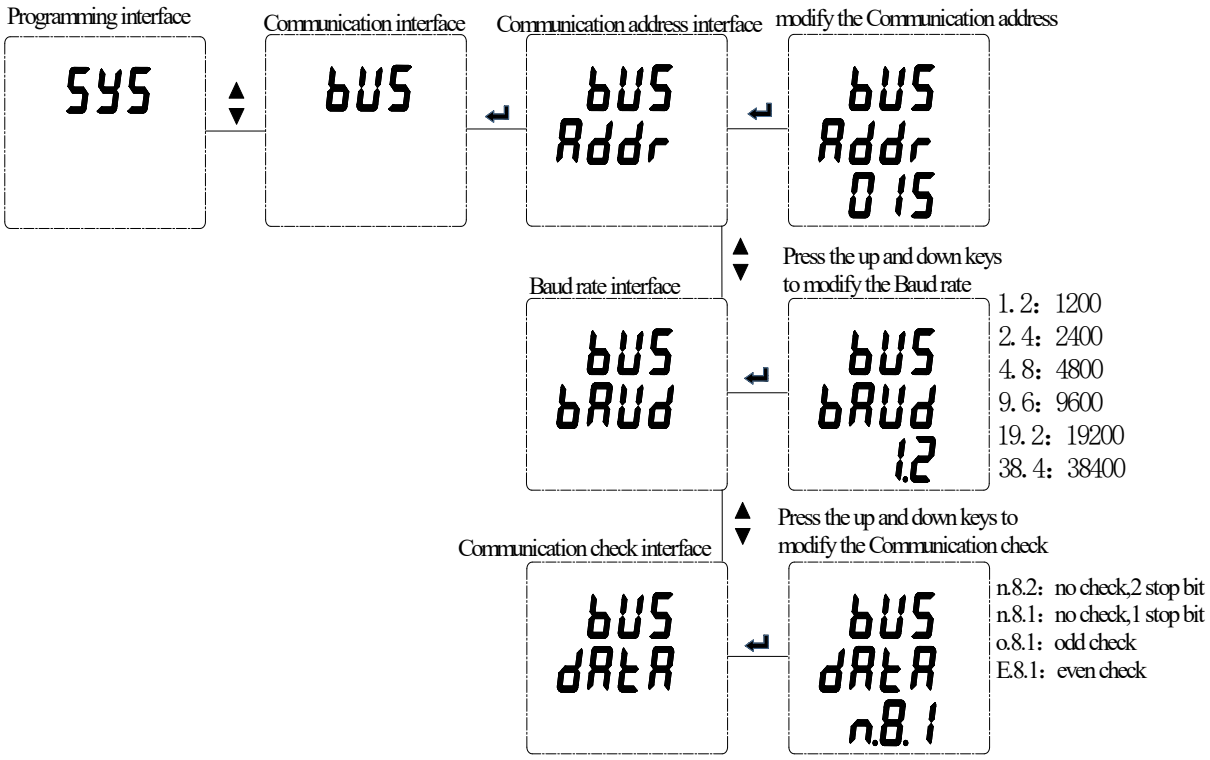
5.4.2 Modify User password,pulse constant,backlight duration,selection of electric energy pulse and clear record.



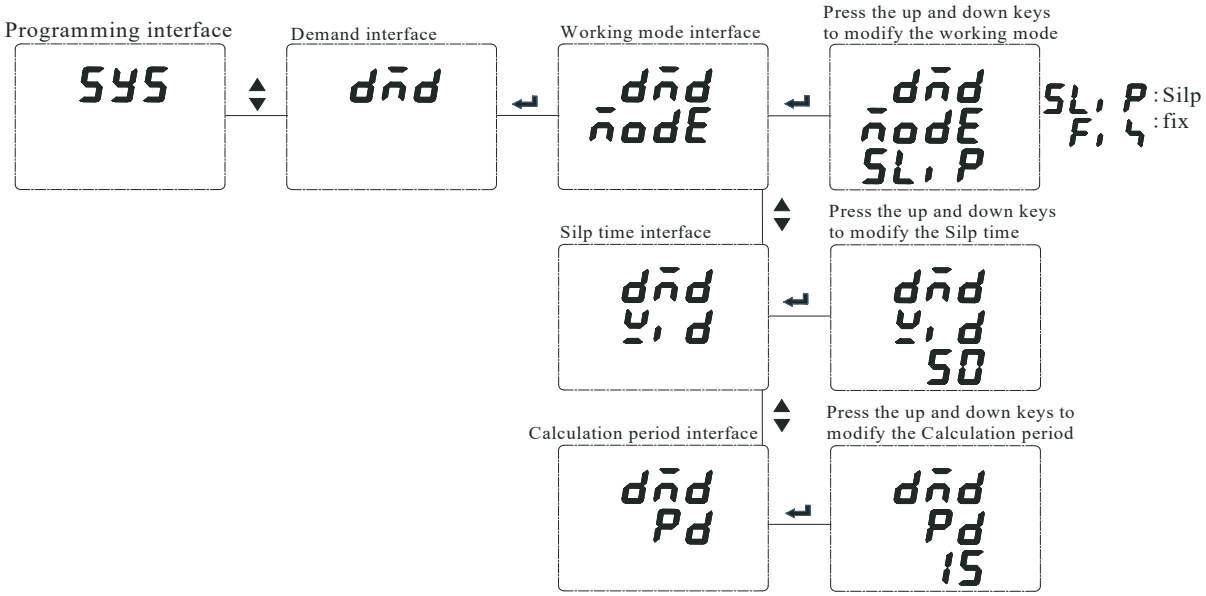
5.4.3 Modify Connection Mode,One(two)-time voltage(Current) rating,Nominal secondary voltage and Nominal frequency.


Programming interface
Signal input interface
Connection interface
Press the up and down key to modify the Connection
3P4L:
Three-phase four-wire
3P3L:
Three-phase three-wire
Primary voltage rating interface
Press the up and down key to modify the value
Secondary Voltage rating interface
Press the up and down key to modify the value
Loop 1
Loop 2
Loop 3
Loop 4
Primary current rating interface
Press the up and down key to modify the value
Secondary current rating interface
Press the up and down key to modify the value
Press the up and down key to modify the value
Nominal secondary voltage interface
Press the up and down key to modify the value
Frequency nominal interface
Press the up and down key to modify the value

5.4.4Modify Communication Address, Baud Rate and Check mode.



5.4.5 Modify Demand mode,Slip Time and Computing Time.



5.4.6 Modify Switching Working mode,Alarm circuit ,Delay Time,Hysteresisi,HIGH alarm ,LOW alarm and Zero alarm enable.

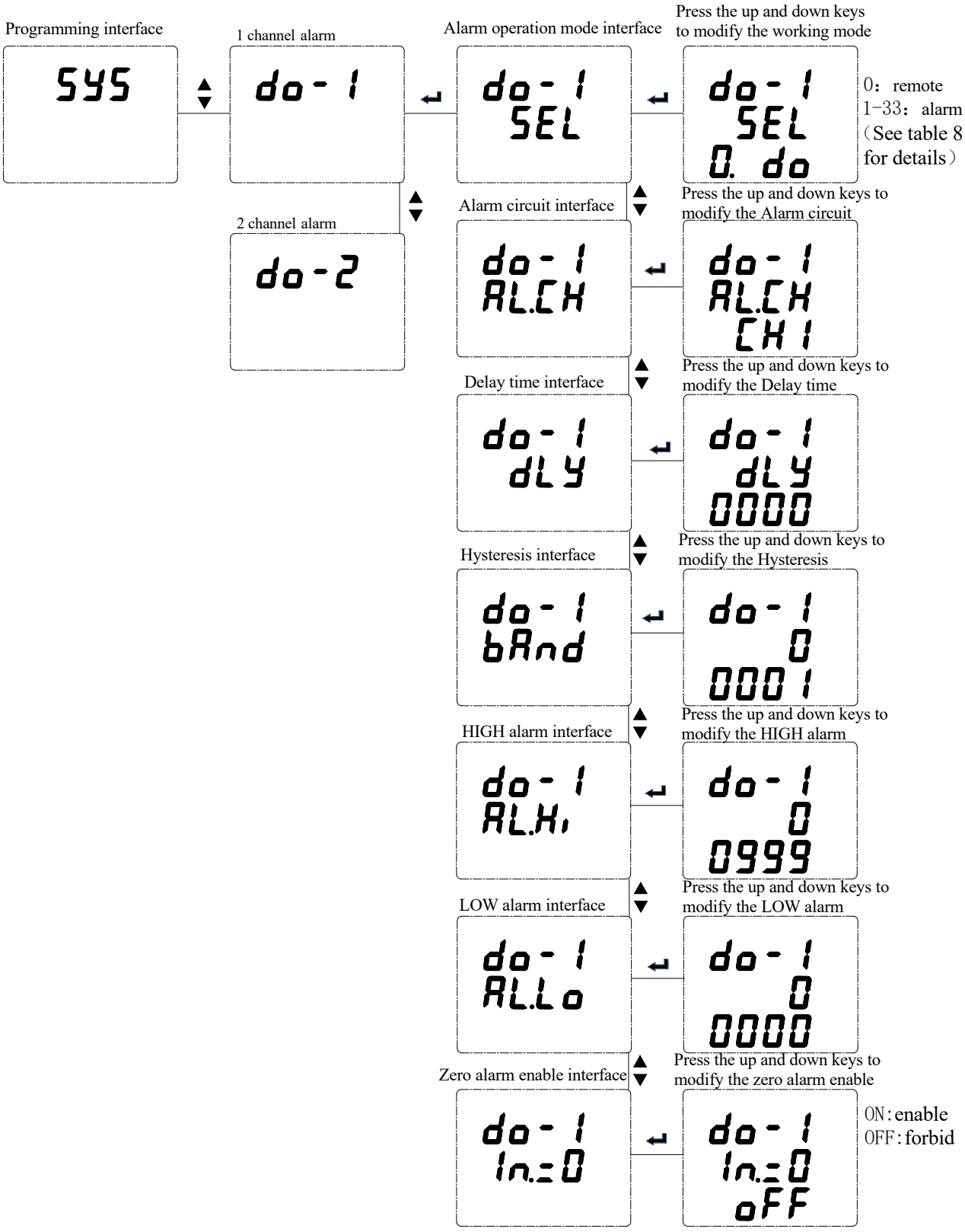
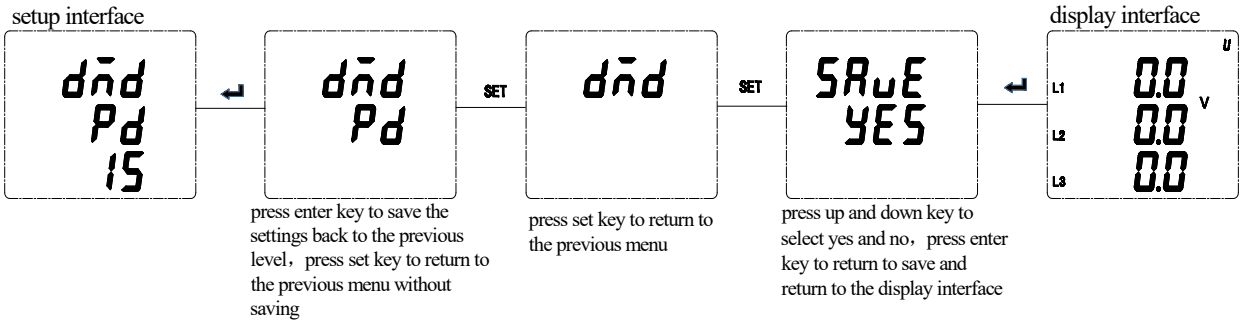


Table 8

do.1	1 channel Switching
RL.CH	Selection of circuit

<table>
<tr><td>SEL</td><td>Alarm item settings
<table>
<tr><td>00</td><td>01</td><td>02</td><td>03</td><td colspan="2">04</td><td>05</td><td>06</td><td>07</td></tr>
<tr><td>remote control</td><td>UA</td><td>UB</td><td>UC</td><td colspan="2">phase voltage maximum value</td><td>UAB</td><td>UBC</td><td>UCA</td></tr>
<tr><td colspan="2">08</td><td>09</td><td>10</td><td>11</td><td colspan="2">12</td><td>13</td><td>14</td></tr>
<tr><td colspan="2">line voltage maximum value</td><td>IA</td><td>IB</td><td>IC</td><td colspan="2">current maximum value</td><td>PA</td><td>PB</td></tr>
<tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td></tr>
<tr><td>PC</td><td>Psum</td><td>QA</td><td>QB</td><td>QC</td><td>Qsum</td><td>SA</td><td>SB</td><td>SC</td></tr>
<tr><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td colspan="2">30</td><td>31</td></tr>
<tr><td>Ssum</td><td>PFA</td><td>PFB</td><td>PFC</td><td>PFsum</td><td>F</td><td colspan="2">Voltage imbalance</td><td>Current imbalance</td></tr>
<tr><td colspan="3">32</td><td colspan="3">33</td><td colspan="3">34</td></tr>
<tr><td colspan="3">DI1(linkage)</td><td colspan="3">DI2(linkage)</td><td colspan="3">Segment Phase</td></tr>
<tr><td colspan="6">The corresponding channel "In.=0" needs to be set to "Lo.on"</td><td colspan="3">The second way DO can be set</td></tr>
</table></td></tr>
<tr><td>dLY</td><td>When the alarm item SEL is 00 (remote control), DLY indicates the duration after the switching amount is activated.
When the alarm item SEL is not 00 (alarm), DLY indicates the delay time before the switching action.</td></tr>
<tr><td>bAnd</td><td>Hysteresis setting</td></tr>
<tr><td>AL.Hi</td><td>High alarm value setting (do not set the maximum 9999)</td></tr>
<tr><td>AL.Lo</td><td>Low alarm value setting (do not set minimum 0)</td></tr>
<tr><td>In.=0</td><td>Whether low alarm is allowed when the signal is 0, Lo.on is enabled, Lo.of is forbidden</td></tr>
</table>

5.4.7Save settings andexit



6 Communication instruction

6.1 Communication address

The specific ADW2XX Register addresses are listed below:

Word address	Variable	word size	Read / write	Unit	Data type	Default value	Notes
00H	Communication address	1	R/W		uint16_t	1	1-247
01H	CommunicationBaud rate	1	R/W		uint16_t	3:9600	0:1200 1:2400 2:4800 3:9600 4:19200 5:38400
02H	Communication Check	1	R/W		uint16_t	0	0:N 8 1 1:E 8 1 2:O 8 1 3:N 8 2

	mode						
03H	Reserve	1	R/W				
04H	Reserve	1	R/W				
05H	Backlight duration	1	R/W	S	uint16_t	30	0-250S,0 represent Constant brightness
06H-07H	Master sends	2	R		uint32_t		
08H-09H	Reserve	2	R		uint32_t		
0AH-0BH	Reserve	2	R/W				
0CH	Number of electrical pulses per degree	1	R/W		uint16_t	1	1,10,100
0DH	Spreading factor	1	R/W		uint16_t	9	7-12
0EH	Channel	1	R/W		uint16_t	5	0-45
0FH	Wiring	1	R/W		uint16_t	0	0:3P4L 2:3P3L
10H	Clear records	1	W		uint16_t		0x6401:Clearing demand records 0x6402:Clearing extreme records 0x6403:Clearing Historical Power 0x6404: Clearing Frozen data 0x6405: Clearing Power 0x6406: Clearing Multiple rates electricity 0x6407:Clearing event records
11H	Pulse constant	1	R		uint16_t	1600	1A:6400 5A:1600 100A:400 400A:100 600A:60
12H	Energy pulse selection	1	R/W		uint16_t	0	0:L1Loop active energy pulse 1:L2Loop active energy pulse 2:L3Loop active energy pulse 3:L4Loop active energy pulse 4:Clock pulse 5:L1Loop active electrical energy once for one pulse 6:L2Loop active electrical energy once for one pulse 7:L3Loop active electrical energy once for one pulse 8:L4Loop active electrical energy once for one pulse
13H	Primary voltage rating	1	R/W	V	uint16_t	220	220-65000V
14H	CH1 Primary Current rating	1	R/W	A	uint16_t	100	5-50000A
15H	CH2 Primary Current rating	1	R/W	A	uint16_t	100	5-50000A
16H	CH3 Primary Current rating	1	R/W	A	uint16_t	100	5-50000A
17H	CH4 Primary Current	1	R/W	A	uint16_t	100	5-50000A

	rating						
18H	Secondary Current rating	1	R/W	A	uint16_t	100	1A、5A、100A、400A、600A
19H	Secondary Voltage Nominal value	1	R/W	V	uint16_t	220	220-65000V
1AH	FrequencyNominal value	1	R/W	Hz	uint16_t	50	
1BH	Phase loss alarm set value	1	R/W	V	uint16_t	10	
1CH	Relay DO1 alarm selection circuit number	1	R/W		uint16_t	0	0x00:CH1 0x01:CH2 0x02:CH3 0x03:CH4
1DH	#1 Relay DO1 working mode	1	R/W		uint16_t	0	0:remote control 1-34:alarm(For details, see 5.4.6)
1EH	#1 Delay time	1	R/W	S	uint16_t	0	0-9999
1FH	#1 Alarm hysteresis	1	R/W		uint16_t	1	Consistent with the rated value of one measurement
20H	#1 High alarm setting	1	R/W		uint16_t	999	Consistent with the rated value of one measurement
21H	#1 Low alarm set point	1	R/W		uint16_t	0	Consistent with the rated value of one measurement
22H	#1 Zero alarm enable	1	R/W		uint16_t	0	0:Forbid 1:Enable
23H-29H	#2 Relay DO2configuration	7	R/W		uint16_t		Same as relay 1
2AH	#DO1_S1	1	R/W				Relay state setting of digital module 1 0:open 1:close
2BH	#DO2_S1	1	R/W				
2CH	#DO3_S1	1	R/W				
2DH	#DO4_S1	1	R/W				
2EH	#DO1_S2	1	R/W				Relay state setting of digital module 2 0:open 1:close
2FH	#DO2_S2	1	R/W				
30H	#DO3_S2	1	R/W				
31H	#DO4_S2	1	R/W				
32H	Year/Month	1	R/W		uint16_t		
33H	Day/week	1	R/W		uint16_t		
34H	Hour/Minute	1	R/W		uint16_t		
35H	second/Reserve	1	R/W		uint16_t		
36H	DI1	1	R/W		uint16_t		
37H	DI2	1	R/W		uint16_t		
38H	Day freeze time	1	R/W		uint16_t	0x0016	High byte:Reserve Low byte:hour
39H	Demand mode	1	R/W		uint16_t	0	0:Slip type 1:Fixed type
3AH	Demand slip time (t)	1	R/W		uint16_t	60	1-9999S
3BH	Demand calculation cycle (T)	1	R/W		uint16_t	15	1-30t

3CH	DO1	1	R/W		uint16_t		0:open 1:close
3DH	DO2	1	R/W		uint16_t		0:open 1:close
3EH	Module relay mode	1	R/W		uint16_t		0：level 1-9999 pulse（Closure duration）
3FH-44H	First timetable Start time of period 1:Day Start time of period 1:Months …… Fourth of timetable Start time of period 4:Day Start time of period 4:Months	3x4/2	R/W		uint8_t		timetable: 01 correspond First 02 correspond Second
45H-59H	First timetable: Period 1 Rate Number Start time of period 1:Minutes Start time of period 1:Time …… Period 14 Rate Number Start time of period 14:Minutes Start time of period 14:Time	3x14/2	R/W		uint8_t		Rate number: 01 correspond tip 02 correspond peak 03 correspond level 04 correspond Valley
5AH-6EH	Second timetable: Period 1 Rate Number Start time of period 1:Minutes Start time of period 1:Time …… Period 14 Rate Number Start time of period 14:Minutes Start time of period 14:Time	3x14/2	R/W		uint8_t		Rate number: 01 correspond tip 02 correspond peak 03 correspond level 04 correspond Valley
6FH	Meter reading day	1	R/W		uint16_t	0x1C13	Time-Day
70H-76H	Instrument serial number	7	R/W		Uint8_t	Acrel000001234	ASCII code

Power parameter of loop 1:

Address	Variable	word size	Read / write	Unit	Data type
100-101	CH1 APhase Voltage	2	R	V	float
102-103	CH1 B Phase Voltage	2	R	V	float

104-105	CH1 C Phase Voltage	2	R	V	float
106-107	CH1 ABline Voltage	2	R	V	float
108-109	CH1 BC line Voltage	2	R	V	float
10A-10B	CH1 CA line Voltage	2	R	V	float
10C-10D	CH1 Frequency	2	R	Hz	float
10E-10F	CH1 A Phase Current	2	R	A	float
110-111	CH1 B Phase Current	2	R	A	float
112-113	CH1 C Phase Current	2	R	A	float
114-115	CH1 Zero sequence Current	2	R	A	float
116-117	CH1 A Phase Active power	2	R	W	float
118-119	CH1 B Phase Active power	2	R	W	float
11A-11B	CH1 C Phase Active power	2	R	W	float
11C-11D	CH1total Active power	2	R	W	float
11E-11F	CH1 A Phase Reactive power	2	R	var	float
120-121	CH1 B Phase Reactive power	2	R	var	float
122-123	CH1 C Phase Reactive power	2	R	var	float
124-125	CH1 total Reactive power	2	R	var	float
126-127	CH1 A Phase apparent power	2	R	VA	float
128-129	CH1 B Phase apparent power	2	R	VA	float
12A-12B	CH1 C Phase apparent power	2	R	VA	float
12C-12D	CH1 total apparent power	2	R	VA	float
12E-12F	CH1 A Phase power-factor	2	R		float
130-131	CH1 B Phase power-factor	2	R		float
132-133	CH1 C Phase power-factor	2	R		float
134-135	CH1 total power-factor	2	R		float
136-137	CH1 A Phase Positive active energy	2	R	kWh	float
138-139	CH1 B Phase Positive active energy	2	R	kWh	float
13A-13B	CH1 C Phase Positive active energy	2	R	kWh	float
13C-13D	CH1 total Positive active energy	2	R	kWh	float
13E-13F	CH1 A Phase Reverse active energy	2	R	kWh	float
140-141	CH1 B Phase Reverse active energy	2	R	kWh	float
142-143	CH1 C Phase Reverse active energy	2	R	kWh	float
144-145	CH1 total Reverse active energy	2	R	kWh	float
146-147	CH1 A Phase Forward reactive energy	2	R	kvarh	float
148-149	CH1 B Phase Forward reactive energy	2	R	kvarh	float
14A-14B	CH1 C Phase Forward reactive energy	2	R	kvarh	float
14C-14D	CH1total Forward reactive energy	2	R	kvarh	float
14E-14F	CH1 A Phase Reverse reactive energy	2	R	kvarh	float
150-151	CH1 B Phase Reverse reactive energy	2	R	kvarh	float
152-153	CH1 C Phase Reverse reactive energy	2	R	kvarh	float
154-155	CH1total Reverse reactive energy	2	R	kvarh	float

Electrical parameters for loops 2, 3, 4:Power parameter of reference circuit 1:

156-157	CH2A Phase Voltage	1AC-1AD	CH3 A Phase Voltage	202-203	CH4 A Phase Voltage
158-159	CH2 B Phase Voltage	1AE-1AF	CH3 B Phase Voltage	204-205	CH4 B Phase Voltage
15A-15B	CH2 C Phase Voltage	1B0-1B1	CH3 C Phase Voltage	206-207	CH4 C Phase Voltage

15C-15D	CH2 AB Line Voltage	1B2-1B3	CH3 AB Line Voltage	208-209	CH4 AB Line Voltage
15E-15F	CH2 BC Line Voltage	1B4-1B5	CH3 BC Line Voltage	20A-20B	CH4 BC Line Voltage
160-161	CH2 CA Line Voltage	1B6-1B7	CH3 CA Line Voltage	20C-20D	CH4 CA Line Voltage
162-163	CH2 Frequency	1B8-1B9	CH3 Frequency	20E-20F	CH4 Frequency
164-165	CH2A Phase Current	1BA-1BB	CH3 A Phase Current	210-211	CH4 A Phase Current
166-167	CH2B Phase Current	1BC-1BD	CH3 B Phase Current	212-213	CH4 B Phase Current
168-169	CH2C Phase Current	1BE-1BF	CH3 C Phase Current	214-215	CH4 C Phase Current
16A-16B	CH2 Zero sequence Current	1C0-1C1	CH3 Zero sequence Current	216-217	CH4 Zero sequence Current
16C-16D	CH2A Phase Active power	1C2-1C3	CH3 A Phase Active power	218-219	CH4 A Phase Active power
16E-16F	CH2B Phase Active power	1C4-1C5	CH3 B Phase Active power	21A-21B	CH4 B Phase Active power
170-171	CH2C Phase Active power	1C6-1C7	CH3 C Phase Active power	21C-21D	CH4 C Phase Active power
172-173	CH2 total Active power	1C8-1C9	CH3 total Active power	21E-21F	CH4 total Active power
174-175	CH2A Phase Reactive power	1CA-1CB	CH3 A Phase Reactive power	220-221	CH4 A Phase Reactive power
176-177	CH2B Phase Reactive power	1CC-1CD	CH3 B Phase Reactive power	222-223	CH4 B Phase Reactive power
178-179	CH2C Phase Reactive power	1CE-1CF	CH3 C Phase Reactive power	224-225	CH4 C Phase Reactive power
17A-17B	CH2 total Reactive power	1D0-1D1	CH3 total Reactive power	226-227	CH4 total Reactive power
17C-17D	CH2A Phase apparent power	1D2-1D3	CH3 A Phase apparent power	228-229	CH4 A Phase apparent power
17E-17F	CH2B Phase apparent power	1D4-1D5	CH3 B Phase apparent power	22A-22B	CH4 B Phase apparent power
180-181	CH2C Phase apparent power	1D6-1D7	CH3 C Phase apparent power	22C-22D	CH4 C Phase apparent power
182-183	CH2 total apparent power	1D8-1D9	CH3 total apparent power	22E-22F	CH4 total apparent power
184-185	CH2A Phase power-factor	1DA-1DB	CH3 A Phase power-factor	230-231	CH4 A Phase power-factor
186-187	CH2B Phase power-factor	1DC-1DD	CH3 B Phase power-factor	232-233	CH4 B Phase power-factor
188-189	CH2C Phase power-factor	1DE-1DF	CH3 C Phase power-factor	234-235	CH4 C Phase power-factor
18A-18B	CH2 total power-factor	1E0-1E1	CH3 total power-factor	236-237	CH4 total power-factor
18C-18D	CH2 A Phase Positive active energy	1E2-1E3	CH3 A Phase Positive active energy	238-239	CH4 A Phase Positive active energy
18E-18F	CH2 B Phase Positive active energy	1E4-1E5	CH3 B Phase Positive active energy	23A-23B	CH4 B Phase Positive active energy
190-191	CH2C Phase Positive active energy	1E6-1E7	CH3 C Phase Positive active energy	23C-23D	CH4 C Phase Positive active energy

192-193	CH2 total Positive active energy	1E8-1E9	CH3 total Positive active energy	23E-23F	CH4 total Positive active energy
194-195	CH2 A Phase Reverse active energy	1EA-1EB	CH3 A Phase Reverse active energy	240-241	CH4 A Phase Reverse active energy
196-197	CH2 B Phase Reverse active energy	1EC-1ED	CH3 B Phase Reverse active energy	242-243	CH4 B Phase Reverse active energy
198-199	CH2 C Phase Reverse active energy	1EE-1EF	CH3 C Phase Reverse active energy	244-245	CH4 C Phase Reverse active energy
19A-19B	CH2 total Reverse active energy	1F0-1F1	CH3 total Reverse active energy	246-247	CH4 total Reverse active energy
19C-19D	CH2A Phase Forward reactive energy	1F2-1F3	CH3 A Phase Forward reactive energy	248-249	CH4 A Phase Forward reactive energy
19E-19F	CH2B Phase Forward reactive energy	1F4-1F5	CH3 B Phase Forward reactive energy	24A-24B	CH4 B Phase Forward reactive energy
1A0-1A1	CH2C Phase Forward reactive energy	1F6-1F7	CH3 C Phase Forward reactive energy	24C-24D	CH4 C Phase Forward reactive energy
1A2-1A3	CH2 total Forward reactive energy	1F8-1F9	CH3 total Forward reactive energy	24E-24F	CH4 total Forward reactive energy
1A4-1A5	CH2A Phase Reverse reactive energy	1FA-1FB	CH3 A Phase Reverse reactive energy	250-251	CH4 A Phase Reverse reactive energy
1A6-1A7	CH2B Phase Reverse reactive energy	1FC-1FD	CH3 B Phase Reverse reactive energy	252-253	CH4 B Phase Reverse reactive energy
1A8-1A9	CH2C Phase Reverse reactive energy	1FE-1FF	CH3 C Phase Reverse reactive energy	254-255	CH4 C Phase Reverse reactive energy
1AA-1AB	CH2 total Reverse reactive energy	200-201	CH3 total Reverse reactive energy	256-257	CH4 total Reverse reactive energy

Harmonic data:

Word address	Variable	word size	Read / write	Unit	Data type	Notes
300-301	A Phase Voltage Phase Angle	2	R		float	
302-303	B Phase Voltage Phase Angle	2	R		float	
304-305	C Phase Voltage Phase Angle	2	R		float	
306-307	CH1 A Phase Current Phase Angle	2	R		float	
308-309	CH1 B Phase Current Phase Angle	2	R		float	
30A-30B	CH1 C Phase Current Phase Angle	2	R		float	
30C-30D	CH2 A Phase Current Phase Angle	2	R		float	
30E-30F	CH2 B Phase Current Phase Angle	2	R		float	
310-311	CH2 C Phase Current Phase Angle	2	R		float	
312-313	CH3 A Phase Current Phase Angle	2	R		float	
314-315	CH3 B Phase Current Phase Angle	2	R		float	
316-317	CH3 C Phase Current Phase Angle	2	R		float	
318-319	CH4 A Phase Current Phase Angle	2	R		float	
31A-31B	CH4 B Phase Current Phase Angle	2	R		float	
31C-31D	CH4 C Phase Current Phase Angle	2	R		float	
31E-31F	Voltage degree of unbalance	2	R		float	

320-321	CH1 Current degree of unbalance	2	R		float	
322-323	CH2 Current degree of unbalance	2	R		float	
324-325	CH3 Current degree of unbalance	2	R		float	
326-327	CH4 Current degree of unbalance	2	R		float	
328-329	A Phase Voltage deviation	2	R		float	
32A-32B	B Phase Voltage deviation	2	R		float	
32C-32D	C Phase Voltage deviation	2	R		float	
32E-32F	AB Line Voltage deviation	2	R		float	
330-331	BC Line Voltage deviation	2	R		float	
332-333	CA Line Voltage deviation	2	R		float	
334-335	Frequency deviation	2	R		float	
336	A Phase Voltage total Harmonic Distortion rate	1	R		int16_t	0.01%
337	B Phase Voltage total Harmonic Distortion rate	1	R		int16_t	0.01%
338	C Phase Voltage total Harmonic Distortion rate	1	R		int16_t	0.01%
339	CH1A Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33A	CH1B Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33B	CH1C Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33C	CH2A Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33D	CH2B Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33E	CH2C Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
33F	CH3A Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
340	CH3B Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
341	CH3C Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
342	CH4A Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
343	CH4B Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
344	CH4C Phase Current total Harmonic Distortion rate	1	R		int16_t	0.01%
345	A Phase Voltage 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	B Phase Voltage 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	C Phase Voltage 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	.....	2	R		int16_t	0.01%
	A Phase Voltage 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
	B Phase Voltage 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
39E	C Phase Voltage 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
39F	CH1A Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH1B Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH1C Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	.....	2	R		int16_t	0.01%
	CH1A Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH1B Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
3F8	CH1C Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
3F9	CH2A Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH2B Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH2C Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	.....	2	R		int16_t	0.01%
	CH2A Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%

	CH2B Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
452	CH2C Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
453	CH3A Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH3B Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH3C Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	.....	2	R		int16_t	0.01%
	CH3A Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH3B Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
4AC	CH3C Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
4AD	CH4A Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH4B Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH4C Phase Current 2 times Harmonic Distortion rate	2	R		int16_t	0.01%
	.....	2	R		int16_t	0.01%
	CH4A Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
	CH4B Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%
506	CH4C Phase Current 31 times Harmonic Distortion rate	2	R		int16_t	0.01%

Temperature、Leakage、Switching input:(According to the connection sequence, the module closest to the main body is defined as module 1)

Word address	Variable	word size	Read / write	Unit	Data type	Notes
17A0	1 temperature 1	1	R	0.1℃	int16_t	Module
17A1	1 temperature 2	1	R	0.1℃	int16_t	Module
17A2	1 temperature 3	1	R	0.1℃	int16_t	Module
17A3	1 temperature 4	1	R	0.1℃	int16_t	Module
17A4	1 temperature 5	1	R	0.1℃	int16_t	Module
17A5	1 temperature 6	1	R	0.1℃	int16_t	Module
17A6	1 temperature 7	1	R	0.1℃	int16_t	Module
17A7	1 temperature 8	1	R	0.1℃	int16_t	Module
17A8	1 temperature 9	1	R	0.1℃	int16_t	Module
17A9	1 temperature 10	1	R	0.1℃	int16_t	Module
17AA	1 temperature 11	1	R	0.1℃	int16_t	Module
17AB	1 temperature 12	1	R	0.1℃	int16_t	Module
17AC	1 Leakage 1	1	R	1mA	uint16_t	Module
17AD	1 Leakage 2	1	R	1mA	uint16_t	Module
17AE	1 Leakage 3	1	R	1mA	uint16_t	Module
17AF	1 Leakage 4	1	R	1mA	uint16_t	Module
17B0	1Internal temperature	1	R	0.1℃	int16_t	Module
17B1	1Internal humidity	1	R	0.10%	uint16_t	Module
17B2	2 temperature 1	1	R	0.1℃	int16_t	Module
17B3	2 temperature 2	1	R	0.1℃	int16_t	Module
17B4	2 temperature 3	1	R	0.1℃	int16_t	Module
17B5	2 temperature 4	1	R	0.1℃	int16_t	Module
17B6	2 temperature 5	1	R	0.1℃	int16_t	Module
17B7	2 temperature 6	1	R	0.1℃	int16_t	Module

17B8	2 temperature 7	1	R	0.1℃	int16_t	Module
17B9	2 temperature 8	1	R	0.1℃	int16_t	Module
17BA	2 temperature 9	1	R	0.1℃	int16_t	Module
17BB	2 temperature 10	1	R	0.1℃	int16_t	Module
17BC	2 temperature 11	1	R	0.1℃	int16_t	Module
17BD	2 temperature 12	1	R	0.1℃	int16_t	Module
17BE	2Leakage1	1	R	1mA	uint16_t	Module
17BF	2Leakage2	1	R	1mA	uint16_t	Module
17C0	2Leakage3	1	R	1mA	uint16_t	Module
17C1	2Leakage4	1	R	1mA	uint16_t	Module
17C2	2 Internal temperature	1	R	0.1℃	int16_t	Module
17C3	2 Internal humidity	1	R	0.10%	uint16_t	Module
17C4	1DI1	1	R		uint16_t	Module
17C5	1DI2	1	R		uint16_t	Module
17C6	1DI3	1	R		uint16_t	Module
17C7	1DI4	1	R		uint16_t	Module
17C8	1DI5	1	R		uint16_t	Module
17C9	1DI6	1	R		uint16_t	Module
17CA	1DI7	1	R		uint16_t	Module
17CB	1DI8	1	R		uint16_t	Module
17CC	1DI9	1	R		uint16_t	Module
17CD	1DI10	1	R		uint16_t	Module
17CE	1DI11	1	R		uint16_t	Module
17CF	1DI12	1	R		uint16_t	Module
17D0	1DO1	1	R		uint16_t	Module
17D1	1DO2	1	R		uint16_t	Module
17D2	1DO3	1	R		uint16_t	Module
17D3	1DO4	1	R		uint16_t	Module
17D4	2DI1	1	R		uint16_t	Module
17D5	2DI2	1	R		uint16_t	Module
17D6	2DI3	1	R		uint16_t	Module
17D7	2DI4	1	R		uint16_t	Module
17D8	2DI5	1	R		uint16_t	Module
17D9	2DI6	1	R		uint16_t	Module
17DA	2DI7	1	R		uint16_t	Module
17DB	2DI8	1	R		uint16_t	Module
17DC	2DI9	1	R		uint16_t	Module
17DD	2DI10	1	R		uint16_t	Module
17DE	2DI11	1	R		uint16_t	Module
17DF	2DI12	1	R		uint16_t	Module
17E0	2DO1	1	R		uint16_t	Module
17E1	2DO2	1	R		uint16_t	Module
17E2	2DO3	1	R		uint16_t	Module
17E3	2DO4	1	R		uint16_t	Module

Demand (save):

Word address	Variable(This Month)	word size	Read / write	Unit	Data type	Notes	
1600-1601	CH1A Phase Current Months Maximum demand	2	R	A	float		
1602	Time of occurrence	1	R		uint16_t	Year	Month
1603		1	R		uint16_t	Day	Time
1604		1	R		uint16_t	Minute	
1605-1606	CH1B Phase Current Months Maximum demand	2	R	A	float		
1607	Time of occurrence	1	R		uint16_t	Year	Month
1608		1	R		uint16_t	Day	Time
1609		1	R		uint16_t	Minute	
160A-160B	CH1C Phase Current Months Maximum demand	2	R	A	float		
160C	Time of occurrence	1	R		uint16_t	Year	Month
160D		1	R		uint16_t	Day	Time
160E		1	R		uint16_t	Minute	
160F-1610	CH1A Phase power Months Maximum demand	2	R	W	float		
1611	Time of occurrence	1	R		uint16_t	Year	Month
1612		1	R		uint16_t	Day	Time
1613		1	R		uint16_t	Minute	
1614-1615	CH1B Phase power Months Maximum demand	2	R	W	float		
1616	Time of occurrence	1	R		uint16_t	Year	Month
1617		1	R		uint16_t	Day	Time
1618		1	R		uint16_t	Minute	
1619-161A	CH1C Phase power Months Maximum demand	2	R	W	float		
161B	Time of occurrence	1	R		uint16_t	Year	Month
161C		1	R		uint16_t	Day	Time
161D		1	R		uint16_t	Minute	
161E-161F	CH1 total power Months Maximum demand	2	R	W	float		
1620	Time of occurrence	1	R		uint16_t	Year	Month
1621		1	R		uint16_t	Day	Time
1622		1	R		uint16_t	Minute	
1623-1624	CH2A Phase Current Months Maximum demand	2	R	A	float		
1625	Time of occurrence	1	R		uint16_t	Year	Month
1626		1	R		uint16_t	Day	Time
1627		1	R		uint16_t	Minute	
1628-1629	CH2B Phase Current Months Maximum demand	2	R	A	float		
162A	Time of occurrence	1	R		uint16_t	Year	Month

162B		1	R		uint16_t	Day	Time
162C		1	R		uint16_t	Minute	
162D-162E	CH2C Phase Current Months Maximum demand	2	R	A	float		
162F	Time of occurrence	1	R		uint16_t	Year	Month
1630		1	R		uint16_t	Day	Time
1631		1	R		uint16_t	Minute	
1632-1633	CH2A Phase power Months Maximum demand	2	R	W	float		
1634	Time of occurrence	1	R		uint16_t	Year	Month
1635		1	R		uint16_t	Day	Time
1636		1	R		uint16_t	Minute	
1637-1638	CH2B Phase power Months Maximum demand	2	R	W	float		
1639	Time of occurrence	1	R		uint16_t	Year	Month
163A		1	R		uint16_t	Day	Time
163B		1	R		uint16_t	Minute	
163C-163D	CH2C Phase power Months Maximum demand	2	R	W	float		
163E	Time of occurrence	1	R		uint16_t	Year	Month
163F		1	R		uint16_t	Day	Time
1640		1	R		uint16_t	Minute	
1641-1642	CH2total power Months Maximum demand	2	R	W	float		
1643	Time of occurrence	1	R		uint16_t	Year	Month
1644		1	R		uint16_t	Day	Time
1645		1	R		uint16_t	Minute	
1646-1647	CH3A Phase Current Months Maximum demand	2	R	A	float		
1648	Time of occurrence	1	R		uint16_t	Year	Month
1649		1	R		uint16_t	Day	Time
164A		1	R		uint16_t	Minute	
164B-164C	CH3B Phase Current Months Maximum demand	2	R	A	float		
164D	Time of occurrence	1	R		uint16_t	Year	Month
164E		1	R		uint16_t	Day	Time
164F		1	R		uint16_t	Minute	
1650-1651	CH3C Phase Current Months Maximum demand	2	R	A	float		
1652	Time of occurrence	1	R		uint16_t	Year	Month
1653		1	R		uint16_t	Day	Time
1654		1	R		uint16_t	Minute	
1655-1656	CH3A Phase power Months Maximum demand	2	R	W	float		
1657	Time of occurrence	1	R		uint16_t	Year	Month

1658		1	R		uint16_t	Day	Time
1659		1	R		uint16_t	Minute	
165A-165B	CH3B Phase power Months Maximum demand	2	R	W	float		
165C	Time of occurrence	1	R		uint16_t	Year	Month
165D		1	R		uint16_t	Day	Time
165E		1	R		uint16_t	Minute	
165F-1660	CH3C Phase power Months Maximum demand	2	R	W	float		
1661	Time of occurrence	1	R		uint16_t	Year	Month
1662		1	R		uint16_t	Day	Time
1663		1	R		uint16_t	Minute	
1664-1665	CH3total power Months Maximum demand	2	R	W	float		
1666	Time of occurrence	1	R		uint16_t	Year	Month
1667		1	R		uint16_t	Day	Time
1668		1	R		uint16_t	Minute	
1669-166A	CH4A Phase Current Months Maximum demand	2	R	A	float		
166B	Time of occurrence	1	R		uint16_t	Year	Month
166C		1	R		uint16_t	Day	Time
166D		1	R		uint16_t	Minute	
166E-166F	CH4B Phase Current Months	2	R	A	float		
1670	Time of Maximum demand	1	R		uint16_t	Year	Month
1671		1	R		uint16_t	Day	Time
1672		1	R		uint16_t	Minute	
1673-1674	CH4C Phase Current Months Maximum demand	2	R	A	float		
1675	Time of occurrence	1	R		uint16_t	Year	Month
1676		1	R		uint16_t	Day	Time
1677		1	R		uint16_t	Minute	
1678-1679	CH4A Phase power Months Maximum demand	2	R	W	float		
167A	Time of occurrence	1	R		uint16_t	Year	Month
167B		1	R		uint16_t	Day	Time
167C		1	R		uint16_t	Minute	
167D-167E	CH4B Phase power Months Maximum demand	2	R	W	float		
167F	Time of occurrence	1	R		uint16_t	Year	Month
1680		1	R		uint16_t	Day	Time
1681		1	R		uint16_t	Minute	
1682-1683	CH4C Phase power Months Maximum demand	2	R	W	float		
1684	Time of occurrence	1	R		uint16_t	Year	Month
1685		1	R		uint16_t	Day	Time

1686		1	R		uint16_t	Minute	
1687-1688	CH4 total power Months Maximum demand	2	R	W	float		
1689	Time of occurrence	1	R		uint16_t	Year	Month
168A		1	R		uint16_t	Day	Time
168B		1	R		uint16_t	Minute	

Word adress	Variable（Last month）	Word size	Read/ write	Unit	Date type	Notes	
168C-168D	CH1A Phase Current Months Maximum demand	2	R	A	float		
168E	Time of occurrence	1	R		uint16_t	Year	Month
168F		1	R		uint16_t	Day	Time
1690		1	R		uint16_t	Minute	
1691-1692	CH1B Phase Current Months Maximum demand	2	R	A	float		
1693	Time of occurrence	1	R		uint16_t	Year	Month
1694		1	R		uint16_t	Day	Time
1695		1	R		uint16_t	Minute	
1696-1697	CH1C Phase Current Months Maximum demand	2	R	A	float		
1698	Time of occurrence	1	R		uint16_t	Year	Month
1699		1	R		uint16_t	Day	Time
169A		1	R		uint16_t	Minute	
169B-169C	CH1A Phase power Months Maximum demand	2	R	W	float		
169D	Time of occurrence	1	R		uint16_t	Year	Month
169E		1	R		uint16_t	Day	Time
169F		1	R		uint16_t	Minute	
16A0-16A1	CH1B Phase power Months Maximum demand	2	R	W	float		
16A2	Time of occurrence	1	R		uint16_t	Year	Month
16A3		1	R		uint16_t	Day	Time
16A4		1	R		uint16_t	Minute	
16A5-16A6	CH1C Phase power Months Maximum demand	2	R	W	float		
16A7	Time of occurrence	1	R		uint16_t	Year	Month
16A8		1	R		uint16_t	Day	Time
16A9		1	R		uint16_t	Minute	
16AA-16AB	CH1 total power Months Maximum demand	2	R	W	float		
16AC	Time of occurrence	1	R		uint16_t	Year	Month
16AD		1	R		uint16_t	Day	Time
16AE		1	R		uint16_t	Minute	
16AF-16B0	CH2A Phase Curren tMonths	2	R	A	float		

	Maximum demand						
16B1	Time of occurrence	1	R		uint16_t	Year	Month
16B2		1	R		uint16_t	Day	Time
16B3		1	R		uint16_t	Minute	
16B4-16B5	CH2B Phase Current Months Maximum demand	2	R	A	float		
16B6	Time of occurrence	1	R		uint16_t	Year	Month
16B7		1	R		uint16_t	Day	Time
16B8		1	R		uint16_t	Minute	
16B9-16BA	CH2C Phase Current Months Maximum demand	2	R	A	float		
16BB	Time of occurrence	1	R		uint16_t	Year	Month
16BC		1	R		uint16_t	Day	Time
16BD		1	R		uint16_t	Minute	
16BE-16BF	CH2A Phase power Months Maximum demand	2	R	W	float		
16C0	Time of occurrence	1	R		uint16_t	Year	Month
16C1		1	R		uint16_t	Day	Time
16C2		1	R		uint16_t	Minute	
16C3-16C4	CH2B Phase power Months Maximum demand	2	R	W	float		
16C5	Time of occurrence	1	R		uint16_t	Year	Month
16C6		1	R		uint16_t	Day	Time
16C7		1	R		uint16_t	Minute	
16C8-16C9	CH2C Phase power Months Maximum demand	2	R	W	float		
16CA	Time of occurrence	1	R		uint16_t	Year	Month
16CB		1	R		uint16_t	Day	Time
16CC		1	R		uint16_t	Minute	
16CD-16CE	CH2 total power Months Maximum demand	2	R	W	float		
16CF	Time of occurrence	1	R		uint16_t	Year	Month
16D0		1	R		uint16_t	Day	Time
16D1		1	R		uint16_t	Minute	
16D2-16D3	CH3A Phase Current Months Maximum demand	2	R	A	float		
16D4	Time of occurrence	1	R		uint16_t	Year	Months
16D5		1	R		uint16_t	Day	Time
16D6		1	R		uint16_t	Minutes	
16D7-16D8	CH3B Phase Current Months Maximum demand	2	R	A	float		
16D9	Time of occurrence	1	R		uint16_t	Year	Month
16DA		1	R		uint16_t	Day	Time
16DB		1	R		uint16_t	Minute	
16DC-16D	CH3C Phase Current Months	2	R	A	float		

D	Maximum demand						
16DE	Time of occurrence	1	R		uint16_t	Year	Month
16DF		1	R		uint16_t	Day	Time
16E0		1	R		uint16_t	Minute	
16E1-16E2	CH3A Phase power Months Maximum demand	2	R	W	float		
16E3	Time of occurrence	1	R		uint16_t	Year	Month
16E4		1	R		uint16_t	Day	Time
16E5		1	R		uint16_t	Minute	
16E6-16E7	CH3B Phase power Months Maximum demand	2	R	W	float		
16E8	Time of occurrence	1	R		uint16_t	Year	Month
16E9		1	R		uint16_t	Day	Time
16EA		1	R		uint16_t	Minute	
16EB-16EC	CH3C Phase power Months Maximum demand	2	R	W	float		
16ED	Time of occurrence	1	R		uint16_t	Year	Month
16EE		1	R		uint16_t	Day	Time
16EF		1	R		uint16_t	Minute	
16F0-16F1	CH3 total power Months Maximum demand	2	R	W	float		
16F2	Time of occurrence	1	R		uint16_t	Year	Month
16F3		1	R		uint16_t	Day	Time
16F4		1	R		uint16_t	Minute	
16F5-16F6	CH4A Phase Current Months Maximum demand	2	R	A	float		
16F7	Time of occurrence	1	R		uint16_t	Year	Month
16F8		1	R		uint16_t	Day	Time
16F9		1	R		uint16_t	Minute	
16FA-16FB	CH4B Phase Current Months Maximum demand	2	R	A	float		
16FC	Time of occurrence	1	R		uint16_t	Year	Month
16FD		1	R		uint16_t	Day	Time
16FE		1	R		uint16_t	Minute	
16FF-1700	CH4C Phase Current Months Maximum demand	2	R	A	float		
1701	Time of occurrence	1	R		uint16_t	Year	Month
1702		1	R		uint16_t	Day	Time
1703		1	R		uint16_t	Minute	
1704-1705	CH4A Phase power Months Maximum demand	2	R	W	float		
1706	Time of occurrence	1	R		uint16_t	Year	Month
1707		1	R		uint16_t	Day	Time
1708		1	R		uint16_t	Minute	
1709-170A	CH4B Phase power Months	2	R	W	float		

	Maximum demand						
170B	Time of occurrence	1	R		uint16_t	Year	Months
170C		1	R		uint16_t	Day	Time
170D		1	R		uint16_t	Minutes	
170E-170F	CH4C Phase power Months Maximum demand	2	R	W	float		
1710	Time of occurrence	1	R		uint16_t	Year	Month
1711		1	R		uint16_t	Day	Time
1712		1	R		uint16_t	Minute	
1713-1714	CH4total power Months Maximum demand	2	R	W	float		
1715	Time of occurrence	1	R		uint16_t	Year	Month
1716		1	R		uint16_t	Day	Time
1717		1	R		uint16_t	Minute	

Word address	Variable	Word size	Read/write	Unit	Date type	Notes	
1718-1719	CH1A phase Current demand	2	R	A	float		
171A-171B	CH1B phase Current demand	2	R	A	float		
171C-171D	CH1C phase Current demand	2	R	A	float		
171E-171F	CH1A phase Current power demand	2	R	W	float		
1720-1721	CH1B phase Current power demand	2	R	W	float		
1722-1723	CH1C phase Current power demand	2	R	W	float		
1724-1725	CH1 Current power demand	2	R	W	float		
1726-1727	CH2A phase Current demand	2	R	A	float		
1728-1729	CH2B phase Current demand	2	R	A	float		
172A-172B	CH2C phase Current demand	2	R	A	float		
172C-172D	CH2A phase Current power demand	2	R	W	float		
172E-172F	CH2B phase Current power demand	2	R	W	float		
1730-1731	CH2C phase Current power demand	2	R	W	float		
1732-1733	CH2 Current power demand	2	R	W	float		
1734-1735	CH3A phase Current demand	2	R	A	float		
1736-1737	CH3B phase Current demand	2	R	A	float		
1738-1739	CH3C phase Current demand	2	R	A	float		
173A-173B	CH3A phase Current power demand	2	R	W	float		

173C-173D	CH3B phase Current power demand	2	R	W	float		
173E-173F	CH3C phase Current power demand	2	R	W	float		
1740-1741	CH3 Current power demand	2	R	W	float		
1742-1743	CH4A phase Current demand	2	R	A	float		
1744-1745	CH4B phase Current demand	2	R	A	float		
1746-1747	CH4C phase Current demand	2	R	A	float		
1748-1749	CH4A phase Current power demand	2	R	W	float		
174A-174B	CH4B phase Current power demand	2	R	W	float		
174C-174D	CH4C phase Current power demand	2	R	W	float		
174E-174F	CH4 Current power demand	2	R	W	float		

Total Multiple rates energy for loops 1-4 (save):

Word address	Variable	word size	Read / write	Unit	Data type	Notes
600-601	CH1 total Multiple rates electricity	2	R	kWh	Float	
602-603	CH1 total Multiple rates electricity[tip]	2	R	kWh	Float	
604-605	CH1 total Multiple rates electricity[peak]	2	R	kWh	Float	
606-607	CH1 total Multiple rates electricity[level]	2	R	kWh	Float	
608-609	CH1 total Multiple rates electricity[Valley]	2	R	kWh	Float	
60A-60B	CH2 total Multiple rates electricity	2	R	kWh	Float	
60C-60D	CH2 total Multiple rates electricity[tip]	2	R	kWh	Float	
60E-60F	CH2 total Multiple rates electricity[peak]	2	R	kWh	Float	
610-611	CH2 total Multiple rates electricity[level]	2	R	kWh	Float	
612-613	CH2 total Multiple rates electricity[Valley]	2	R	kWh	Float	
614-615	CH3 total Multiple rates electricity	2	R	kWh	Float	
616-617	CH3 total Multiple rates electricity[tip]	2	R	kWh	Float	
618-619	CH3 total Multiple rates electricity[peak]	2	R	kWh	Float	
61A-61B	CH3 total Multiple rates electricity[level]	2	R	kWh	Float	
61C-61D	CH3 total Multiple rates electricity[Valley]	2	R	kWh	Float	
61E-61F	CH4 total Multiple rates electricity	2	R	kWh	Float	
620-621	CH4 total Multiple rates electricity[tip]	2	R	kWh	Float	
622-623	CH4 total Multiple rates electricity[peak]	2	R	kWh	Float	
624-625	CH4 total Multiple rates electricity[level]	2	R	kWh	Float	
626-627	CH4 total Multiple rates electricity[Valley]	2	R	kWh	Float	

Multiple rates electricity from January to December

Refer to the above table for the total Multiple rates electricity of circuits 1-4:

Word address	Variable	Word address	Variable
628-629	Past 1st monthCH1 total Multiple rates electricity	650-651	Past 2nd Months CH1 total Multiple rates

			electricity
62A-62B	Past 1st monthCH1 total Multiple rates electricity[tip]	652-653	Past 2nd Months CH1 total Multiple rates electricity[tip]
62C-62D	Past 1st monthCH1 total Multiple rates electricity[peak]	654-655	Past 2ndMonths CH1 total Multiple rates electricity[peak]
62E-62F	Past 1st monthCH1 total Multiple rates electricity[level]	656-657	Past 2nd Months CH1 total Multiple rates electricity[level]
630-631	Past 1st monthCH1 total Multiple rates electricity[Valley]	658-659	Past 2nd Months CH1 total Multiple rates electricity[Valley]
632-633	Past 1st monthCH2 total Multiple rates electricity	65A-65B	Past 2nd Months CH2 total Multiple rates electricity
634-635	Past 1st monthCH2 total Multiple rates electricity[tip]	65C-65D	Past 2nd Months CH2 total Multiple rates electricity[tip]
636-637	Past 1st month CH2 total Multiple rates electricity[peak]	65E-65F	Past 2nd Months CH2 total Multiple rates electricity[peak]
638-639	Past 1st month CH2 total Multiple rates electricity[level]	660-661	Past 2nd Months CH2 total Multiple rates electricity[level]
63A-63B	Past 1st month CH2 total Multiple rates electricity[Valley]	662-663	Past 2nd Months CH2 total Multiple rates electricity[Valley]
63C-63D	Past 1st month CH3 total Multiple rates electricity	664-665	Past 2nd Months CH3 total Multiple rates electricity
63E-63F	Past 1st month CH3 total Multiple rates electricity[tip]	666-667	Past 2nd Months CH3 total Multiple rates electricity[tip]
640-641	Past 1st month CH3 total Multiple rates electricity[peak]	668-669	Past 2nd Months CH3 total Multiple rates electricity[peak]
642-643	Past 1st month CH3 total Multiple rates electricity[level]	66A-66B	Past 2nd Months CH3 total Multiple rates electricity[level]
644-645	Past 1st month CH3 total Multiple rates electricity[Valley]	66C-66D	Past 2nd Months CH3 total Multiple rates electricity[Valley]
646-647	Past 1st month CH4 total Multiple rates electricity	66E-66F	Past 2nd Months CH4 total Multiple rates electricity
648-649	Past 1st month CH4 total Multiple rates electricity[tip]	670-671	Past 2nd Months CH4 total Multiple rates electricity[tip]
64A-64B	Past 1st month CH4 total Multiple rates electricity[peak]	672-673	Past 2nd Months CH4 total Multiple rates electricity[peak]
64C-64D	Past 1st month CH4 total Multiple rates electricity[level]	674-675	Past 2nd Months CH4 total Multiple rates electricity[level]
64E-64F	Past 1st month CH4 total Multiple rates electricity[Valley]	676-677	Past 2nd Months CH4 total Multiple rates electricity[Valley]
678-679	Past 3rd Months CH1 total Multiple rates electricity	6A0-6A1	Past 4th Months CH1 total Multiple rates electricity
67A-67B	Past 3rd Months CH1 total Multiple rates electricity[tip]	6A2-6A3	Past 4th Months CH1 total Multiple rates electricity[tip]
67C-67D	Past 3rd Months CH1 total Multiple rates electricity[peak]	6A4-6A5	Past 4th Months CH1 total Multiple rates electricity[peak]

67E-67F	Past 3rd Months CH1 total Multiple rates electricity[level]	6A6-6A7	Past 4th Months CH1 total Multiple rates electricity[level]
680-681	Past 3rd Months CH1 total Multiple rates electricity[Valley]	6A8-6A9	Past 4th Months CH1 total Multiple rates electricity[Valley]
682-683	Past 3rd Months CH2 total Multiple rates electricity	6AA-6AB	Past 4th Months CH2 total Multiple rates electricity
684-685	Past 3rd Months CH2 total Multiple rates electricity[tip]	6AC-6AD	Past 4th Months CH2 total Multiple rates electricity[tip]
686-687	Past 3rd Months CH2 total Multiple rates electricity[peak]	6AE-6AF	Past 4th Months CH2 total Multiple rates electricity[peak]
688-689	Past 3rd Months CH2 total Multiple rates electricity[level]	6B0-6B1	Past 4th Months CH2 total Multiple rates electricity[level]
68A-68B	Past 3rd Months CH2 total Multiple rates electricity[Valley]	6B2-6B3	Past 4th Months CH2 total Multiple rates electricity[Valley]
68C-68D	Past 3rd Months CH3 total Multiple rates electricity	6B4-6B5	Past 4th Months CH3 total Multiple rates electricity
68E-68F	Past 3rd Months CH3 total Multiple rates electricity[tip]	6B6-6B7	Past 4th Months CH3 total Multiple rates electricity[tip]
690-691	Past 3rd Months CH3 total Multiple rates electricity[peak]	6B8-6B9	Past 4th Months CH3 total Multiple rates electricity[peak]
692-693	Past 3rd Months CH3 total Multiple rates electricity[level]	6BA-6BB	Past 4th Months CH3 total Multiple rates electricity[level]
694-695	Past 3rd Months CH3 total Multiple rates electricity[Valley]	6BC-6BD	Past 4th Months CH3 total Multiple rates electricity[Valley]
696-697	Past 3rd Months CH4 total Multiple rates electricity	6BE-6BF	Past 4th Months CH4 total Multiple rates electricity
698-699	Past 3rd Months CH4 total Multiple rates electricity[tip]	6C0-6C1	Past 4th Months CH4 total Multiple rates electricity[tip]
69A-69B	Past 3rd Months CH4 total Multiple rates electricity[peak]	6C2-6C3	Past 4th Months CH4 total Multiple rates electricity[peak]
69C-69D	Past 3rd Months CH4 total Multiple rates electricity[level]	6C4-6C5	Past 4th Months CH4 total Multiple rates electricity[level]
69E-69F	Past 3rd Months CH4 total Multiple rates electricity[Valley]	6C6-6C7	Past 4th Months CH4 total Multiple rates electricity[Valley]
6C8-6C9	Past 5th Months CH1 total Multiple rates electricity	6F0-6F1	Past 6th Months CH1 total Multiple rates electricity
6CA-6CB	Past 5th Months CH1 total Multiple rates electricity[tip]	6F2-6F3	Past 6th Months CH1 total Multiple rates electricity[tip]
6CC-6CD	Past 5th Months CH1 total Multiple rates electricity[peak]	6F4-6F5	Past 6th Months CH1 total Multiple rates electricity[peak]
6CE-6CF	Past 5th Months CH1 total Multiple rates electricity[level]	6F6-6F7	Past 6th Months CH1 total Multiple rates electricity[level]
6D0-6D1	Past 5th Months CH1 total Multiple rates electricity[Valley]	6F8-6F9	Past 6th Months CH1 total Multiple rates electricity[Valley]
6D2-6D3	Past 5th Months CH2 total Multiple rates	6FA-6FB	Past 6th Months CH2 total Multiple rates

	electricity		electricity
6D4-6D5	Past 5th Months CH2 total Multiple rates electricity[tip]	6FC-6FD	Past 6th Months CH2 total Multiple rates electricity[tip]
6D6-6D7	Past 5th Months CH2 total Multiple rates electricity[peak]	6FE-6FF	Past 6th Months CH2 total Multiple rates electricity[peak]
6D8-6D9	Past 5th Months CH2 total Multiple rates electricity[level]	700-701	Past 6th Months CH2 total Multiple rates electricity[level]
6DA-6DB	Past 5th Months CH2 total Multiple rates electricity[Valley]	702-703	Past 6th Months CH2 total Multiple rates electricity[Valley]
6DC-6DD	Past 5th Months CH3 total Multiple rates electricity	704-705	Past 6th Months CH3 total Multiple rates electricity
6DE-6DF	Past 5th Months CH3 total Multiple rates electricity[tip]	706-707	Past 6th Months CH3 total Multiple rates electricity[tip]
6E0-6E1	Past 5th Months CH3 total Multiple rates electricity[peak]	708-709	Past 6th Months CH3 total Multiple rates electricity[peak]
6E2-6E3	Past 5th Months CH3 total Multiple rates electricity[level]	70A-70B	Past 6th Months CH3 total Multiple rates electricity[level]
6E4-6E5	Past 5th Months CH3 total Multiple rates electricity[Valley]	70C-70D	Past 6th Months CH3 total Multiple rates electricity[Valley]
6E6-6E7	Past 5th Months CH4 total Multiple rates electricity	70E-70F	Past 6th Months CH4 total Multiple rates electricity
6E8-6E9	Past 5th Months CH4 total Multiple rates electricity[tip]	710-711	Past 6th Months CH4 total Multiple rates electricity[tip]
6EA-6EB	Past 5th Months CH4 total Multiple rates electricity[peak]	712-713	Past 6th Months CH4 total Multiple rates electricity[peak]
6EC-6ED	Past 5th Months CH4 total Multiple rates electricity[level]	714-715	Past 6th Months CH4 total Multiple rates electricity[level]
6EE-6EF	Past 5th Months CH4 total Multiple rates electricity[Valley]	716-717	Past 6th Months CH4 total Multiple rates electricity[Valley]
718-719	Past 7th Months CH1 total Multiple rates electricity	740-741	Past 8th MonthsCH1total Multiple rates electricity
71A-71B	Past 7th Months CH1 total Multiple rates electricity[tip]	742-743	Past 8th MonthsCH1total Multiple rates electricity[tip]
71C-71D	Past 7th Months CH1 total Multiple rates electricity[peak]	744-745	Past 8th MonthsCH1total Multiple rates electricity[peak]
71E-71F	Past 7th Months CH1 total Multiple rates electricity[level]	746-747	Past 8th Months CH1 total Multiple rates electricity[level]
720-721	Past 7th Months CH1 total Multiple rates electricity[Valley]	748-749	Past 8th Months CH1 total Multiple rates electricity[Valley]
722-723	Past 7th Months CH2 total Multiple rates electricity	74A-74B	Past 8th Months CH2 total Multiple rates electricity
724-725	Past 7th Months CH2 total Multiple rates electricity[tip]	74C-74D	Past 8th Months CH2 total Multiple rates electricity[tip]
726-727	Past 7th Months CH2 total Multiple rates electricity[peak]	74E-74F	Past 8th Months CH2 total Multiple rates electricity[peak]

728-729	Past 7th Months CH2 total Multiple rates electricity[level]	750-751	Past 8th Months CH2 total Multiple rates electricity[level]
72A-72B	Past 7th Months CH2 total Multiple rates electricity[Valley]	752-753	Past 8th Months CH2 total Multiple rates electricity[Valley]
72C-72D	Past 7th MonthsCH3total Multiple rates electricity	754-755	Past 8th Months CH3 total Multiple rates electricity
72E-72F	Past 7th Months CH3 total Multiple rates electricity[tip]	756-757	Past 8th Months CH3 total Multiple rates electricity[tip]
730-731	Past 7th Months CH3 total Multiple rates electricity[peak]	758-759	Past 8th Months CH3 total Multiple rates electricity[peak]
732-733	Past 7th Months CH3 total Multiple rates electricity[level]	75A-75B	Past 8th Months CH3 total Multiple rates electricity[level]
734-735	Past 7th Months CH3 total Multiple rates electricity[Valley]	75C-75D	Past 8th Months CH3 total Multiple rates electricity[Valley]
736-737	Past 7th Months CH4 total Multiple rates electricity	75E-75F	Past 8th Months CH4 total Multiple rates electricity
738-739	Past 7th Months CH4 total Multiple rates electricity[tip]	760-761	Past 8th Months CH4 total Multiple rates electricity[tip]
73A-73B	Past 7th Months CH4 total Multiple rates electricity[peak]	762-763	Past 8th Months CH4 total Multiple rates electricity[peak]
73C-73D	Past 7th Months CH4 total Multiple rates electricity[level]	764-765	Past 8th Months CH4 total Multiple rates electricity[level]
73E-73F	Past 7th Months CH4 total Multiple rates electricity[Valley]	766-767	Past 8th Months CH4 total Multiple rates electricity[Valley]
768-769	Past 9th Months CH1 total Multiple rates electricity	790-791	Past 10th Months CH1 total Multiple rates electricity
76A-76B	Past 9th Months CH1 total Multiple rates electricity[tip]	792-793	Past 10th Months CH1 total Multiple rates electricity[tip]
76C-76D	Past 9th Months CH1 total Multiple rates electricity[peak]	794-795	Past 10th Months CH1 total Multiple rates electricity[peak]
76E-76F	Past 9th Months CH1 total Multiple rates electricity[level]	796-797	Past 10th Months CH1 total Multiple rates electricity[level]
770-771	Past 9th Months CH1 total Multiple rates electricity[Valley]	798-799	Past 10th Months CH1 total Multiple rates electricity[Valley]
772-773	Past 9th Months CH2 total Multiple rates electricity	79A-79B	Past 10th Months CH2 total Multiple rates electricity
774-775	Past 9th Months CH2 total Multiple rates electricity[tip]	79C-79D	Past 10th Months CH2 total Multiple rates electricity[tip]
776-777	Past 9th Months CH2 total Multiple rates electricity[peak]	79E-79F	Past 10th Months CH2 total Multiple rates electricity[peak]
778-779	Past 9th Months CH2 total Multiple rates electricity[level]	7A0-7A1	Past 10th Months CH2 total Multiple rates electricity[level]
77A-77B	Past 9th Months CH2 total Multiple rates electricity[Valley]	7A2-7A3	Past 10th Months CH2 total Multiple rates electricity[Valley]
77C-77D	Past 9th Months CH3 total Multiple rates	7A4-7A5	Past 10th Months CH3 total Multiple rates

	electricity		electricity
77E-77F	Past 9th Months CH3 total Multiple rates electricity[tip]	7A6-7A7	Past 10th Months CH3 total Multiple rates electricity[tip]
780-781	Past 9th Months CH3 total Multiple rates electricity[peak]	7A8-7A9	Past 10th Months CH3 total Multiple rates electricity[peak]
782-783	Past 9th Months CH3 total Multiple rates electricity[level]	7AA-7AB	Past 10th Months CH3 total Multiple rates electricity[level]
784-785	Past 9th Months CH3 total Multiple rates electricity[Valley]	7AC-7AD	Past 10th Months CH3 total Multiple rates electricity[Valley]
786-787	Past 9th Months CH4 total Multiple rates electricity	7AE-7AF	Past 10th Months CH4 total Multiple rates electricity
788-789	Past 9th Months CH4 total Multiple rates electricity[tip]	7B0-7B1	Past 10th Months CH4 total Multiple rates electricity[tip]
78A-78B	Past 9th Months CH4 total Multiple rates electricity[peak]	7B2-7B3	Past 10th Months CH4 total Multiple rates electricity[peak]
78C-78D	Past 9th Months CH4 total Multiple rates electricity[level]	7B4-7B5	Past 10th Months CH4 total Multiple rates electricity[level]
78E-78F	Past 9th Months CH4 total Multiple rates electricity[Valley]	7B6-7B7	Past 10th Months CH4 total Multiple rates electricity[Valley]
7B8-7B9	Past 11th Months CH1 total Multiple rates electricity	7E0-7E1	Past 12th Months CH1 total Multiple rates electricity
7BA-7BB	Past 11th Months CH1 total Multiple rates electricity[tip]	7E2-7E3	Past 12th Months CH1 total Multiple rates electricity[tip]
7BC-7BD	Past 11th Months CH1 total Multiple rates electricity[peak]	7E4-7E5	Past 12th Months CH1 total Multiple rates electricity[peak]
7BE-7BF	Past 11th Months CH1 total Multiple rates electricity[level]	7E6-7E7	Past 12th Months CH1 total Multiple rates electricity[level]
7C0-7C1	Past 11th Months CH1 total Multiple rates electricity[Valley]	7E8-7E9	Past 12th Months CH1 total Multiple rates electricity[Valley]
7C2-7C3	Past 11th Months CH2 total Multiple rates electricity	7EA-7EB	Past 12th Months CH2 total Multiple rates electricity
7C4-7C5	Past 11th Months CH2 total Multiple rates electricity[tip]	7EC-7ED	Past 12th Months CH2 total Multiple rates electricity[tip]
7C6-7C7	Past 11th Months CH2 total Multiple rates electricity[peak]	7EE-7EF	Past 12th Months CH2 total Multiple rates electricity[peak]
7C8-7C9	Past 11th Months CH2 total Multiple rates electricity[level]	7F0-7F1	Past 12th Months CH2 total Multiple rates electricity[level]
7CA-7CB	Past 11th Months CH2 total Multiple rates electricity[Valley]	7F2-7F3	Past 12th Months CH2 total Multiple rates electricity[Valley]
7CC-7CD	Past 11th Months CH3 total Multiple rates electricity	7F4-7F5	Past 12th Months CH3 total Multiple rates electricity
7CE-7CF	Past 11th Months CH3 total Multiple rates electricity[tip]	7F6-7F7	Past 12th Months CH3 total Multiple rates electricity[tip]
7D0-7D1	Past 11th Months CH3 total Multiple rates electricity[peak]	7F8-7F9	Past 12th Months CH3 total Multiple rates electricity[peak]

7D2-7D3	Past 11th Months CH3 total Multiple rates electricity[level]	7FA-7FB	Past 12th Months CH3 total Multiple rates electricity[level]
7D4-7D5	Past 11th Months CH3 total Multiple rates electricity[Valley]	7FC-7FD	Past 12th Months CH3 total Multiple rates electricity[Valley]
7D6-7D7	Past 11th Months CH4 total Multiple rates electricity	7FE-7FF	Past 12th Months CH4 total Multiple rates electricity
7D8-7D9	Past 11th Months CH4 total Multiple rates electricity[tip]	800-801	Past 12th Months CH4 total Multiple rates electricity[tip]
7DA-7DB	Past 11th Months CH4 total Multiple rates electricity[peak]	802-803	Past 12th Months CH4 total Multiple rates electricity[peak]
7DC-7DD	Past 11th Months CH4 total Multiple rates electricity[level]	804-805	Past 12th Months CH4 total Multiple rates electricity[level]
7DE-7DF	Past 11th Months CH4 total Multiple rates electricity[Valley]	806-807	Past 12th Months CH4 total Multiple rates electricity[Valley]

CH1 extremum and Time of occurrence

Word address	Variable	word size	Read / write	Unit	Data type	Notes	
900-901	MaximumA Phase Voltageof the month	2	R	V	float		
902	MaximumA Phase Voltageof the month and Time of occurrence	1	R		uint16_t	Year	Months
903		1	R		uint16_t	Day	Time
904		1	R		uint16_t	Minutes	second
905-909	Maximum B Phase Voltageof the month and Time of occurrence	5	R				
90A-90E	Maximum C Phase Voltageof the month and Time of occurrence	5	R				
90F-913	MaximumAB Line Voltagof the monthand Time of occurrence	5	R				
914-918	Maximum BC Line Voltagof the month and Time of occurrence	5	R				
919-91D	Maximum CA Line Voltagof the month and Time of occurrence	5	R				
91E-922	MinimumA Phase Voltageof the monthand Time of occurrence	5	R				
923-927	Minimum B Phase Voltageof the monthand Time of occurrence	5	R				
928-92C	Minimum C Phase Voltageof the month and Time of occurrence	5	R				
92D-931	MinimumAB Line Voltageof the month and Time of occurrence	5	R				
932-936	Minimum BC Line Voltageof the month and Time of occurrence	5	R				
937-93B	Minimum CA Line Voltageof the month and Time of occurrence	5	R				
9B4-9B5	MaximumCH1 A Phase Currentof the month	2	R	A	float		
9B6	MaximumCH1A Currentof the month and	1	R		uint16_t	Year	Months

9B7	Time of occurrence	1	R		uint16_t	Day	Time
9B8		1	R		uint16_t	Minutes	second
9B9-9BD	MaximumCH1B Phase Currentof the month	5	R				
9BE-9C2	MaximumCH1 C Phase Currentof the month	5	R				
9C3-9C7	MaximumCH1 Zero sequence Currentof the month	5	R				
9C8-9CC	MaximumCH1A Phase Active powerof the month	5	R				
9CD-9D1	MaximumCH1B Phase Active powerof the month	5	R				
9D2-9D6	MaximumCH1C Phase Active powerof the month	5	R				
9D7-9DB	MaximumCH1 Active powerof the month	5	R				
9DC-9E0	MaximumCH1A Phase Reactive powerof the month	5	R				
9E1-9E5	MaximumCH1B Phase Reactive powerof the month	5	R				
9E6-9EA	MaximumCH1C Phase Reactive powerof the month	5	R				
9EB-9EF	MaximumCH1 Reactive powerof the month	5	R				
9F0-9F4	MaximumCH1A Phase apparent powerof the month	5	R				
9F5-9F9	MaximumCH1 B Phase apparent powerof the month	5	R				
9FA-9FE	MaximumCH1 C Phase apparent powerof the month	5	R				
9FF-A03	MaximumCH1 apparent powerof the month	5	R				
A04-A08	MaximumCH1A Phase power-factorof the month	5	R				
A09-A0D	MaximumCH1 B Phase power-factorof the month	5	R				
A0E-A12	MaximumCH1 C Phase power-factorof the month	5	R				
A13-A17	MaximumCH1 power-factorof the month	5	R				
A18-A1C	MaximumCH1Load factorof the month	5	R				
A86-A87	Minimum CH1A Phase Currentof the month	2	R	A	float		
A88	Minimum CH1A Currentof the month and Time of occurrence	1	R		uint16_t	Year	Months
A89		1	R		uint16_t	Day	Time
A8A		1	R		uint16_t	Minutes	second
A8B-A8F	Minimum CH1B Phase Currenttof the month	5	R				
A90-A94	Minimum CH1 C Phase Currenttof the month	5	R				
A95-A99	Minimum CH1 Zero sequence Currentof the month	5	R				
A9A-A9E	Minimum CH1A Phase Active powerof the month	5	R				

A9F-AA3	Minimum CH1 B Phase Active powerof the month	5	R				
AA4-AA8	Minimum CH1 C Phase Active powerof the month	5	R				
AA9-AAD	Minimum CH1 Active powerof the month	5	R				
AAE-AB2	Minimum CH1A Phase Reactive powerof the month	5	R				
AB3-AB7	This Months CH1B Phase Reactive power Minimum value	5	R				
AB8-ABC	Minimum CH1 C Phase Reactive powerof the month	5	R				
ABD-AC1	Minimum CH1 Reactive powerof the month	5	R				
AC2-AC6	Minimum CH1A Phase apparent powerof the month	5	R				
AC7-ACB	Minimum CH1 B Phase apparent powerof the month	5	R				
ACC-AD0	Minimum CH1 C Phase apparent powerof the month	5	R				
AD1-AD5	Minimum CH1 apparent powerof the month	5	R				
AD6-ADA	Minimum CH1A Phase power-factor of the month	5	R				
ADB-ADF	Minimum CH1 B Phase power-factor of the month	5	R				
AE0-AE4	Minimum CH1 C Phase power-factor of the month	5	R				
AE5-AE9	Minimum CH1 power-factor ofthe month	5	R				
AEA-AEE	MinimumCH1 Load factor ofthe month	5	R				
95A-95B	MaximumA Phase Voltageof Lastmonth	2	R	V	float		
95C	MaximumA Phase Voltageof Lastmonth and Time of occurrence	1	R		uint16_t	Year	Months
95D		1	R		uint16_t	Day	Time
95E		1	R		uint16_t	Minutes	second
95F-963	Maximum B Phase Voltageof Lastmonth	5	R				
964-968	Maximum C Phase Voltageof Lastmonth	5	R				
969-96D	MaximumAB Line VoltageofLastmonth	5	R				
96E-972	Maximum BC Line Voltageof Lastmonth	5	R				
973-977	Maximum CA Line Voltageof Lastmonth	5	R				
978-97C	MinimumA Phase Voltageof Lastmonth	5	R				
97D-981	Minimum B Phase Voltageof Lastmonth	5	R				
982-986	Minimum C Phase Voltageof Lastmonth	5	R				
987-98B	MinimumAB Line Voltageof Lastmonth	5	R				
98C-990	Minimum BC Line Voltageof Lastmonth	5	R				
991-995	Minimum CA Line Voltageof Lastmonth	5	R				
A1D-A1E	MaximumCH1A Phase Currentof Lastmonth	2	R	A	float		
A1F	MaximumCH1A Currentof Lastmonth And Time of occurrence	1	R		uint16_t	Year	Months
A20		1	R		uint16_t	Day	Time

A21		1	R		uint16_t	Minutes	second
A22-A26	MaximumCH1 B Phase Currentof Lastmonth	5	R				
A27-A2B	MaximumCH1 C Phase Currentof Lastmonth	5	R				
A2C-A30	MaximumCH1 Zero sequence Currentof Lastmonth	5	R				
A31-A35	MaximumCH1A Phase Active powerof Lastmonth	5	R				
A36-A3A	MaximumCH1 B Phase Active powerof Lastmonth	5	R				
A3B-A3F	MaximumCH1 C Phase Active powerof Lastmonth	5	R				
A40-A44	MaximumCH1 Active powerof Lastmonth	5	R				
A45-A49	MaximumCH1A Phase Reactive powerof Lastmonth	5	R				
A4A-A4E	MaximumCH1 B Phase Reactive powerof Lastmonth	5	R				
A4F-A53	MaximumCH1 C Phase Reactive powerof Lastmonth	5	R				
A54-A58	MaximumCH1 Reactive powerof Lastmonth	5	R				
A59-A5D	MaximumCH1A Phase apparent powerof Lastmonth	5	R				
A5E-A62	MaximumCH1 B Phase apparent powerof Lastmonth	5	R				
A63-A67	MaximumCH1 C Phase apparent powerof Lastmonth	5	R				
A68-A6C	MaximumCH1 apparent powerof Lastmonth	5	R				
A6D-A71	MaximumCH1A Phase power-factorof Lastmonth	5	R				
A72-A76	MaximumCH1 B Phase power-factorof Lastmonth	5	R				
A77-A7B	MaximumCH1 C Phase power-factorof Lastmonth	5	R				
A7C-A80	MaximumCH1 power-factorof Lastmonth	5	R				
A81-A85	MaximumCH1 Load factorof Lastmonth	5	R				
AEF-AF0	MinimumCH1A Phase Currentof Lastmonth	2	R	A	float		
AF1	MinimumCH1A Currentof Lastmonth	1	R		uint16_t	Year	Months
AF2		1	R		uint16_t	Day	Time
AF3		1	R		uint16_t	Minutes	second
AF4-AF8	MinimumCH1B Phase Currentof Lastmonth	5	R				
AF9-AFD	MinimumCH1 C Phase Currentof the Lastmonth	5	R				
AFE-B02	MinimumCH1 Zero sequence Current of Lastmonth	5	R				
B03-B07	MinimumCH1A Phase Active powerof Lastmonth	5	R				

B08-B0C	MinimumCH1 B Phase Active powerof Lastmonth	5	R				
B0D-B11	MinimumCH1 C Phase Active powerof Lastmonth	5	R				
B12-B16	MinimumCH1 Active powerof Lastmonth	5	R				
B17-B1B	MinimumCH1A Phase Reactive powerof Lastmonth	5	R				
B1C-B20	MinimumCH1 B Phase Reactive powerof Lastmonth	5	R				
B21-B25	MinimumCH1 C Phase Reactive powerof Lastmonth	5	R				
B26-B2A	MinimumCH1 Reactive powerof Lastmonth	5	R				
B2B-B2F	MinimumCH1A Phase apparent powerofLastmonth	5	R				
B30-B34	MinimumCH1 B Phase apparent powerof Lastmonth	5	R				
B35-B39	MinimumCH1 C Phase apparent powerof Lastmonth	5	R				
B3A-B3E	MinimumCH1 apparent powerof Lastmonth	5	R				
B3F-B43	MinimumCH1A Phase power-factorof Lastmonth	5	R				
B44-B48	MinimumCH1B Phase power-factorof Lastmonth	5	R				
B49-B4D	MinimumCH1 C Phase power-factorof Lastmonth	5	R				
B4E-B52	MinimumCH1 power-factorof Lastmonth	5	R				
B53-B57	MinimumCH1 Load factorof Lastmonth	5	R				

CH2-CH3extremum and Time of occurrence

Refer to the above table CH1 extreme value and occurrence time:

Word address	Variable	Word address	Variable
D00-D01	MaximumCH2A Phase Currentof the Months	1000-1001	MaximumCH3A Phase Currentof the Months
D02	MaximumCH2A Currentof the Months and Time of occurrence	1002	MaximumCH3A Currentof the Months and Time of occurrence
D03		1003	
D04		1004	
D05-D09	MaximumCH2BPhaseCurrentof the Months	1005-1009	MaximumCH3BPhaseCurrentof the Months
D0A-D0E	Maximum CH2 C PhaseCurrentof the Months	100A-100E	Maximum CH3 C PhaseCurrentof the Months
D0F-D13	Maximum CH2 Zero sequence Currentof the Months	100F-1013	Maximum CH3 Zero sequence Currentof the Months
D14-D18	Maximum CH2A Phase Active powerof the Months	1014-1018	Maximum CH3A Phase Active powerof the Months

D19-D1D	Maximum CH2 B Phase Active powerof the Months	1019-101D	Maximum CH3 B Phase Active powerof the Months
D1E-D22	Maximum CH2 C Phase Active powerof the Months	101E-1022	Maximum CH3 C Phase Active powerof the Months
D23-D27	Maximum CH2 Active powerof the Months	1023-1027	Maximum CH3 Active powerof the Months
D28-D2C	Maximum CH2A Phase Reactive powerof the Months	1028-102C	Maximum CH3A Phase Reactive powerof the Months
D2D-D31	Maximum CH2B Phase Reactive powerof the Months	102D-1031	Maximum CH3B Phase Reactive powerof the Months
D32-D36	Maximum CH2 C Phase Reactive powerof the Months	1032-1036	Maximum CH3 C Phase Reactive powerof the Months
D37-D3B	Maximum CH2 Reactive powerof the Months	1037-103B	Maximum CH3 Reactive powerof the Months
D3C-D40	Maximum CH2A Phase apparent powerof the Months	103C-1040	Maximum CH3A Phase apparent powerof the Months
D41-D45	Maximum CH2 B Phase apparent powerof the Months	1041-1045	Maximum CH3 B Phase apparent powerof the Months
D46-D4A	Maximum CH2 C Phase apparent powerof the Months	1046-104A	Maximum CH3 C Phase apparent powerof the Months
D4B-D4F	Maximum CH2 apparent powerof the Months	104B-104F	Maximum CH3 apparent powerof the Months
D50-D54	Maximum CH2A Phase power-factorof the Months	1050-1054	Maximum CH3A Phase power-factorof the Months
D55-D59	Maximum CH2 B Phase power-factorof the Months	1055-1059	Maximum CH3 B Phase power-factorof the Months
D5A-D5E	Maximum CH2 C Phase power-factorof the Months	105A-105E	Maximum CH3 C Phase power-factorof the Months
D5F-D63	MaximumCH2 power-factorof the Months	105F-1063	MaximumCH3 power-factorof the Months
D64-D68	MaximumCH2 Load factorof the Months	1064-1068	MaximumCH3 Load factorof the Months
DD2-DD3	MinimumCH2A Phase Currentof the Months	10D2-10D3	MinimumCH3A Phase Currentof the Months
DD4	MinimumCH2A Currentof the Months and Time of occurrence	10D4	MinimumCH3A Currentof the Months and Time of occurrence
DD5		10D5	
DD6		10D6	
DD7-DDB	MinimumCH2B Phase Currentof the Months	10D7-10DB	MinimumCH3B Phase Currentof the Months
DDC-DE0	MinimumCH2 C Phase Currentof the Months	10DC-10E0	MinimumCH3 C Phase Currentof the Months
DE1-DE5	MinimumCH2 Zero sequence Currentof the Months	10E1-10E5	MinimumCH3 Zero sequence Currentof the Months
DE6-DEA	MinimumCH2A Phase Active power of the Months	10E6-10EA	MinimumCH3A Phase Active power of the Months
DEB-E21	MinimumCH2 B Phase Active power of	10EB-113C	MinimumCH3 B Phase Active power of

	the Months		the Months
DF0-E26	MinimumCH2 C Phase Active power of the Months	10F0-113D	MinimumCH3 C Phase Active power of the Months
DF5-E2B	MinimumCH2 Active power of the Months	10F5-113E	MinimumCH3Active power of the Months
DFA-E30	MinimumCH2A Phase Reactive power of the Months	10FA-113F	MinimumCH3A Phase Reactive power of the Months
DFF-E35	MinimumCH2 B Phase Reactive power of the Months	10FF-1144	MinimumCH3 B Phase Reactive power of the Months
E04-E3A	MinimumCH2 C Phase Reactive power of the Months	1104-1149	MinimumCH3 C Phase Reactive power of the Months
E09	MinimumCH2 Reactive power of the Months	1109-114E	MinimumCH3 Reactive power of the Months
E0E	MinimumCH2A Phase apparent power of the Months	110E-1153	MinimumCH3A Phase apparent power of the Months
E13	MinimumCH2 B Phase apparent power of the Months	1113-1158	MinimumCH3 B Phase apparent power of the Months
E18	MinimumCH2 C Phase apparent power of the Months	1118-115D	MinimumCH3 C Phase apparent power of the Months
E1D-E21	MinimumCH3 apparent power of the Months	111D-1121	MinimumCH3 apparent power of the Months
E22-E26	MinimumCH2A Phase power-factor of the Months	1122-1126	MinimumCH3A Phase power-factor of the Months
E27-E2B	MinimumCH2 B Phase power-factor of the Months	1127-112B	MinimumCH3 B Phase power-factor of the Months
E2C-E30	MinimumCH2 C Phase power-factor of the Months	112C-1130	MinimumCH3 C Phase power-factor of the Months
E31-E35	MinimumCH2 power-factor of the Months	1131-1135	MinimumCH3 power-factor of the Months
E36-E3A	MinimumCH2 Load factor of the Months	1136-113A	MinimumCH3 Load factor of the Months
D69-D6A	Maximum CH2A Phase CurrentofLast Months	1069-106A	Maximum CH3A Phase CurrentofLast Months
D6B	Maximum CH2A CurrentofLast Months and Time of occurrence	106B	Maximum CH3A CurrentofLast Months and Time of occurrence
D6C		106C	
D6D		106D	
D6E-D72	Maximum CH2B Phase CurrentofLast Months	106E-1072	Maximum CH3B Phase CurrentofLast Months
D73-D77	Maximum CH2 C Phase CurrentofLast Months	1073-1077	Maximum CH3 C Phase CurrentofLast Months
D78-D7C	Maximum CH2 Zero sequence CurrentofLast Months	1078-107C	Maximum CH3 Zero sequence CurrentofLast Months
D7D-D81	Maximum CH2A Phase Active powerofLast Months	107D-1081	Maximum CH3A Phase Active powerofLast Months
D82-D86	Maximum CH2 B Phase Active	1082-1086	Maximum CH3 B Phase Active

	powerofLast Months		powerofLast Months
D87-D8B	Maximum CH2 C Phase Active powerofLast Months	1087-108B	Maximum CH3 C Phase Active powerofLast Months
D8C-D90	Maximum CH2 Active powerofLast Months	108C-1090	Maximum CH3 Active powerofLast Months
D91-D95	Maximum CH2A Phase Reactive powerofLast Months	1091-1095	Maximum CH3A Phase Reactive powerofLast Months
D96-D9A	Maximum CH2 B Phase Reactive powerofLast Months	1096-109A	Maximum CH3 B Phase Reactive powerofLast Months
D9B-D9F	Maximum CH2 C Phase Reactive powerofLast Months	109B-109F	Maximum CH3 C Phase Reactive powerofLast Months
DA0-DA4	Maximum CH2 Reactive powerofLast Months	10A0-10A4	Maximum CH3Reactive powerofLast Months
DA5-DA9	Maximum CH2A Phase apparent powerofLast Months	10A5-10A9	Maximum CH3A Phase apparent powerofLast Months
DAA-DAE	Maximum CH2 B Phase apparent powerofLast Months	10AA-10AE	Maximum CH3 B Phase apparent powerofLast Months
DAF-DB3	Maximum CH2 C Phase apparent powerofLast Months	10AF-10B3	Maximum CH3 C Phase apparent powerofLast Months
DB4-DB8	Maximum CH2 apparent powerofLast Months	10B4-10B8	Maximum CH3apparent powerofLast Months
DB9-DBD	Maximum CH2A Phase power-factorofLast Months	10B9-10BD	Maximum CH3A Phase power-factorofLast Months
DBE-DC2	Maximum CH2B Phase power-factorofLast Months	10BE-10C2	Maximum CH3B Phase power-factorofLast Months
DC3-DC7	Maximum CH2 C Phase power-factorofLast Months	10C3-10C7	Maximum CH3 C Phase power-factorofLast Months
DC8-DCC	Maximum CH2 power-factorofLast Months	10C8-10CC	Maximum CH3 power-factorofLast Months
DCD-DD1	Maximum CH2 Load factorofLast Months	10CD-10D1	Maximum CH3 Load factorofLast Months
E3B-E3C	Minimum CH2A Phase CurrentofLast Months	113B-113C	Minimum CH3A Phase CurrentofLast Months
E3D	Minimum CH2A CurrentofLast Months and Time of occurrence	113D	Minimum CH3A CurrentofLast Months and Time of occurrence
E3E		113E	
E3F		113F	
E40-E44	Minimum CH2B Phase Current ofLast Months	1140-1144	Minimum CH3B Phase Current ofLast Months
E45-E49	Minimum CH2 C Phase Current ofLast Months	1145-1149	Minimum CH3 C Phase Current ofLast Months
E4A-E4E	Minimum CH2 Zero sequence Current ofLast Months	114A-114E	Minimum CH3 Zero sequence Current ofLast Months
E4F-E53	Minimum CH2A Phase Active power ofLast Months	114F-1153	Minimum CH3A Phase Active power ofLast Months
E54-E58	Minimum CH2 B Phase Active power	1154-1158	Minimum CH3 B Phase Active power

	ofLast Months		ofLast Months
E59-E5D	Minimum CH2 C Phase Active power ofLast Months	1159-115D	Minimum CH3 C Phase Active power ofLast Months
E5E-E62	Minimum CH2 Active power ofLast Months	115E-1162	Minimum CH3 Active power ofLast Months
E63-E67	Minimum CH2A Phase Reactive power ofLast Months	1163-1167	Minimum CH3A Phase Reactive power ofLast Months
E68-E6C	Minimum CH2 B Phase Reactive power ofLast Months	1168-116C	Minimum CH3 B Phase Reactive power ofLast Months
E6D-E71	Minimum CH2 C Phase Reactive power ofLast Months	116D-1171	Minimum CH3 C Phase Reactive power ofLast Months
E72-E76	Minimum CH2 Reactive power ofLast Months	1172-1176	Minimum CH3 Reactive power ofLast Months
E77-E7B	Minimum CH2A Phase apparent power ofLast Months	1177-117B	Minimum CH3A Phase apparent power ofLast Months
E7C-E80	Minimum CH2 B Phase apparent power ofLast Months	117C-1180	Minimum CH3 B Phase apparent power ofLast Months
E81-E85	Minimum CH2 C Phase apparent power ofLast Months	1181-1185	Minimum CH3 C Phase apparent power ofLast Months
E86-E8A	Minimum CH2 apparent power ofLast Months	1186-118A	Minimum CH3 apparent power ofLast Months
E8B-E8F	Minimum CH2A Phase power-factor ofLast Months	118B-118F	Minimum CH2A Phase power-factor ofLast Months
E90-E94	Minimum CH2 B Phase power-factor ofLast Months	1190-1194	Minimum CH3 B Phase power-factor ofLast Months
E95-E99	Minimum CH2 C Phase power-factor ofLast Months	1195-1199	Minimum CH3 C Phase power-factor ofLast Months
E9A-E9E	Minimum CH2 power-factor ofLast Months	119A-119E	Minimum CH3 power-factor ofLast Months
E9F-EA3	Minimum CH2 Load factor ofLast Months	119F-11A3	Minimum L3 Load factor ofLast Months
1300-1301	Maximum CH4A Phase Currentof the Months	13D2-13D3	MinimumCH4A Phase Currentof the Months
1302	Maximum CH4A Currentof the Months and Time of occurrence	13D4	MinimumCH4A Currentof the Months and Time of occurrence
1303		13D5	
1304		13D6	
1305-1309	Maximum CH4 B Phase Currentof the Months	13D7-13DB	MinimumCH4 B Phase Currentof the Months
130A-130E	Maximum CH4 C Phase Currentof the Months	13DC-13E0	MinimumCH4 C Phase Currentof the Months
130F-1313	Maximum CH4 Zero sequence Currentof the Months	13E1-13E5	MinimumCH4 Zero sequence Currentof the Months
1314-1318	Maximum CH4A Phase Active powerof the Months	13E6-13EA	MinimumCH4A Phase Active powerof the Months
1319-131D	Maximum CH4 B Phase Active powerof	13EB-1462	MinimumCH4 B Phase Active powerof the

	the Months		Months
131E-1322	Maximum CH4 C Phase Active powerof the Months	13F0-1467	MinimumCH4 C Phase Active powerof the Months
1323-1327	Maximum CH4 Active powerof the Months	13F5-146C	MinimumCH4 Active powerof the Months
1328-132C	Maximum CH4A Phase Reactive powerof the Months	13FA-1471	MinimumCH4A Phase Reactive powerof the Months
132D-1331	Maximum CH4 B Phase Reactive powerof the Months	13FF-1476	MinimumCH4 B Phase Reactive powerof the Months
1332-1336	Maximum CH4 C Phase Reactive powerof the Months	1404-147B	MinimumCH4 C Phase Reactive powerof the Months
1337-133B	Maximum CH4 Reactive powerof the Months	1409-1480	MinimumCH4 Reactive powerof the Months
133C-1340	Maximum CH4A Phase apparent powerof the Months	140E-1485	MinimumCH4A Phase apparent powerof the Months
1341-1345	Maximum CH4 B Phase apparent powerof the Months	1413-148A	MinimumCH4 B Phase apparent powerof the Months
1346-134A	Maximum CH4 C Phase apparent powerof the Months	1418-148F	MinimumCH4 C Phase apparent powerof the Months
134B-134F	Maximum CH4 apparent powerof the Months	141D-1421	MinimumCH4 apparent powerof the Months
1350-1354	Maximum CH4A Phase power-factorof the Months	1422-1426	MinimumCH4A Phase power-factorof the Months
1355-1359	Maximum CH4 B Phase power-factorof the Months	1427-142B	MinimumCH4 B Phase power-factorof the Months
135A-135E	Maximum CH4 C Phase power-factorof the Months	142C-1430	MinimumCH4 C Phase power-factorof the Months
135F-1363	Maximum CH4 power-factorof the Months	1431-1435	MinimumCH4 power-factorof the Months
1364-1368	Maximum CH4 Load factorof the Months	1436-143A	Minimum CH4 Load factorof the Months
1369-136A	MaximumCH4A Phase Currentof last Months	143B-143C	MinimumCH4A Phase Currentof last Months
136B	MaximumCH4A Currentof last Months and Time of occurrence	143D	MinimumCH4A Currentof last Months and Time of occurrence
136C		143E	
136D		143F	
136E-1372	MaximumCH4 B Phase Currentof last Months	1440-1444	MinimumCH4 B Phase Currentof last Months
1373-1377	MaximumCH4 C Phase Currentof last Months	1445-1449	MinimumCH4 C Phase Currentof last Months
1378-137C	MaximumCH4 Zero sequence Currentof last Months	144A-144E	MinimumCH4 Zero sequence Currentof last Months
137D-1381	MaximumCH4A Phase Active powerof last Months	144F-1453	MinimumCH4A Phase Active powerof last Months
1382-1386	MaximumCH4 B Phase Active powerof	1454-1458	MinimumCH4 B Phase Active powerof

	last Months		last Months
1387-138B	MaximumCH4 C Phase Active powerof last Months	1459-145D	MinimumCH4 C Phase Active powerof last Months
138C-1390	MaximumCH4 Active powerof last Months	145E-1462	MinimumCH4 Active powerof last Months
1391-1395	MaximumCH4A Phase Reactive power of last Months	1463-1467	MinimumCH4A Phase Reactive power of last Months
1396-139A	MaximumCH4 B Phase Reactive power of last Months	1468-146C	MinimumCH4 B Phase Reactive power of last Months
139B-139F	MaximumCH4 C Phase Reactive power of last Months	146D-1471	MinimumCH4 C Phase Reactive power of last Months
13A0-13A4	MaximumCH4 Reactive power of last Months	1472-1476	MinimumCH4 Reactive power of last Months
13A5-13A9	MaximumCH4A Phase apparent power of last Months	1477-147B	MinimumCH4A Phase apparent power of last Months
13AA-13AE	MaximumCH4 B Phase apparent power of last Months	147C-1480	MinimumCH4 B Phase apparent power of last Months
13AF-13B3	MaximumCH4 C Phase apparent power of last Months	1481-1485	MinimumCH4 C Phase apparent power of last Months
13B4-13B8	MaximumCH4 apparent power of last Months	1486-148A	MinimumCH4 apparent power of last Months
13B9-13BD	MaximumCH4A Phase power-factor of last Months	148B-148F	MinimumCH4A Phase power-factor of last Months
13BE-13C2	MaximumCH4 B Phase power-factor of last Months	1490-1494	MinimumCH4 B Phase power-factor of last Months
13C3-13C7	MaximumCH4 C Phase power-factor of last Months	1495-1499	MinimumCH4 C Phase power-factor of last Months
13C8-13CC	MaximumCH4 power-factor of last Months	149A-149E	MinimumCH4 power-factor of last Months
13CD-13D1	MaximumCH4 Load factor of last Months	149F-14A3	MinimumCH4 Load factor of last Months

6.2 Energy Freeze Address Table

Device address	function code	Starting address		Read length		Check bit	
adr	03	20	00	**00**	**44**	crc1	crc2
Notes:Different start address, different read freeze date;**Read length cannot be changed**							
Send:adr 03 20 00 00 44 crc1 crc2							
Receive:adr 03 88 xx xx xx xx xx xx xx xx xx xx xx xx xx xx....crc1 crc2							

The return data address is as follows:

Byte[0]	adr		Byte[67-70]	Freeze CH2 Active power leveling	float
Byte[1]	0x03		Byte[71-74]	Freeze L2 Active Valley Power	float
Byte[2]	0x88		Byte[75-78]	Freeze CH3 Positive active energy	float

Byte[3-4]	Year/Months	uint16_t	Byte[79-82]	Freeze CH3 Reverse active energy	float
Byte[5-6]	Day/Time	uint16_t	Byte[83-86]	Freeze CH3 Forward reactive energy	float
Byte[7-8]	Minutes/second	uint16_t	Byte[87-90]	Freeze CH3 Reverse reactive energy	float
Byte[9-10]	Reserve	uint16_t	Byte[91-94]	Freeze CH3 Active tip Power	float
Byte[11-14]	Freeze CH1 Positive active energy	float	Byte[95-98]	Freeze CH3 Active peak Power	float
Byte[15-18]	Freeze CH1 Reverse active energy	float	Byte[99-102]	Freeze CH3 Active power leveling	float
Byte[19-22]	Freeze CH1 Forward reactive energy	float	Byte[103-106]	Freeze CH3 Active Valley Power	float
Byte[23-26]	Freeze CH1 Reverse reactive energy	float	Byte[107-110]	Freeze CH4 Positive active energy	float
Byte[27-30]	Freeze CH1 Active tip Power	float	Byte[111-114]	Freeze CH4 Reverse active energy	float
Byte[31-34]	Freeze CH1 Active peak Power	float	Byte[115-118]	Freeze CH4 Forward reactive energy	float
Byte[35-38]	Freeze CH1 Active power leveling	float	Byte[119-122]	Freeze CH4 Reverse reactive energy	float
Byte[39-42]	Freeze L1 Active Valley Power	float	Byte[123-126]	Freeze CH4 Active tip Power	float
Byte[43-46]	Freeze CH2 Positive active energy	float	Byte[127-130]	Freeze CH4 Active peak Power	float
Byte[47-50]	Freeze CH2 Reverse active energy	float	Byte[131-134]	Freeze CH4 Active power leveling	float
Byte[51-54]	Freeze CH2 Forward reactive energy	float	Byte[135-138]	Freeze CH4 Active Valley Power	float
Byte[55-58]	Freeze CH2 Reverse reactive energy	float	Byte[139]	crc1	uint8_t
Byte[59-62]	Freeze CH2 Active tip Power	float	Byte[140]	crc2	uint8_t
Byte[63-66]	Freeze CH2 Active peak Power	float			

The specific address is as follows:

Starting address	Freezing position	Starting address	Freezing position	Starting address	Freezing position	Starting address	Freezing position
2000	Past 1st day	2007	Past 8th Day	200F	Past 16th Day	2017	Past 24th Day
2001	Past 2nd Day	2008	Past 9th Day	2010	Past 17th Day	2018	Past 25th Day
2002	Past 3rd Day	2009	Past 10th Day	2011	Past 18th Day	2019	Past 26th Day
2003	Past 4th Day	200A	Past 11th Day	2012	Past 19th Day	201A	Past 27th Day
2004	Past 5th Day	200B	Past 12th Day	2013	Past 20th Day	201B	Past 28th Day
2005	Past 6th Day	200C	Past 13th Day	2014	Past 21th Day	201C	Past 29th Day
2006	Past 7th Day	200D	Past 14th Day	2015	Past 22th Day	201D	Past 30th Day
2007	Past 8th Day	200E	Past 15th Day	2016	Past 23th Day	201E	Past 31th Day

6.3 Data record address table

Device address	function code	Starting address		Data length		Check bit	
adr	03	21	00	**00**	**08**	crc1	crc2
Notes:Different starting addresses correspond to different records;**Read length cannot be changed**							
Send:01 03 21 00 00 08 crc1 crc2							
Receive:01 03 10 FF 00 80 81 00 00 13 08 1D 10 12 22 00 00 00 00 25 92							

The return data address is as follows:

Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
0x00:DO0 0x01:DO1 0xFF:Event Record	Alarm type	bit7 0:DO 1:DI bit0 1:Close Up 0:Disconnects	Switching number 0x00+num:Branch road 0x80+num: subject			Year	Months	Day	Time	Minutes	second	Alarm value			

The specific event record address is as follows:

0x2100	Article1	0x2128	Article 41	0x2150	Article 81	0x2178	Article 121	0x21A0	Article 161
0x2101	Article2	0x2129	Article 42	0x2151	Article 82	0x2179	Article 122	0x21A1	Article 162
0x2102	Article3	0x212A	Article 43	0x2152	Article 83	0x217A	Article 123	0x21A2	Article 163
0x2103	Article 4	0x212B	Article 44	0x2153	Article 84	0x217B	Article 124	0x21A3	Article 164
0x2104	Article5	0x212C	Article 45	0x2154	Article 85	0x217C	Article 125	0x21A4	Article 165
0x2105	Article 6	0x212D	Article 46	0x2155	Article 86	0x217D	Article 126	0x21A5	Article 166
0x2106	Article 7	0x212E	Article 47	0x2156	Article 87	0x217E	Article 127	0x21A6	Article 167
0x2107	Article 8	0x212F	Article 48	0x2157	Article 88	0x217F	Article 128	0x21A7	Article 168
0x2108	Article 9	0x2130	Article 49	0x2158	Article 89	0x2180	Article 129	0x21A8	Article 169
0x2109	Article 10	0x2131	Article50	0x2159	Article 90	0x2181	Article 130	0x21A9	Article 170
0x210A	Article 11	0x2132	Article51	0x215A	Article 91	0x2182	Article 131	0x21AA	Article 171
0x210B	Article 12	0x2133	Article52	0x215B	Article 92	0x2183	Article 132	0x21AB	Article 172
0x210C	Article 13	0x2134	Article53	0x215C	Article 93	0x2184	Article 133	0x21AC	Article 173
0x210D	Article 14	0x2135	Article54	0x215D	Article 94	0x2185	Article 134	0x21AD	Article 174
0x210E	Article 15	0x2136	Article55	0x215E	Article 95	0x2186	Article 135	0x21AE	Article 175
0x210F	Article 16	0x2137	Article56	0x215F	Article 96	0x2187	Article 136	0x21AF	Article 176
0x2110	Article 17	0x2138	Article57	0x2160	Article 97	0x2188	Article 137	0x21B0	Article 177
0x2111	Article 18	0x2139	Article58	0x2161	Article 98	0x2189	Article 138	0x21B1	Article 178
0x2112	Article 19	0x213A	Article59	0x2162	Article 99	0x218A	Article 139	0x21B2	Article 179
0x2113	Article 20	0x213B	Article 60	0x2163	Article 100	0x218B	Article 140	0x21B3	Article 180
0x2114	Article 21	0x213C	Article 61	0x2164	Article 101	0x218C	Article 141	0x21B4	Article 181
0x2115	Article 22	0x213D	Article 62	0x2165	Article 102	0x218D	Article 142	0x21B5	Article 182
0x2116	Article 23	0x213E	Article 63	0x2166	Article 103	0x218E	Article 143	0x21B6	Article 183
0x2117	Article 24	0x213F	Article 64	0x2167	Article 104	0x218F	Article 144	0x21B7	Article 184
0x2118	Article 25	0x2140	Article 65	0x2168	Article 105	0x2190	Article 145	0x21B8	Article 185
0x2119	Article 26	0x2141	Article 65	0x2169	Article 106	0x2191	Article 146	0x21B9	Article 186
0x211A	Article 27	0x2142	Article 67	0x216A	Article 107	0x2192	Article 147	0x21BA	Article 187
0x211B	Article 28	0x2143	Article 68	0x216B	Article 108	0x2193	Article 148	0x21BB	Article 188
0x211C	Article 29	0x2144	Article 69	0x216C	Article 109	0x2194	Article 149	0x21BC	Article 189
0x211D	Article 30	0x2145	Article 70	0x216D	Article 110	0x2195	Article 150	0x21BD	Article 190

0x211E	Article 31	0x2146	Article 71	0x216E	Article 111	0x2196	Article 151	0x21BE	Article 191
0x211F	Article 32	0x2147	Article 72	0x216F	Article 112	0x2197	Article 152	0x21BF	Article 192
0x2120	Article 33	0x2148	Article 73	0x2170	Article 113	0x2198	Article 153	0x21C0	Article 193
0x2121	Article 34	0x2149	Article 74	0x2171	Article 114	0x2199	Article 154	0x21C1	Article 194
0x2122	Article 35	0x214A	Article 75	0x2172	Article 115	0x219A	Article 155	0x21C2	Article 195
0x2123	Article 36	0x214B	Article 76	0x2173	Article 116	0x219B	Article 156	0x21C3	Article 196
0x2124	Article 37	0x214C	Article 77	0x2174	Article 117	0x219C	Article 157	0x21C4	Article 197
0x2125	Article 38	0x214D	Article 78	0x2175	Article 118	0x219D	Article 158	0x21C5	Article 198
0x2126	Article 39	0x214E	Article 79	0x2176	Article 119	0x219E	Article 159	0x21C6	Article 199
0x2127	Article 40	0x214F	Article 80	0x2177	Article 120	0x219F	Article 160	0x21C7	Article 200

7 Common fault analysis

Common fault analysis and elimination

Fault content	Analysis	Remarks
No display after power on	Check if the power supply voltage is within the operating voltage range	
Voltage, current, power, etc. readings are incorrect	Check if the voltage-to-current ratio setting is correct Check if the wiring mode setting is consistent with the actual Check if voltage transformer, current transformer is intact	
Power or power factor is incorrect	Check if the wiring mode setting is consistent with the actual Check if the voltage and current phase sequence is correct Check if the wiring is correct	
Communication is not normal	Check whether the address, baud rate, check digit, etc. in the communication settings are consistent with the host computer. Check if the RS485 converter is normal Parallel connection of 120 ohms or more at the end of communication Check if the wiring is correct	