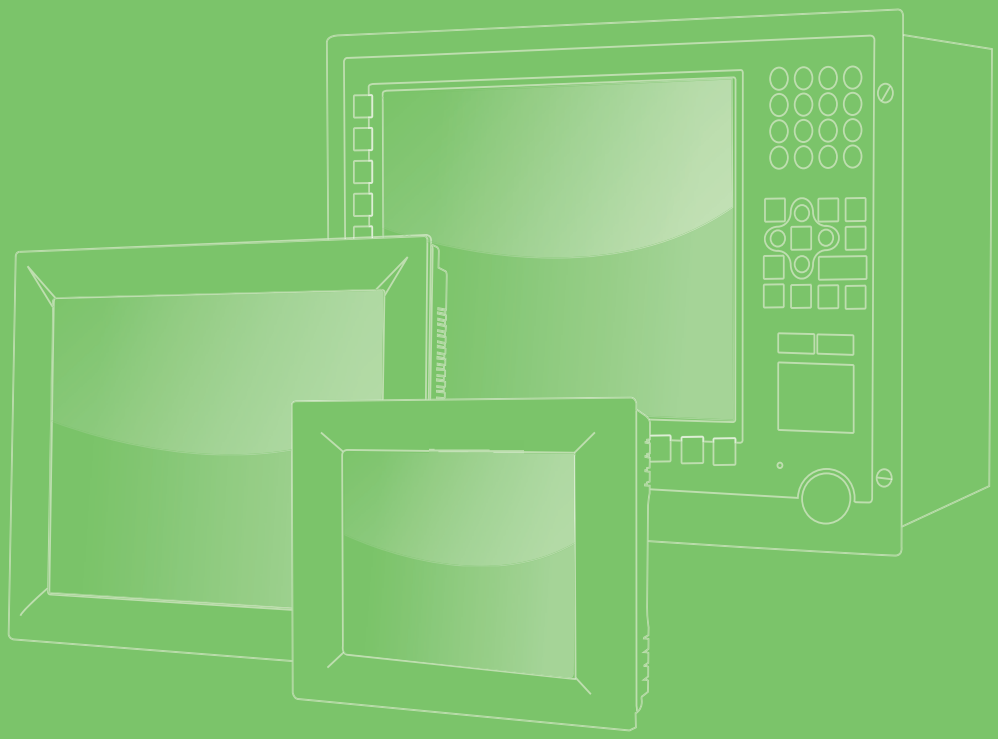

User Manual

WISE-M502

DIN-Rail Smart Meter

ADVANTECH

Enabling an Intelligent Planet

Copyright

Acknowledgements

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Microsoft Windows is registered trademark of Microsoft Corp.

All other product names or trademarks are properties of their respective owners.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Part No.2003M50200 Edition 1

Printed in China December 2016

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40° C (-40° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

Manual Conventions

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*

Caution! *Cautions are included to help you avoid damaging hardware or losing data. e.g.*

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! *Notes provide optional additional information.*

Contents

Chapter 1

Product Overview

1.1 Introduction

Provides high accuracy measurement, display and remote communication of single phase & three phase parameters (V, A, P, Q, S, PF, Hz, Kwh). Multi-circuit design and relay output modular design decrease the overall cost and make the functionality more flexible. All monitored data is available via a RS485 serial, PLC communication for requirements in energy management, and remote control. Embedded flash memory for data logging avoids missing data once the communication is interrupted.

Moreover, its ultra compact size DIN-rail mounting makes itself mountable in virtually any panel, enclosure or indoor cabinet.

1.2 Application

- Rental Building Electricity Charging Management
- Market/Vender/Stand Electricity Charging Management
- Rental Apartment Electricity Charging Management
- Distributed Generation Electricity Charging Management
- Booth Electricity Charging Management
- Dormitory Electricity Charging Management

1.3 Panel Description

Key definition (from left to right)

ENT Enter(confirmation)/ FUN

Left(left shift)/ ESC (Leave)

Right(right shift)/ Energy (Energy)

Up(Move)/ INC(Addition)/ Powe(Power)

Down(Down)/ DEC(Reduce)/ Volt/Amp(Voltage、current)

Chapter 2

Product Specifications

2.1 Product Specifications

Table 2.1: Measurement and Wiring

Phase & Wiring	Voltage	Current	Frequency
1P2W	50~500V	depends on external CT	45~65Hz
1P3W			
3P3W			
3P4W			

Table 2.2: Accuracy & Resolutions

PARAMETERS	ACCURACY	RESOLUTION	INPUT RANGE
Voltage	0.2%	0.1V	0~9999
Current	0.2%	0.001A	0~9999
Neutral Current	1.0%	0.001A	0~9999
Active Power	0.5%	0.1W	-32768~32767
Reactive Power	0.5%	0.1var	-32768~32767
Apparent Power	0.5%	0.1VA	-32768~32767
Power factor	0.5%	0.001	±0.020~+1.000
Frequency	0.2%	0.01Hz	45.00~65.00
Active Energy	0.5%	0.1kWh	0~999999
Reactive Energy	0.5%	0.1kvarh	0~999999

* Current Specification 400A or more, because the instrument can not be calibrated with the accuracy required to add additional error of 0.5% *

Measurement	True RMS measuring Parameters
Display update period	0.5 Sec
Wiring	1P2W, 1P3W, 3P3W, 3P4W
Input range	Voltage: As metering and Wiring PT Primary side unit: V or KV PT Primary setting: 50.0V~99.99KV PT Secondary setting:50.0~500.0V Direct Input: Primary = Secondary ≤ 500V Current: depends on external CT CT Primary setting: 1~9999A Frequency: 45~65Hz
Max. input withstand	Voltage: 1.2 X Rated voltage continuous(600Vmax) Current: Clamp CT Specification1.2X Rate voltage continuous

Table 2.3: Communication function	
Port	RS-485 PLC (power line communication) Half-duplex Transmission
Protocol	Modbus RTU Mode
Address	1~255 selectable
Baud rate	1200, 2400, 4800, 9600, 19200 or 38400 bps selectable
Parity check	N81, N82, odd, even selectable
Wire distance	1200M max
Terminal resistance	150Ω.
Variable Communication address	Customizing from 0100h to 0113h, 20 address parameters

Table 2.4: Recording	
Memory:	Internal 1MB
Capability:	Depends, i.e. saving up to 100,000 records with recording KWH parameters only. Recording interval:1~32767
Time units	Second, minute, hour, day

Table 2.5: Display	
LCD backlight	2-line, 6 digits for each. Top pane: 6.5mm high;
bottom pane	9.6mm high
Comm. status indication	With Communication status display icon
Parameter indication	Show parameters and channels in words
Alarm status indication	R1~R5 with Relay contact status display icon

Table 2.6: Power	
Aux Power	ADH: 85~346Vac, 50/60Hz, 100~300Vdc
ADL	20~56Vdc
Power consumption	AC:10VA, DC:4W
Temperature Coefficient	100 ppm/°C

Table 2.7: Security	
Password	Two groups password in 4 digits for "parameter setting" &"reset to zero for WATT"
Parameter setting	Password is able to set
Reset to zero for WATT	Password is unable to set
Function Lock	There are 4 options User Level: User Level lock. User can get into User Level only for checking but unable to change the setting Programming Level: Programming Level lock. User can get into programming level only for checking but unable to change the setting ALL: All lock. Lock both User Level & Programming Level. User can get into all level for checking but unable to change the setting None: No Lock
Parameter storage methods	F-RAM (Ferroelectric RAM), a random-access memory

Table 2.8: Operating environment	
Operation Temperature & Humidity	0~60°C;Display 0~60°C/0~80% RH, No-condensing
Storage Temperature & Humidity	-20~70°C/0~80% RH, Non condensing

Table 2.9: Electrical Safety	
Surge test	6KV, 1.2x50usec Common mode & differential mode
Insulating resistance	≥ 100M ohm,DC500V
Dielectric strength	AC 2KV,50/60Hz,Input/Output/Power/Case
Standard	EN61010;EN61326

Table 2.10: Mechanical	
Case material	PC fireproof
Mounting	DIN rail
Weight	185g

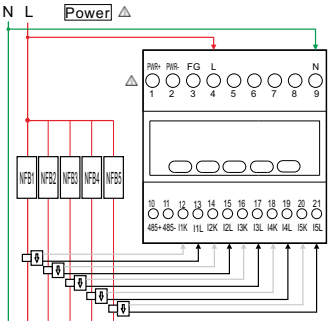
Chapter 3

Hardware Installation

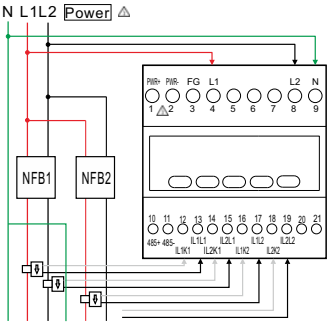
3.1 Wiring Diagram

(Secondary output wire of CT must be wiring separately as protection.
DO NOT parallel or ground.)

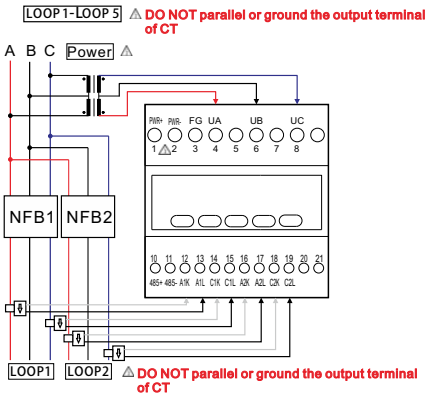
1P2W
5 Loop



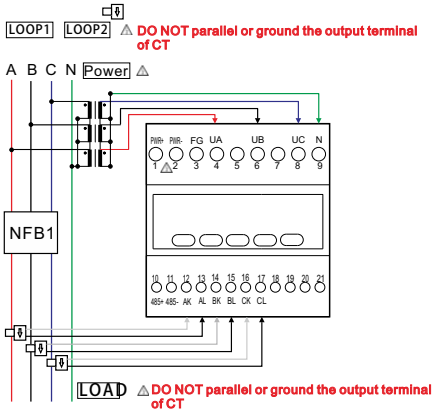
1P3W
2 Loop



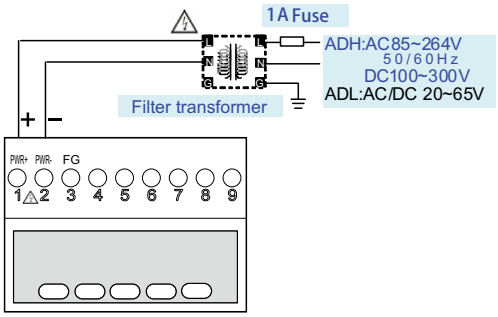
3P3W
2 Loop



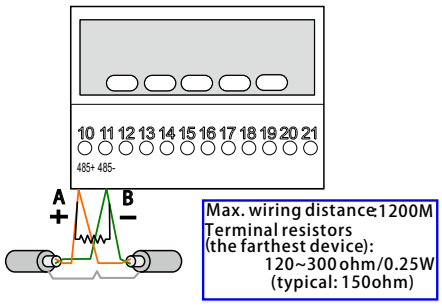
3P4W
1 Loop



Power Supply



RS485 Communication Port



3.2 Screen Function Key Operation

Press the the button on the following version can review each phase line Circuit voltage and current measurement value,the flow picture Page 4 to 6 of process description

Press the the button on the following version can review each phase lineThe measured values of the circuit in the power, process screen 7 to 10 of process description

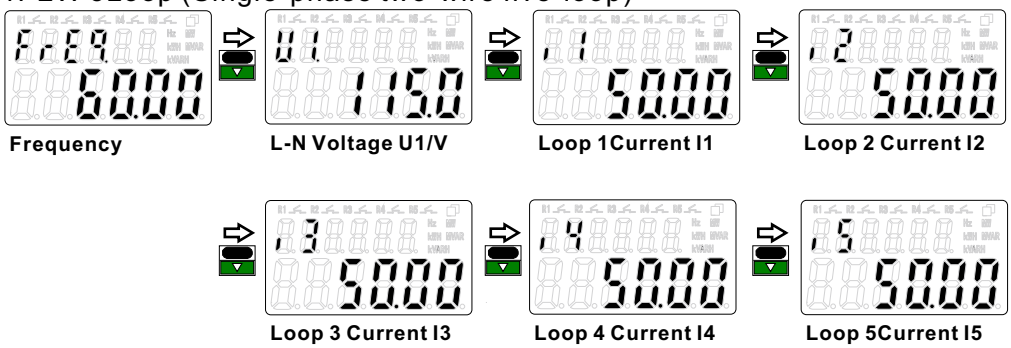
Press the the button on the following version can review each loop The measured values of the energy flow picture, such as Page 11 Process Description

Press the the button on the following version more than a second or more,Set the relay parameter values,Flow picture described processes such as Page 11

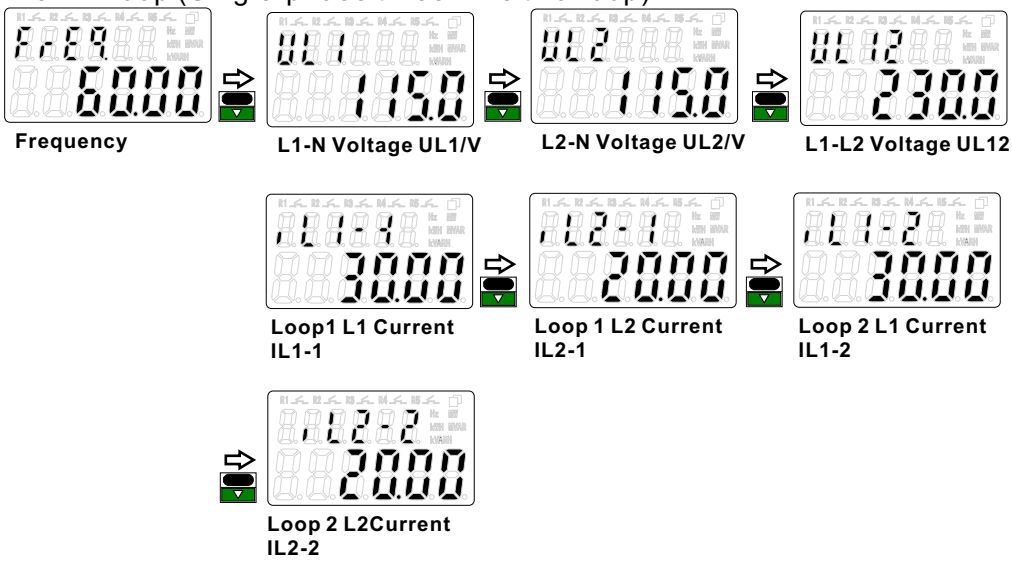
Before use, please understand the function of individual keys to achieve the best possible mode of operation.

Volt/Amp (Voltage, Current) Measurement screen

- 1P2W 5Loop (Single-phase two-wire five-loop)

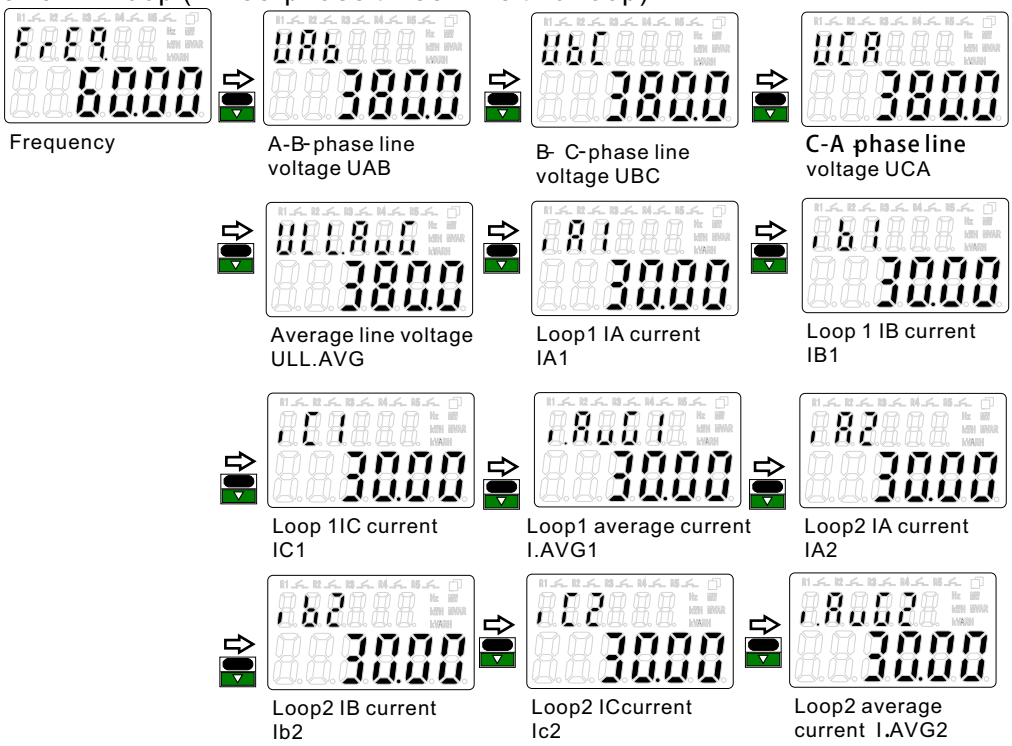


- 1P3W 2Loop (Single-phase three-wire two-loop)



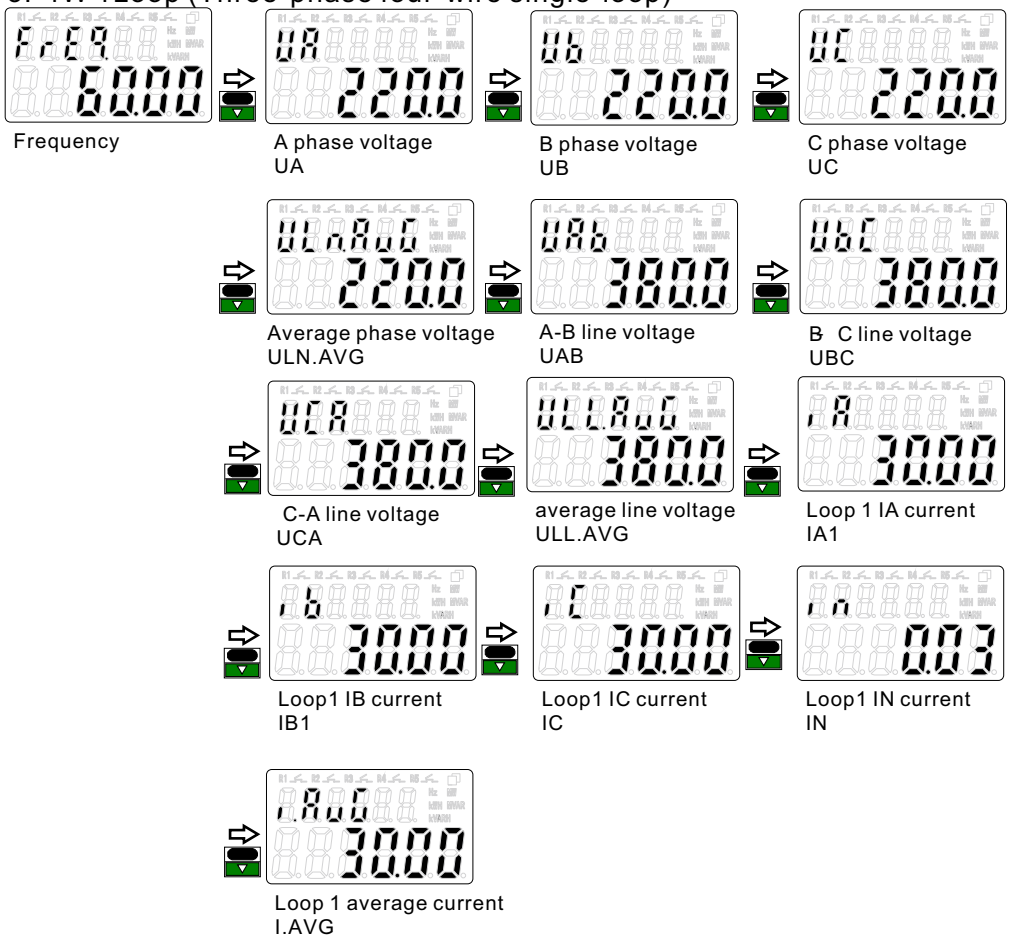
Volt/Amp (Voltage, Current) Measurement screen

- 3P3W 2Loop (Three-phase three-wire two-loop)



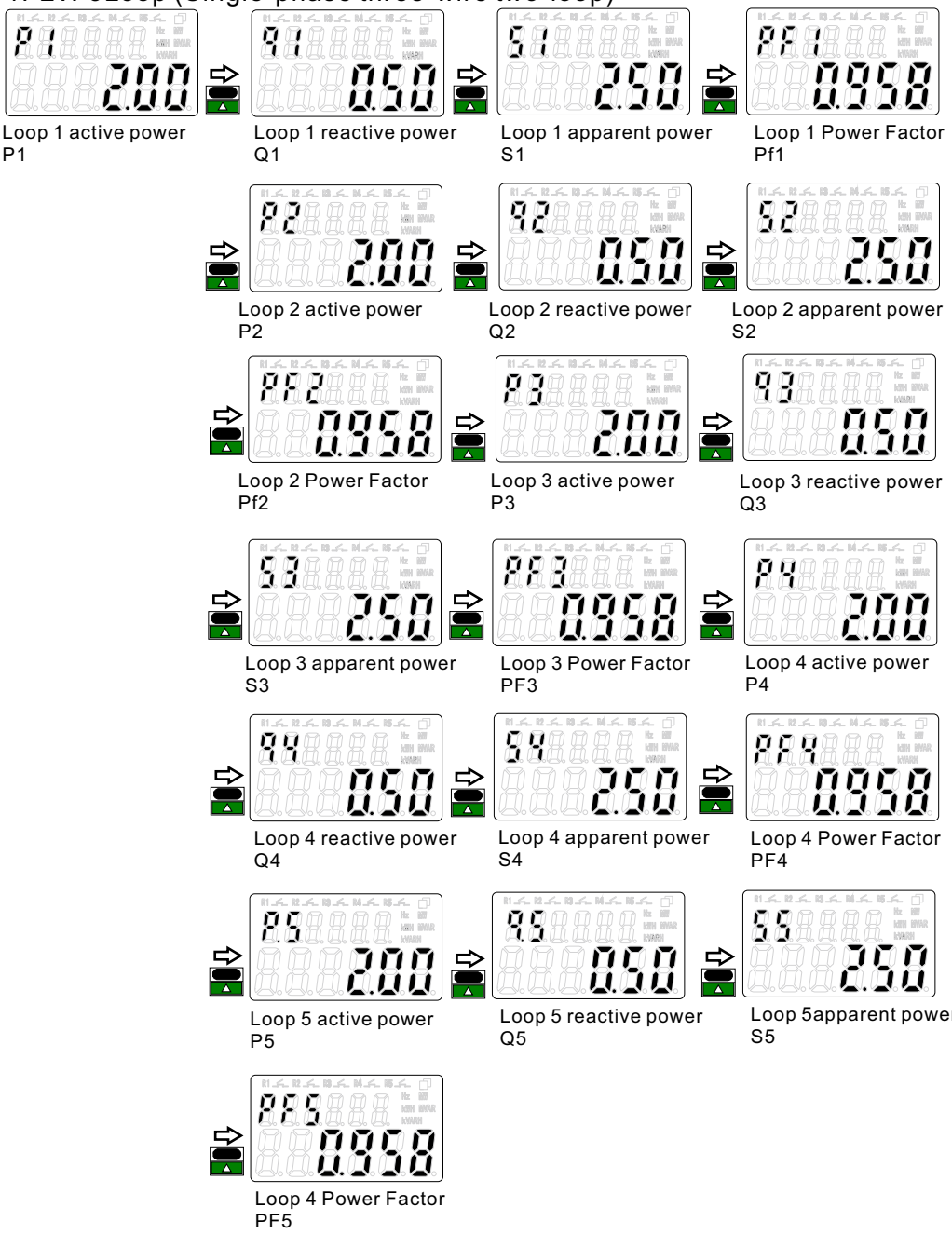
Volt/Amp (Voltage, Current) Measurement screen

- 3P4W 1Loop (Three-phase four-wire single-loop)



Power (POWER) Measurement screen

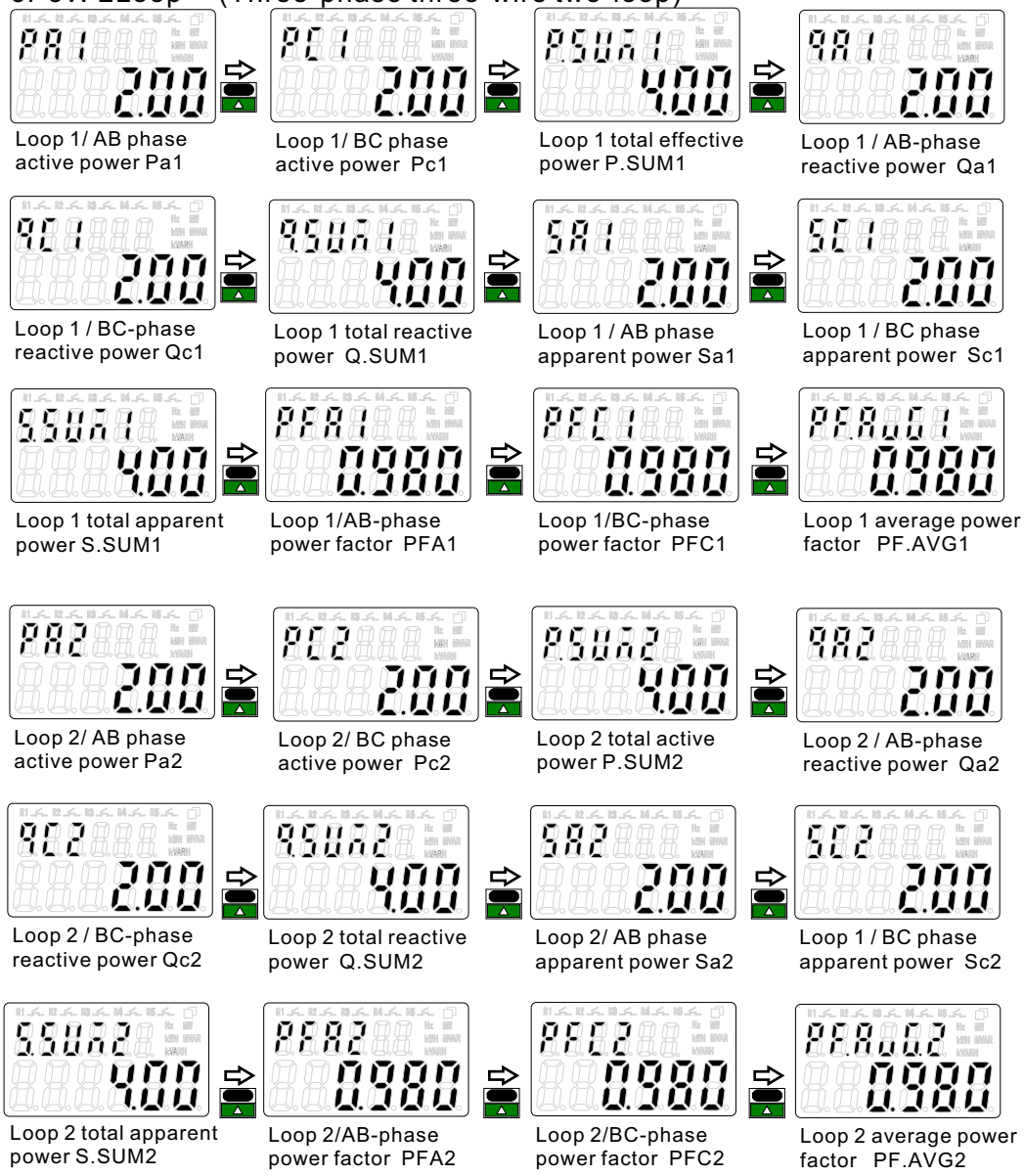
- 1P2W 5Loop (Single-phase three-wire two-loop)



- 1P3W 2Loop (Single-phase three-wire two-loop)

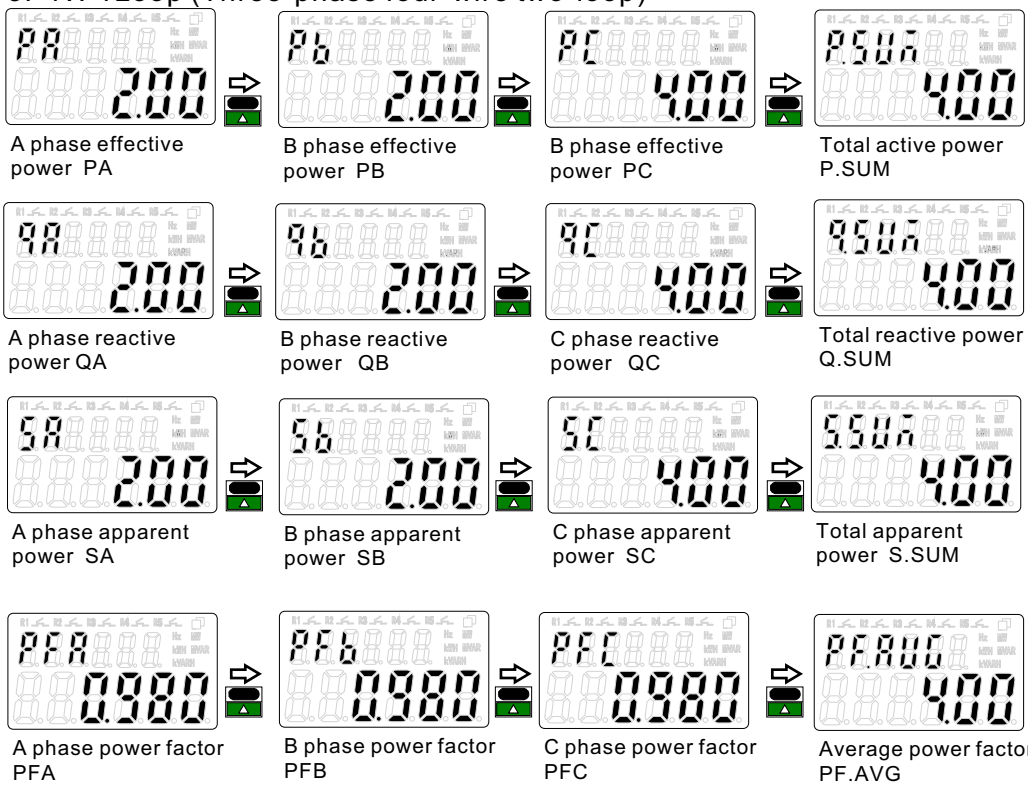
Power (POWER) Measurement screen

- 3P3W 2Loop (Three-phase three-wire two-loop)



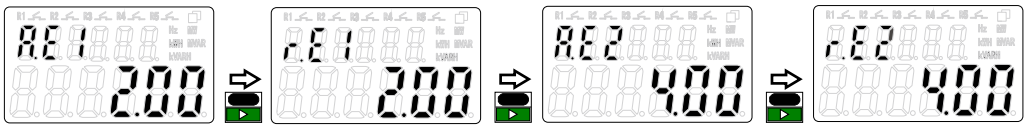
Power (POWER) Measurement screen

- 3P4W 1Loop (Three-phase four-wire two-loop)



Energy (Energy)

Measurement screen

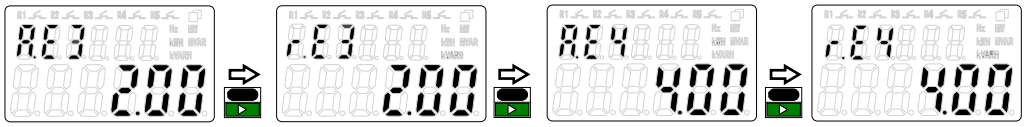


First loop total active energy A.E1

First loop total reactive energy R.E1

Second loop total active energy A.E2

Second loop total reactive energy R.E2

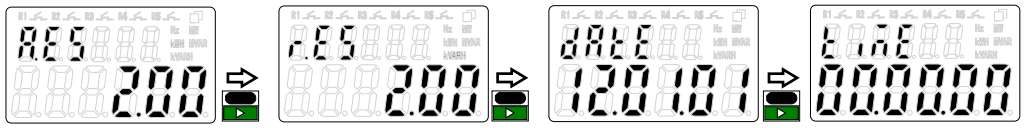


Third loop total active energy A.E3

Third loop total reactive energy R.E3

Fourth loop total active energy A.E4

Fourth loop total reactive energy R.E4



Fifth loop total active energy A.E5

Fifth loop total reactive energy R.E5

Date
12.01.01

Time
00.00.00

The display order of the total active energy and total reactive energy in the loop

1P2W 5Loop:AE1/RE1~~AE5/RE5

1P3W 1Loop:AE1/RE1

3P3W 1Loop:AE1/RE1

3P4W 1Loop:AE1/RE1

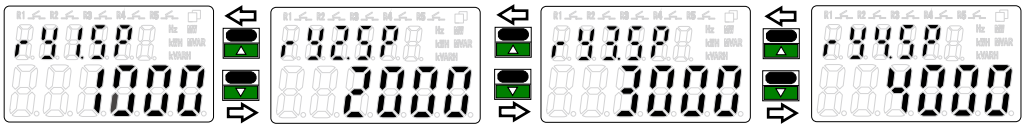
1P3W 2Loop:AE1/RE1~~AE2/RE2

3P3W 2Loop:AE1/RE1~~AE2/RE2

ESC (Leave)

General operating class

(Press and hold for more than more than one second to enter the class

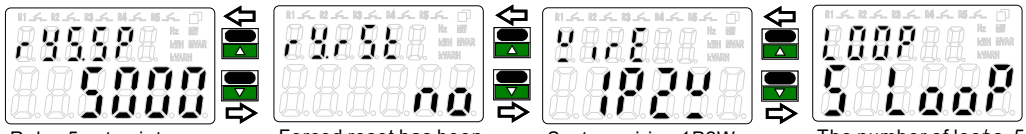


Relay 1 set point
RY1.SP/1000
Range- 32768~32767

Relay 2 set point
RY2.SP/2000
Range- 32768~32767

Relay 3 set point
RY3.SP/3000
Range- 32768~32767

Relay 4 set point
RY4.SP/4000
Range- 32768~32767

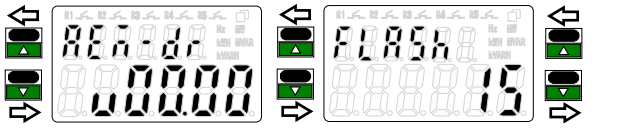


Relay 5 set point
RY5.SP/5000
Range:-32768~32767

Forced reset has been activated to maintain the relay NØ YES

System wiring 1P2W

The number of loops 5
By SPEC show /1 /2 5



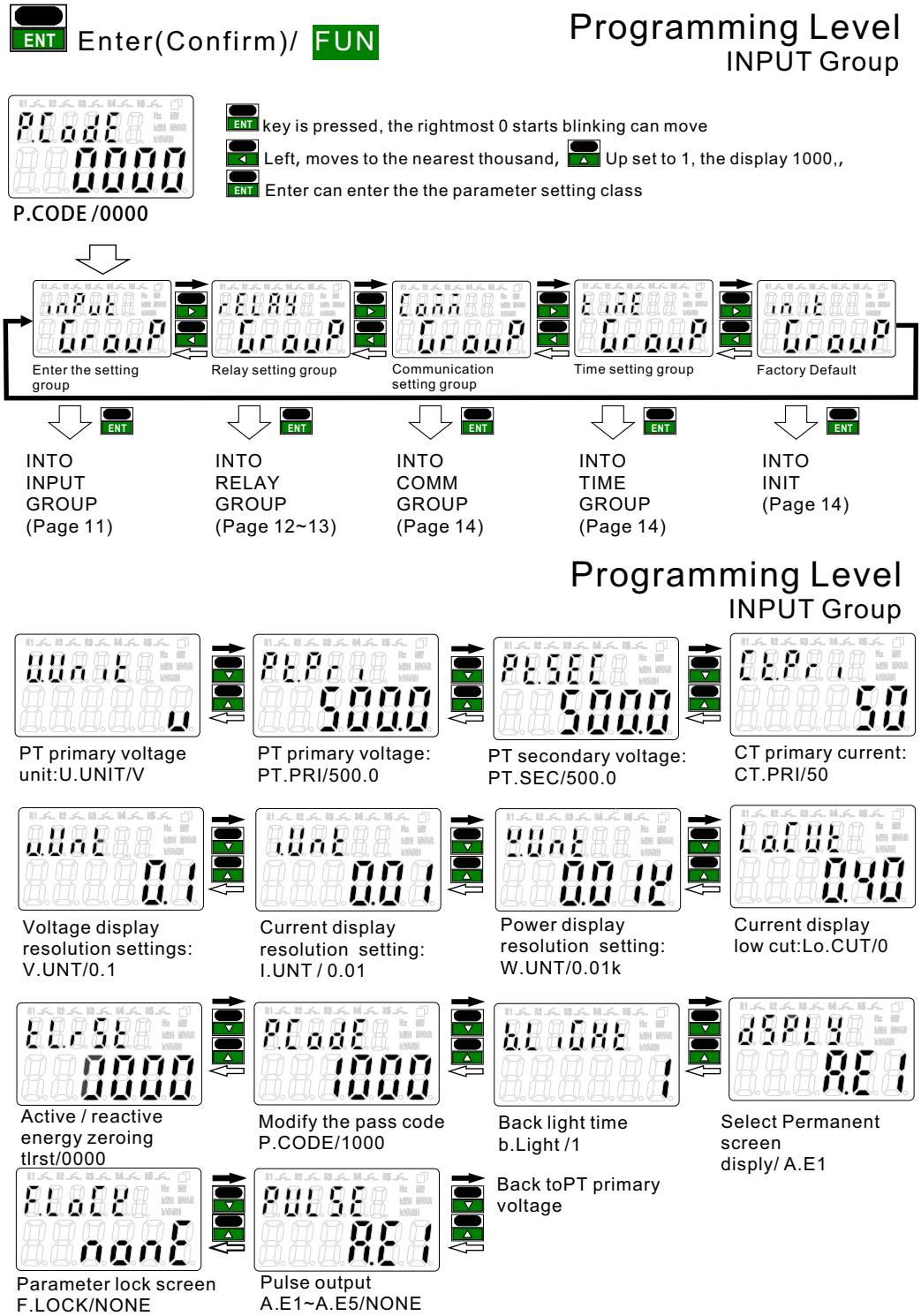
Software version
AEM-RD/vxx.xx

FLASH remaining time 0~65535
Units of the same recording interval units

Chapter 4

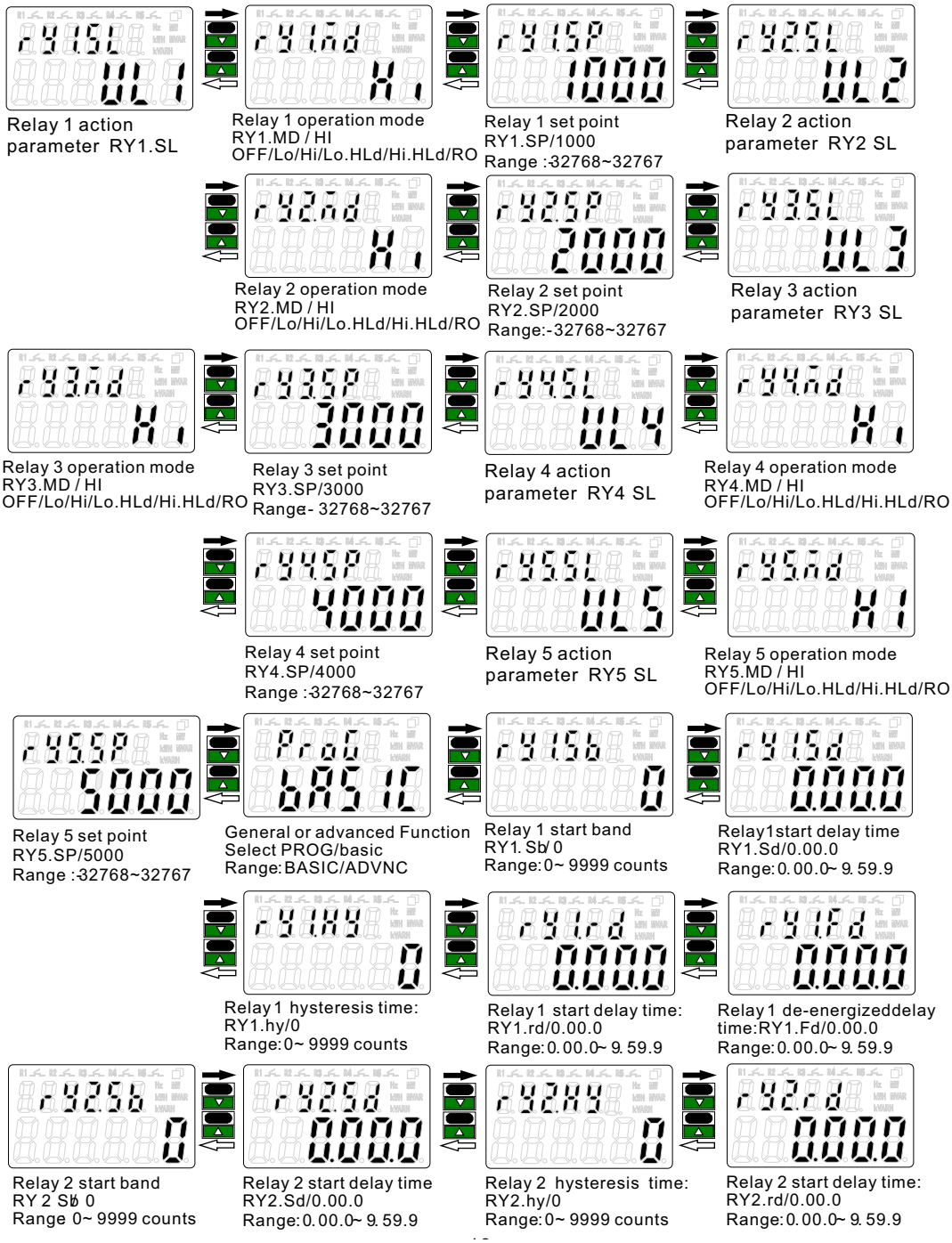
System Configuration

4.1 System Configuration



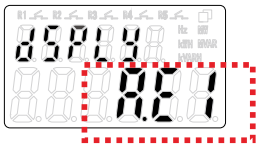
Programming Level

RELAY Group



Programming Level
parameters correspond

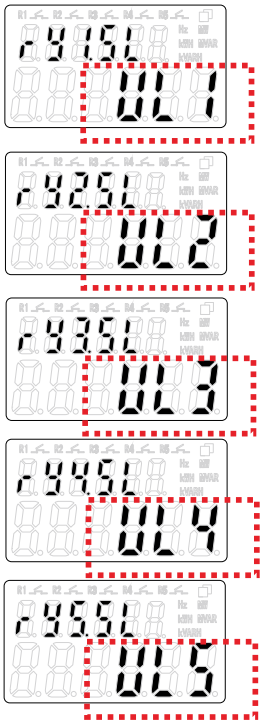
Select Permanent screen



	Loop 1	Loop 2
1P3W	Freq., UL1, UL2, UL12, IL1-1, IL2-1, PL1-1, PL2-1, P.SUM1, QL1-1, QL2-1, Q.SUM1, SL1-1, SL2-1, S.SUM1, PFL1-1, PFL2-1, PF.AVG1, A.E1, R.E1	Freq., UL1, UL2, UL12, IL1-1, IL2-1, PL1-1, IL2-2, PL1-1, PL2-1, P.SUM1, QL1-1, QL2-1, Q.SUM1, SL1-1, SL2-1, S.SUM1, PFL1-1, PFL2-1, PF.AVG1, PL1-2, PL2-2, P.SUM2, QL1-2, QL2-2, Q.SUM2, SL1-2, SL2-2, S.SUM2, PFL1-2, PFL2-2, PF.AVG2, A.E1, R.E1, A.E2, R.E2
3P3W	Freq., UAB, UBC, UCA, ULL.AVG, IA1, IB1, IC1, I.AVG1, PA1, PC1, P.SUM1, QA1, QC1, Q.SUM1, SA1, SC1, S.SUM1, PFA1, PFC1, PF.AVG1, A.E1, R.E1	Freq., UAB, UBC, UCA, ULL.AVG, IA1, IB1, IC1, I.AVG1, IA2, IB2, IC2, I.AVG2, PA1, PC1, P.SUM1, QA1, QC1, Q.SUM1, SA1, SC1, S.SUM1, PFA1, PFC1, PF.AVG1, PA2, PC2, P.SUM2, QA2, QC2, Q.SUM2, SA2, SC2, S.SUM2, PFA2, PFC2, PF.AVG2, A.E1, R.E1, A.E2, R.E2

3P4W Loop1	1P2W Loop5
Freq., UA, UB, UC, ULN.AVG, UAB, UBC, UCA, ULL.AVG, IA, IB, IC, IN, I.AVG, PA, PB, PC, P.SUM, QA, QB, QC, Q.SUM, SA, SB, SC, S.SUM, PFA, PFB, PFC, PF.AVG, A.E1, R.E1	Freq., U1, I1, I2, I3, I4, I5, P1, Q1, S1, PF1, P2, Q2, S2, PF2, P3, Q3, S3, PF3, P4, Q4, S4, PF4, P5, Q5, S5, PF5, A.E1, R.E1, A.E2, R.E2, A.E3, R.E3, A.E4, R.E4, A.E5, R.E5

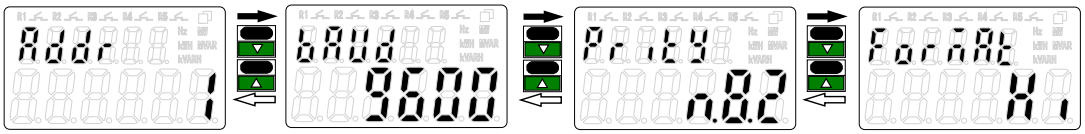
Relay parameters table



	Loop 1	Loop 2
1P3W	Freq., UL1, UL2, UL12, IL1-1, IL2-1, PL1-1, PL2-1, P.SUM1, QL1-1, QL2-1, Q SUM1, SL1-1, SL2-1, S SUM1, PFL1-1, PFL2-1, PF.AVG1	Freq., UL1, UL2, UL12, IL1-1, IL2-1, IL1-2, IL2-2, PL1-1, PL2-1, P SUM1, QL1-1, QL2-1, Q.SUM1, SL1-1, SL2-1, S SUM1, PFL1-1, PFL2-1, PF AVG1, PL1-2, PL2-2, P.SUM2, QL1-2, QL2-2, Q SUM2, SL1-2, SL2-2, S.SUM2, PFL1-2, PFL2-2, PF AVG2
3P3W	Freq., UAB, UBC, UCA, ULL AVG, IA1, IB1, IC1, I.AVG1, PA1, PC1, P.SUM1, QA1, QC1, Q.SUM1, SA1, SC1, S SUM1, PFA1, PFC1, PF.AVG1	Freq., UAB, UBC, UCA, ULL AVG, IA1, IB1, IC1, I AVG1, IA2, IB2, IC2, I.AVG2, PA1, PC1, P.SUM1, QA1, QC1, Q SUM1, SA1, SC1, S.SUM1, PFA1, PFC1, PF AVG1, PA2, PC2, P.SUM2, QA2, QC2, Q SUM2, SA2, SC2, S.SUM2, PFA2, PFC2, PF AVG2

3P4W Loop1	1P2W Loop 5
Freq., UA, UB, UC, ULN AVG, UAB, UBC, UCA, ULL.AVG, IA, IB, IC, IN, I.AVG, PA, PB, PC, P.SUM, QA, QB, QC, Q SUM, SA, SB, SC, S SUM, PFA, PFB, PFC, PF AVG	Freq., U1, I1, I2, I3, I4, I5, P1, Q1, S1, PF1, P2, Q2, S2, PF2, P3, Q3, S3, PF3, P4, Q4, S4, PF4, P5, Q5, S5, PF5

Programming Level
Communication Group

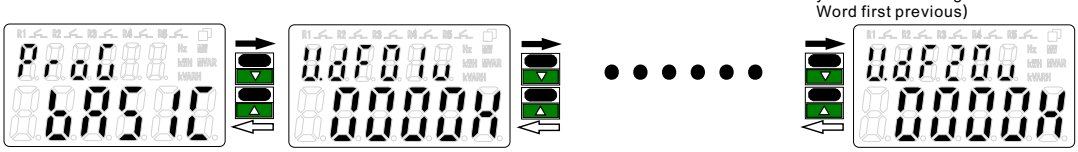


Station number
Addr/001

Transmission rate:
Baud/9600

Parity Check:
Prity/N.8.2

Data Format:Forma /HI
Hi/Lo (Data for the Double Word, you can decide High Word or Low Word first previous)

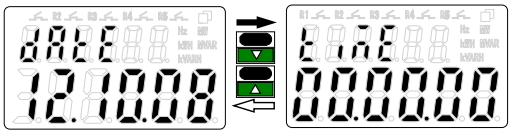


General or advanced function selection:
Prog/Basic

User-defined address buffer (Schedule 1)

User-defined address buffer (Schedule 1)

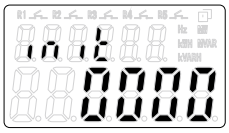
Programming Level
TimeGroup



Date : Date/12.10.08
Range:
00.01.01~99.12.31

Time : Time/00.00.00
Range:
00.00.00~23.59.59

Programming Level
Factory reset group



Factory reset:
Initialization :7170

Appendix A

I/O Modbus Mapping Table

A.1 I/O Modbus Mapping Table

1P2W Rs485 Communication

Name	Address	Range	Explain	Initial	R/W
Freq.	0000h	0.00~99.99	Frequency		R
U1	0001h	0~9999	L-N voltage		R
I1	0002h	0~9999	Group 1 loop current		R
I2	0003h	0~9999	Group 2 loop current		R
I3	0004h	0~9999	Group 3 loop current		R
I4	0005h	0~9999	Group 4 loop current		R
I5	0006h	0~9999	Group 5 loop current		R
P1	0007h	-32768~32767	Group 1 loop active power		R
Q1	0008h	-32768~32767	Group 1 loop reactive power		R
S1	0009h	0~32767	Group 1 loop apparent power		R
PF1	000Ah	-1.000~1.000	Group 1 loop power factor		R
P2	000Bh	-32768~32767	Group 2 loop active power		R
Q2	000Ch	-32768~32767	Group 2 loop reactive power		R
S2	000Dh	0~32767	Group 2 loop apparent power		R
PF2	000Eh	-1.000~1.000	Group 2 loop power factor		R
P3	000Fh	-32768~32767	Group 3 loop active power		R
Q3	0010h	-32768~32767	Group 3 loop reactive power		R
S3	0011h	0~32767	Group 3 loop apparent power		R
PF3	0012h	-1.000~1.000	Group 3 loop power factor		R
P4	0013h	-32768~32767	Group 4 loop active power		R
Q4	0014h	-32768~32767	Group 4 loop reactive power		R
S4	0015h	0~32767	Group 4 loop apparent power		R
PF4	0016h	-1.000~1.000	Group 4 loop power factor		R
P5	0017h	-32768~32767	Group 5 loop active power		R
Q5	0018h	-32768~32767	Group 5 loop reactive power		R
S5	0019h	0~32767	Group 5 loop apparent power		R
PF5	001Ah	-1.000~1.000	Group 5 loop power factor		R
Reserved		001Bh~ 0026h			
A.E1	0027h	0~99999.9kWh	Loop1 total active energy (High Word)		R
A.E1	0028h		Loop1 total active energy (Low Word)		R
R.E1	0029h	0~99999.9kVARh	Loop1 reactive power (High Word)		R
R.E1	002Ah		Loop1 reactive power (Low Word)		R
A.E2	002Bh	0~99999.9kWh	Loop2 total active energy (High Word)		R
A.E2	002Ch		Loop2 total active energy (Low Word)		R
R.E2	002Dh	0~99999.9kVARh	Loop2 reactive power (High Word)		R
R.E2	002Eh		Loop2 reactive power (Low Word)		R
A.E3	002Fh	0~99999.9kWh	Loop3 total active energy (High Word)		R

A.E3	0030h		Loop3 total active energy (Low Word)		R
R.E3	0031h	0~99999.9kVARh	Loop3 reactive power (High Word)		R
R.E3	0032h		Loop3 reactive power (Low Word)		R
A.E4	0033h	0~99999.9kWh	Loop4 total active energy (High Word)		R
A.E4	0034h		Loop4 total active energy (Low Word)		R
R.E4	0035h	0~99999.9kVARh	Loop4 reactive power (High Word)		R
R.E4	0036h		Loop4 reactive power (Low Word)		R
A.E5	0037h	0~99999.9kWh	Loop5 total active energy (High Word)		R
A.E5	0038h		Loop5 total active energy (Low Word)		R
R.E5	0039h	0~99999.9kVARh	Loop5 reactive power (High Word)		R
R.E5	003Ah		Loop5 reactive power (Low Word)		R

Relay Status and Control (CODE: 01h, 05h):

	0000h		Relay 1	bit0~bit4 behalf relay 1~relay 5 state,1=on, 0=off;code 05 is relay control, at register address write		R/W
	0001h		Relay 2			R/W
	0002h		Relay 3			R/W
	0003h		Relay 4			R/W
	0004h		Relay 5			R/W

General operating Level(CODE : 03h):

WIRE	003Fh	0~5	0:1P2W1:1P3W2:3P3W3:3P4W 4:3P3W-b5:3P4W-b		R
LOOP	0040h	0~1	Loop 0: 5 Loop		R
FLASH	0041h	0~65535	FLASH remaining time		R

Programming Level (CODE: 03h, 06h, 10h): Input function group

U.UNIT	0043h	0~1	PT primary voltage unit0:V1:kV	0	R/W
PT.PRI	0044h	0~10000	PT primary voltage	5000	R/W
PT.SEC	0045h		PT secondary voltage	5000	R/W
CT.PRI	0046h		CT primary current	50	R/W
V.UNT	0047h	0~4	Voltage display unit and resolution setting 0:0.1(V)1:1(V)2:0.01k(V) 3:0.1k(V)4:1k(V)	0	R/W

I.UNT	0048h	0~3	Current display units and resolution setting 0:0.001(A)1:0.01(A)2:0.1(A) 3:1(A)	0	R/W
W.UNT	0049h	0~7	Power display unit and resolution settings 0:0.1(W)1:1(W)2:0.01k(W) 3:0.1k(W)4:1k(W)5:0.01M(W) 6:0.1M(W)7:1M(W)	2	R/W
Lo.CUT	004Ah	0~10000	Current display low cut	40	R/W
P.CODE	004Bh	0~9999	Modify the P.COD	1000	R/W
b.Light	004Ch	0~15	Backlight time 0(Always lights)~15Min	1	R/W
dSPLY	004Dh	2 Loop 0~15 5 Loop 0~36	Select Permanent screen 2 Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF212:A.E1 13:R.E1 14:A.E2 15:R.E2 5 Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF527:A.E1 28:R.E1 29:A.E2 30:R.E2 31:A.E3 32:R.E3 33:A.E4 34:R.E4 35:A.E5 36:R.E5	0	R/W
F.LOCK	004Eh	0~3	0:NONE 1:USER 2.ENG. 3:ALL	0	R/W
EEP STS-TUS	004Fh	0~3	0:OK 1:EEPROMNG 2:FLASHING 3:EEPROM & FLASHING	0	R
tL.rst	0050h		Clear Energy (Write 2100)	0	R/W

Relay output function group

RY1.SL	0051h	2 Loop0~11 5 Loop0~26	Relay 1 action parameters 2 Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF2 5 Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF5	2	R/W
RY1.MD	0052h	0~5	Relay 1 action mode 0:OFF 1:Lo2:Hi 3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY1.SP	0053h	-32768~32767	Relay 1 set point	1000	R/W
RY1.Sb	0054h	0~9999	Relay 1 start band	0	R/W
RY1.Sd	0055h	0000~5999 (0.1second)	Relay1start delay time	0	R/W
RY1.Hy	0056h	0~9999	Relay 1 hysteresis time	0	R/W
RY1.rd	0057h	0000~5999 (0.1second)	Relay 1 start delay time	0	R/W
RY1.Fd	0058h	0000~5999 (0.1second)	Relay 1 de-energizeddelay time	0	R/W
RY2.SL	0059h	2 Loop0~11 5 Loop0~26	Relay 2 action parameters 2 Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF2 5 Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF5	2	R/W
RY2.MD	005Ah	0~5	Relay 2 action mode 0:OFF 1:Lo2:Hi 3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY2.SP	005Bh	-32768~32767	Relay 2 set point	2000	R/W
RY2.Sb	005Ch	0~9999	Relay 2 start band	0	R/W
RY2.Sd	005Dh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Hy	005Eh	0~9999	Relay 2 hysteresis time	0	R/W
RY2.rd	005Fh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W

RY2.Fd	0060h	0000~5999 (0.1second)	Relay 2 de-energizeddelay time	0	R/W
RY3.SL	0061h	2 Loop0~11 5 Loop0~26	Relay 3 action parameters 2Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF2 5Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF5	2	R/W
RY3.MD	0062h	0~5	Relay 3 action mode 0:OFF 1:Lo2:Hi 3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY3.SP	0063h	-32768~32767	Relay 3 set point	3000	R/W
RY3.Sb	0064h	0~9999	Relay 3 start band	0	R/W
RY3.Sd	0065h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Hy	0066h	0~9999	Relay 3 hysteresis time	0	R/W
RY3.rd	0067h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Fd	0068h	0000~5999 (0.1second)	Relay 3 de-energizeddelay time	0	R/W
RY4.SL	0069h	2 Loop0~11 5 Loop0~26	Relay 4 action parameters 2 Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF2 5 Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF5	2	R/W
RY4.MD	006Ah	0~5	Relay 4 action mode 0:OFF 1:Lo2:Hi 3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY4.SP	006Bh	-32768~32767	Relay 4 set point	4000	R/W
RY4.Sb	006Ch	0~9999	Relay 4 start band	0	R/W
RY4.Sd	006Dh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Hy	006Eh	0~9999	Relay 4 hysteresis time	0	R/W
RY4.rd	006Fh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W

RY4.Fd	0070h	0000~5999 (0.1second)	Relay 1 de-energizeddelay time	0	R/W
RY5.SL	0071h	2 Loop0~11 5 Loop0~26	Relay 5 action parameters 2 Loop==> 0:Freq.1:U12:I13:I24:P1 5:Q16:S1 7:PF18:P29:Q2 10:S2 11:PF2 5 Loop==> 0:Freq.1:U12:I13:I24:I3 5:I46:I57:P18:Q19:S1 10:PF111:P212:Q213:S2 14:PF215:P316:Q317:S3 18:PF319:P420:Q421:S4 22:PF423:P524:Q525:S5 26:PF5	2	R/W
RY5.MD	0072h	0~5	Relay 5 action mode 0:OFF 1:Lo2:Hi 3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY5.SP	0073h	-32768~32767	Relay 5 set point	5000	R/W
RY5.Sb	0074h	0~9999	Relay 5 start band	0	R/W
RY5.Sd	0075h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Hy	0076h	0~9999	Relay 5 hysteresis time	0	R/W
RY5.rd	0077h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Fd	0078h	0000~5999 (0.1second)	Relay 5 de-energizeddelay time	0	R/W

Communication function group

Addr	**007Bh**	**1~255**	**Station number**	**1**	**R/W**
Baud	007Ch	0~5	Transmission rate 0:12001:24002:48003:9600 4:192005:38400	3	R/W
Prity	007Dh	0~3	Parity Check 0:N.8.11:N.8.22:E.8.1 3:O.8.1	1	R/W
Format	007Eh	0~1	0:High 1:Lo	0	R/W

Date Time function group

Year	**007Fh**	**2000~2099**	**Year**	**2012**	**R/W**
Month	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
Hour	0082h	0~23	Time	0	R/W
Minute	0083h	0~59	Minute	0	R/W
Second	0084h	0~59	Second	0	R/W

FLASH read(CODE: 03h, 06h)

	0200h		The number of each record WORD		R
	0201h		Unread items		R
	0202h		Read the next record, if no data returned error code 0020h		R
	0203h	0~2	Read status reports 0:Clear all records 1:Give up this read 2:Read successfully		W
	0204H	0~1	Stop recording0:Stop1:Restart	1	R/W

FLASH setting (CODE : 03h , 06h , 10h)

	0210h	0~1	0:Full Record 1:Individual choice	0	R/ W
	0211h	1~32767	The value of the recording interval	15	R /W
	0212h	0~3	Recording interval time units 0:sec 1:min2:hour3:day	1	R/ W
	0213h	2000~2099	Start recording time -Year	2012	R/ W
	0214h	1~12	Start recording time -Month	1	R/ W
	0215h	1~31	Start recording time -Day	1	R/ W
	0216h	0~23	Start recording time -Hour	0	R/ W
	0217h	0~59	Start recording time -Minute	0	R/ W
	0218h	0~59	Start recording time -Second	0	R/ W
	0219h	2000~2099	Stop recording time- Year	2012	R/ W
	021Ah	1~12	Stop recording time- Month	1	R/ W
	021Bh	1~31	Stop recording time- Day	1	R/ W
	021Ch	0~23	Stop recording time- Hour	0	R/ W
	021Dh	0~59	Stop recording time- Minute	0	R/ W
	021Eh	0~59	Stop recording time- Second	0	R /W
	021Fh	0~1	Stop / Start recording 0:Stop1:Start	0	R/ W

Record	0220h	2 loop 0~16 5 loop 0~37	Record field, store the recorded content index 2 Loop==> 0:none1: Freq. 2: U1 3: I14: I25: P1 6:Q1 7:S1 8:PF1 9:P2 10:Q2 11:S2 12:PF2 13:A .E1 14:R .E1 15:A .E2 16:R .E2 5 Loop==> 0:none1: Freq. 2: U1 3: I14: I25: I3 6:I4 7:I5 8:P1 9:Q1 10:S1 11:PF1 12:P2 13:Q2 14:S2 15:PF2 16:P3 17:Q3 18:S3 19:PF3 20:P4 21:Q4 22:S4 23:PF4 24:P5 25:Q5 26:S5 27:PF5 28:A .E1 29:R .E1 30:A .E2 31:R .E2 32:A .E3 33:R .E3 34:A .E4 35:R .E4 36:A .E5 37:R .E5	R/W
Record	0221h			R/W
Record	0222h			R/W
Record	0223h			R/W
Record	0224h			R/W
Record	0225h			R/W
Record	0226h			R/W
Record	0227h			R/W
Record	0228h			R/W
Record	0229h			R/W
Record	022Ah			R/W
Record	022Bh			R/W
Record	022Ch			R/W
Record	022Dh			R/W
Record	022Eh			R/W
Record	022Fh			R/W
Record	0230h			R/W
Record	0231h			R/W
Record	0232h		initial(Full Record) 2 loop==>Record field 01~Record field 16 Sequence 1~16 ,Record field17~Record field 41 are all 0 5 loop==>Record field 01~Record field37 Sequence1~37, Record38~Record field41 are all 0 initial Record field 01~Record field 41 are all 0	R/W
Record	0233h			R/W
Record	0234h			R/W
Record	0235h			R/W
Record	0236h			R/W
Record	0237h			R/W
Record	0238h			R/W
Record	0239h			R/W
Record	023Ah			R/W
Record	023Bh			R/W
Record	023Ch			R/W
Record	023Dh			R/W
Record	023Eh			R/W
Record	023Fh			R/W
Record	0240h			R/W
Record	0241h			R/W
Record	0242h			R/W
Record	0243h			R/W
Record	0244h			R/W
Record	0245h			R/W
Record	0246h			R/W
Record	0247h			R/W
Record	0248h			R/W

1P3W Measurement screen quickly read the information(CODE : 03h):

Name	Address	Range	Explain	Initial	R/W
Freq.	0000h	45.00~65.00	Frequency		R
UL1	0001h	0~9999	L1-N Voltage		R
UL2	0002h	0~9999	L2-N Voltage		R
UL12	0003h	0~9999	L1-L2 Voltage		R
IL1-1	0004h	0~9999	Loop 1 L1 current		R
IL2-1	0005h	0~9999	Loop 1 L2 current		R
IL1-2	0006h	0~9999	Loop 2 L1 current		R
IL2-2	0007h	0~9999	Loop 2 L2 current		R
PL1-1	0008h	-32768~32767	Loop 1 L1-N phase active power		R
PL2-1	0009h	-32768~32767	Loop 1 L2-N phase active power		R
P.SUM1	000Ah	-32768~32767	Loop 1 total active power		R
QL1-1	000Bh	-32768~32767	Loop 1 L1-N phase reactive power		R
QL2-1	000Ch	-32768~32767	Loop 1 L2-N phase reactive power		R
Q.SUM1	000Dh	-32768~32767	Loop 1 total reactive power		R
SL1-1	000Eh	0~32767	Loop 1 L1-N apparent power		R
SL2-1	000Fh	0~32767	Loop 1 L2-N apparent power		R
S.SUM1	0010h	0~32767	Loop 1 total apparent power		R
PFL1-1	0011h	-1.000~1.000	Loop 1 L1-N Power Factor		R
PFL2-1	0012h	-1.000~1.000	Loop 1 L2-N Power Factor		R
PF.AVG	0013h	-1.000~1.000	Loop 1 average power factor		R
PL1-2	0014h	-32768~32767	Loop 2 L1-N phase active power		R
PL2-2	0015h	-32768~32767	Loop 2 L2-N phase active power		R
P.SUM2	0016h	-32768~32767	Loop 2 total active power		R
QL1-2	0017h	-32768~32767	Loop 2 L1-N apparent power		R
QL2-2	0018h	-32768~32767	Loop 2 L2-N apparent power		R
Q.SUM2	0019h	-32768~32767	Loop 2 total reactive power		R
SL1-2	001Ah	0~32767	Loop 2 L1-N apparent power		R
SL2-2	001Bh	0~32767	Loop 2 L2-N apparent power		R
S.SUM2	001Ch	0~32767	Loop 2 total apparent power		R
PFL1-2	001Dh	-1.000~1.000	Loop 2 L1-N Power Factor		R
PFL2-2	001Eh	-1.000~1.000	Loop 2 L2-N Power Factor		R
PF.AVG2	001Fh	-1.000~1.000	Loop 2 average power factor		R
A.E1	0027h	0~99999.9kWh	Loop 1 total active energy (High Word)		R
A.E1	0028h		Loop 1 total active energy (Low Word)		R
R.E1	0029h	0~99999.9kVARh	Loop 1 total reactive energy (High Word)		R
R.E1	002Ah		Loop 1 total reactive energy (Low Word)		R
A.E2	002Bh	0~99999.9kWh	Loop 2 total active energy (High Word)		R
A.E2	002Ch		Loop 2 total active energy (Low Word)		R
R.E2	002Dh	0~99999.9kVARh	Loop 2 total reactive energy (High Word	)	R

R.E2	002Eh		Loop 2 total reactive energy (Low Word)		R

Relay Status and Control(CODE : 01h , 05h):

	0000h		Relay 1	bit0~bit4 behalf relay 1~relay 5 state,1=on, 0=off;code 05 is relay control, at register address write		R/W
	0001h		Relay 2			R/W
	0002h		Relay 3			R/W
	0003h		Relay 4			R/W
	0004h		Relay 5			R/W

General operating Level (CODE: 03h):

WIRE	003Fh	0~5	0:1P2W1:1P3W2:3P3W3:3P4W 4:3P3W-b5:3P4W-b		R
LOOP	0040h	0~1	number of loop0: 1 LOOP 1: 2 LOOP		R
FLASH	0041h	0~65535	FLASH remaining time		R

Programming Level (CODE: 03h, 06h, 10h) Input function group

U.UNIT	0043h	0~1	PT primary voltage unit0:V 1:kV	0	R/W
PT.PRI	0044h		PT primary voltage	5000	R/W
PT.SEC	0045h		PT secondary voltage	5000	R/W
CT.PRI	0046h		CT primary current	50	R/W
V.UNT	0047h	0~4	Voltage display unit and resolution setting 0:0 1(V)1:1(V)2:001k(V) 3:01k(V)4: 1k(V)	0	R/W
I.UNT	0048h	0~3	Current display units and resolu-tion setting 0:0 001(A)1:001(A)2:01(A) 31(A:)	0	R/W
W.UNT	0049h	0~7	Power display unit and resolution settings 0:0 1(W)1:1(W)2:001k(W) 3:01k(W)4: 1k(W)5:001M(W) 6:01M(W)7: 1M(W)	2	R/W
Lo.CUT	004Ah	0~10000	Current display low cut	40	R/W
P.CODE	004Bh	0~9999	Modify the P.COD	1000	R/W
b Light	004Ch	0 ~ 15	Backlight time 0 (Always lights)~ 15Min	1	R/W

dSPLY	004Dh	1 Loop 0 ~ 19 2 Loop 0 ~ 35	Select Permanent screen 1Loop==> 0:Freq1:UL12:UL23:UL12 4:IL1-15:IL2-16:PL1-17:PL2-1 8:P SUM19:QL1-110:QL2-1 11:Q SUM112:SL1-113:SL2-1 14:S SUM115:PFL1-116:PFL2-1 17:PF AVG118:A E119:R E1 2Loop ==> 0:Freq1:UL12:UL23:UL12 4:IL1-15:IL2-16:IL1-27:IL2-2 8:PL1-19:PL2-110:P.SUM1 11:QL1-112:QL2-113:Q.SUM1 14:SL1-115;SL2-116:S.SUM1 17:PFL1-118:PFL2-119;PF.AVG1 20:PL1-221:PL2-222:P.SUM2 23:QL1-224:QL2-225:Q.SUM2 26:SL1-227:SL2-228:S.SUM2 29:PFL1-230:PFL2-231:PF.AVG2 32:A E1 33:R E1 34:A E2 35:R E2	0	R/W
F.LOCK	004Eh	0~3	0:NONE 1:USER 2.ENG. 3:ALL	0	R/W
EEP STS-TUS	004Fh	0~3	0:OK 1:EEPROMNG 2:FLASH-ING 3:EEPROM & FLASHING	0	R
tL.rst	0050h		Clear Energy (Write 2100)	0	R/W

Relay output function group

RY1.SL	0051h	1Loop 0~17 2Loop 0~31	Relay 1 action parameters 1 Loop==> 0: Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:PL1-1 7:PL2-1 8:P.SUM1 9:QL1-1 10:QL2-1 11:Q.SUM1 12:SL1-1 13:SL2-1 14:S.SUM1 15:PFL1-1 16:PFL2-1 17:PF.AVG1 2 Loop==> 0:Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:IL1-2 7:IL2-2 8:PL1-1 9:PL2-1 10:P.SUM1 11:QL1-1 12:QL2-1 13:Q.SUM1 14:SL1-1 15;SL2-1 16:S.SUM1 17:PFL1-1 18:PFL2-1 19;PF.AVG1 20:PL1-2 21:PL2-2 22:P.SUM2 23:QL1-2 24:QL2-2 25:Q.SUM2 26:SL1-2 27:SL2-2 28:S.SUM2 29:PFL1-2 30:PFL2-2 31:PF.AVG2	4	R/W
RY1.MD	0052h	0~5	Relay 1 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY1.SP	0053h	-32768~32767	Relay 1 set point	1000	R/W
RY1.Sb	0054h	0~9999	Relay 1 start band	0	R/W
RY1.Sd	0055h	0000~5999 (0.1second)	Relay1start delay time	0	R/W
RY1.Hy	0056h	0~9999	Relay 1 hysteresis time	0	R/W
RY1.rd	0057h	0000~5999 (0.1second)	Relay 1 start delay time	0	R/W

RY1.Fd	0058h	0000~5999 (0.1second)	Relay 1 de-energizeddelay time	0	R/W
RY2.SL	0059h	1Loop 0~17 2 Loop 0~31	Relay 2 action parameters 1 Loop==> 0: Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:PL1-1 7:PL2-1 8:P.SUM1 9:QL1-1 10:QL2-1 11:Q.SUM1 12:SL1-1 13:SL2-1 14:S.SUM1 15:PFL1-1 16:PFL2-1 17:PF.AVG1 2 Loop==> 0:Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:IL1-2 7:IL2-2 8:PL1-1 9:PL2-1 10:P.SUM1 11:QL1-1 12:QL2-1 13:Q.SUM1 14:SL1-1 15;SL2-1 16:S.SUM1 17:PFL1-1 18:PFL2-1 19:PF.AVG1 20:PL1-2 21:PL2-2 22:P.SUM2 23:QL1-2 24:QL2-2 25:Q.SUM2 26:SL1-2 27:SL2-2 28:S.SUM2 29:PFL1-2 30:PFL2-2 31:PF.AVG2	4	R/W

RY2.MD	005Ah	0~5	Relay 2 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY2.SP	005Bh	-32768~32767	Relay 2 set point	2000	R/W
RY2.Sb	005Ch	0~9999	Relay 2 start band	0	R/W
RY2.Sd	005Dh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Hy	005Eh	0~9999	Relay 2 hysteresis time	0	R/ W
RY2.rd	005Fh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Fd	0060h	0000~5999 (0.1second)	Relay 2 de-energizeddelay time	0	R/W
RY3.SL	0061h	1Loop 0~17 2Loop 0~31	Relay 3 action parameters 1 Loop==> 0: Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:PL1-1 7:PL2-1 8:P.SUM1 9:QL1-1 10:QL2-1 11:Q.SUM1 12:SL1-1 13:SL2-1 14:S.SUM1 15:PFL1-1 16:PFL2-1 17:PF.AVG1 2 Loop==> 0:Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:IL1-2 7:IL2-2 8:PL1-1 9:PL2-1 10:P.SUM1 11:QL1-1 12:QL2-1 13:Q.SUM1 14:SL1-1 15;SL2-1 16:S.SUM1 17:PFL1-1 18:PFL2-1 19;PF.AVG1 20:PL1-2 21:PL2-2 22:P.SUM2 23:QL1-2 24:QL2-2 25:Q.SUM2 26:SL1-2 27:SL2-2 28:S.SUM2 29:PFL1-2 30:PFL2-2 31:PF.AVG2	4	R/W
RY3.MD	0062h	0~5	Relay 3 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W

RY3.SP	0063h	-32768~32767	Relay 3 action mode	3000	R/W
RY3.Sb	0064h	0~9999	Relay 3 start band	0	R/W
RY3.Sd	0065h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Hy	0066h	0~9999	Relay 3 hysteresis time	0	R/W
RY3.rd	0067h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Fd	0068h	0000~5999 (0.1second)	Relay 3 de-energized delay time	0	R/W

RY4.SL	0069h	1 Loop0~17 2 Loop0~31	Relay 4 action parameters 1 Loop==> 0: Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:PL1-1 7:PL2-1 8:P.SUM1 9:QL1-1 10:QL2-1 11:Q.SUM1 12:SL1-1 13:SL2-1 14:S.SUM1 15:PFL1-1 16:PFL2-1 17:PF.AVG1 2 Loop==> 0:Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:IL1-2 7:IL2-2 8:PL1-1 9:PL2-1 10:P.SUM1 11:QL1-1 12:QL2-1 13:Q.SUM1 14:SL1-1 15;SL2-1 16:S.SUM1 17:PFL1-1 18:PFL2-1 19;PF.AVG1 20:PL1-2 21:PL2-2 22:P.SUM2 23:QL1-2 24:QL2-2 25:Q.SUM2 26:SL1-2 27:SL2-2 28:S.SUM2 29:PFL1-2 30:PFL2-2 31:PF.AVG2	4	R/W
RY4.MD	006Ah	0~5	Relay 4 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY4.SP	006Bh	-32768~32767	Relay 4 set point	4000	R/W
RY4.Sb	006Ch	0~9999	Relay 4 start band	0	R/W
RY4.Sd	006Dh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Hy	006Eh	0~9999	Relay 4 hysteresis time	0	R/ W
RY4.rd	006Fh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Fd	0070h	0000~5999 (0.1second)	Relay 4 de-energizeddelay time	0	R/W

RY5.SL	0071h	1 Loop0~17 2 Loop0~31	Relay 5 action parameters 1 Loop==> 0: Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:PL1-1 7:PL2-1 8:P.SUM1 9:QL1-1 10:QL2-1 11:Q.SUM1 12:SL1-1 13:SL2-1 14:S.SUM1 15:PFL1-1 16:PFL2-1 17:PF.AVG1 2 Loop==> 0:Freq. 1:UL1 2:UL2 3:UL12 4:IL1-1 5:IL2-1 6:IL1-2 7:IL2-2 8:PL1-1 9:PL2-1 10:P.SUM1 11:QL1-1 12:QL2-1 13:Q.SUM1 14:SL1-1 15;SL2-1 16:S.SUM1	4	R/W
RY5.MD	0072h	0~5	Relay 5 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY5.SP	0073h	-32768~32767	Relay 5 set point	5000	R/W
RY5.Sb	0074h	0~9999	Relay 5 start band	0	R/W
RY5.Sd	0075h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Hy	0076h	0~9999	Relay 5 hysteresis time	0	R/W
RY5.rd	0077h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Fd	0078h	0000~5999 (0.1second)	Relay 5 de-energized-delay time	0	R/W

Communication function group

Addr	**007Bh**	**1~255**	**Station number**	**1**	**R/W**
Baud	007Ch	0~5	Transmission rate 0:12001:24002:48003:9600 4:192005:38400	3	R/W
Prity	007Dh	0~3	Parity Check 0:N.8.1 1:N.8.2 2:E.8.1 3:O.8.1	1	R/W
Format	007Eh	0~1	0:High 1:Lo	0	R/W
Date Time function group					
Year	007Fh	2000~2099	Year	2012	R/W
Month	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
Hour	0082h	0~23	Time	0	R/W
Minute	0083h	0~59	Minute	0	R/W

Second	0084h	0~59	Second	0	R/W

Date Time function group

Year	**007Fh**	**2000~2099**	**Year**	**2012**	**R/W**
Month	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
Hour	0082h	0~23	Time	0	R/W
Minute	0083h	0~59	Minute	0	R/W
Second	0084h	0~59	Second	0	R/W

FLASHread(CODE ：03h , 06h)

	0200h		The number of each record WORD		
	0201h		Unread items		R
	0202h		Read the next record, if no data returned error code 0020h		R
	0203h	0~2	Read status reports 0:Clear all records 1:Give up this read 2:Read successfully		W
	0204H	0~1	Stop recording0:Stop1:Restart	1	R/W

FLASH setting (CODE ：03h , 06h , 10h)

	0210h	0~1	0:Full Record 1:Individual choice	0	R/ W
	0211h	1~32767	The value of the recording interval	15	R /W
	0212h	0~3	Recording interval time units 0:sec 1:min2:hour3:day	1	R/ W
	0213h	2000~2099	Start recording time -Year	2012	R/ W
	0214h	1~12	Start recording time -Month	1	R/ W
	0215h	1~31	Start recording time -Day	1	R/ W
	0216h	0~23	Start recording time -Hour	0	R/ W
	0217h	0~59	Start recording time -Minute	0	R/ W
	0218h	0~59	Start recording time -Second	0	R/ W
	0219h	2000~2099	Stop recording time- Year	2012	R/ W
	021Ah	1~12	Stop recording time- Month	1	R/ W
	021Bh	1~31	Stop recording time- Day	1	R/ W
	021Ch	0~23	Stop recording time- Hour	0	R/ W
	021Dh	0~59	Stop recording time- Minute	0	R/ W
	021Eh	0~59	Stop recording time- Second	0	R /W
	021Fh	0~1	Stop / Start recording 0:Stop1:Start	0	R/ W

Record field01	0220h	1loop 0~20 2loop 0~36	Record field, store the recorded content index 1 Loop==> 0:none1: Freq. 2:UL1 3:UL2 4:UL12 5:IL1-1 6: IL2-1 7: PL1-1 8: PL2- 1 9: P. SUM1 10:QL1-1 11: QL2-1 12: Q. SUM1 13: SL1- 1 14:SL2-1 15: S. SUM1 16: PFL1- 117: PFL2- 1 18:PF.AVG1 19:A .E1 20:R .E1 2 Loop==> 0:none1: Freq. 2:UL1 3:UL2 4:UL12 5:IL1- 16: IL2-1 7: IL1-2 8: IL2- 29: PL1- 1 10:PL2-1 11: P. SUM1 12: QL1- 113: QL2- 1 14:Q.SUM1 15: SL1-1 16: SL2- 117: S. SUM1 18:PFL1-1 19: PFL2-1 20: PF. AVG1 21: PL1-2 22:PL2-2 23: P. SUM2 24: QL1- 225: QL2- 2 26:Q.SUM2 27: SL1-2 28: SL2- 229: S. SUM2 30:PFL1-2 31: PFL2-2 32: PF. AVG2 33: A. E1 34:R .E1 35:A .E2 36:R .E2	R/ W
Record field02	0221h			R/ W
Record field03	0222h			R/ W
Record field04	0223h			R/ W
Record field05	0224h			R/ W
Record field06	0225h			R/ W
Record field07	0226h			R/ W
Record field08	0227h			R/ W
Record field09	0228h			R/ W
Record field10	0229h			R/ W
Record field11	022Ah			R/ W
Record field12	022Bh			R/ W
Record field13	022Ch			R/ W
Record field14	022Dh			R/ W
Record field15	022Eh			R/ W
Record field16	022Fh			R/ W
Record field17	0230h			R/ W
Record field18	0231h			R/ W
Record field19	0232h		initial(Full Record) 1 loop==> Record field01~Record field20 Sequence1 ~20 , Record field21~ Record field41are all 0 2 loop==> Record field01~Record field36Sequence1 ~36 , Record field37~ Record field41 are all 0 initial Record field01~Record field41 are all 0	R/ W
Record field20	0233h			R/ W
Record field21	0234h			R/ W
Record field22	0235h			R/ W
Record field23	0236h			R/ W
Record field24	0237h			R/ W
Record field25	0238h			R/ W
Record field26	0239h			R/ W
Record field27	023Ah			R/ W
Record field28	023Bh			R/ W
Record field29	023Ch			R/ W
Record field30	023Dh			R/ W
Record field31	023Eh			R/ W
Record field32	023Fh			R/ W
Record field33	0240h			R/ W
Record field34	0241h			R/ W
Record field35	0242h			R/ W
Record field36	0243h			R/ W
Record field37	0244h			R/ W
Record field38	0245h			R/ W
Record field39	0246h			R/ W
Record field40	0247h			R/ W
Record field41	0248h			R/ W

3P3W Measurement screen quickly read the information(CODE :03h):

Name	Address	Range	Explain	Initial	R/W
Freq	0000h	4500~6500	Frequency		R
UAB	0001h	0~9999	A-B phase line voltage		R
UBC	0002h	0~9999	B-C phase line voltage		R
UCA	0003h	0~9999	C-A phase line voltage		R
ULL.AVG	0004h	0~9999	Average line voltage		R
IA1	0005h	0~9999	Loop 1 A phase line current		R
IB1	0006h	0~9999	Loop 1 B phase line current		R
IC1	0007h	0~9999	Loop 1 C phase line current		R
I.AVG1)	0008h	0~9999	Loop 1 Average line current		R
IA2	0009h	0~9999	Loop 2 A phase line current		R
IB2	000Ah	0~9999	Loop 2 B phase line current		R
IC2	000Bh	0~9999	Loop 2 C phase line current		R
I.AVG2	000Ch	0~9999	Loop 2 Average line current		R
PA1	000Dh	-32768~32767	Loop 1 A-B phase active power		R
PC1	000Eh	-32768~32767	Loop 1 C-B phase active power		R
P.SUM1	000Fh	-32768~32767	Loop 1 total active power		R
QA1	0010h	-32768~32767	Loop 1 A-B phase reactive power		R
QC1	0011h	-32768~32767	Loop 1 C-B phase reactive power		R
Q.SUM1	0012h	-32768~32767	Loop 1 total reactive power		R
SA1	0013h	0~32767	Loop 1 A-B apparent power		R
SC1	0014h	0~32767	Loop 1 C-B apparent power		R
S.SUM1	0015h	0~32767	Loop 1 total apparent power		R
PFA1	0016h	-1 000~1.000	Loop 1 A-B phase Power Factor		R
PFC1	0017h	-1 000~1.000	Loop 1 B-C phase Power Factor		R
PF.AVG1	0018h	-1 000~1.000	Loop 1 average power factor		R
PA2	0019h	-32768~32767	Loop 2 A-B phase active power		R
PC2	001Ah	-32768~32767	Loop 2 C-B phase active power		R
P.SUM2	001Bh	-32768~32767	Loop 2 total active power		R
QA2	001Ch	-32768~32767	Loop 2 A-B phase reactive power		R
QC2	001Dh	-32768~32767	Loop 2 C-B phase reactive power		R
Q.SUM2	001Eh	-32768~32767	Loop 2 total reactive power		R
SA2	001Fh	0~32767	Loop 2 A-B apparent power		R
SC2	0020h	0~32767	Loop 2 C-B apparent power		R
S.SUM2	0021h	0~32767	Loop 2 total apparent power		R
PFA2	0022h	-1 000~1.000	Loop 2 A-B phase Power Factor		R
PFC2	0023h	-1 000~1.000	Loop 2 B-C phase Power Factor		R
PF.AVG2	0024h	-1 000~1.000	Loop 2 average power factor		R
A.E1	0027h	0~999999kWh	Loop 1 total active energy (High Word)		R
A.E1	0028h		Loop 1 total active energy (Low Word)		R
R.E1	0029h	0~999999kVARh	Loop 1 total reactive energy (High Word)		R
R.E1	002Ah		Loop 1 total reactive energy (Low Word)		R
A.E2	002Bh	0~999999kWh	Loop 2 total active energy (High Word)		R

A.E2	002Ch		Loop 2 total active energy (Low Word)		R
R.E2	002Dh	0~999999kVARh	Loop 2 total reactive energy (High Word)		R
R.E2	002Eh		Loop 2 total reactive energy (Low Word)		R

Relay Status and Control(CODE : 01h , 05h):

	0000h		Relay 1	bit0~bit4 behalf relay 1~relay 5 state,1=on, 0=off;code 05 is relay control, at register address write		R/W
	0001h		Relay 2			R/W
	0002h		Relay 3			R/W
	0003h		Relay 4			R/W
	0004h		Relay 5			R/W

General operating Level(CODE : 03h , 06h , 10h): Input Group

WIRE	003Fh	0~5	0:1P2W1:1P3W2:3P3W3:3P4W 4:3P3W-b5:3P4W-b		R
LOOP	0040h	0~1	number of loop 0: 1LOOP 1: 2LOOP		R
FLASH	0041h	0~65535	FLASH remaining time		R
U.UNIT	0043h	0~1	PT primary voltage unit 0:V 1:kV	0	R/W
PT. PRI	0044h		PT primary voltage	5000	R /W
PT. SEC	0045h		PT primary voltage	5000	R/W
CT.PRI	0046h		CT primary current	50	R/W
V.UNT	0047h	0~4	Voltage display unit and resolution setting 0:0.1 1:1 2:0.01k 3:0.1k 4:1k (V)	0	R/W
I.UNT	0048h	0~3	Current display units and resolution setting 0:0.001 1:0.01 2:0.1 3:1 (A)	0	R/W
W.UNT	0049h	0~7	Power display unit and resolution settings 0:0.1 1:1 2:0.01k 3:0.1k 4:1k 5:0.01M 6:0.1M 7:1M(W)	0	R/W
Lo.CUT	004Ah	0~10000	Current display low cut	40	R/W
P.COD E	004Bh	0~9999	Modify the P.COD	1000	R /W
b.Light	004Ch	0~15	Backlight time 0(Always lights)~15Min	1	R/W

dSPLY	004Dh	1Loop0~22 2Loop0~40	Select Permanent screen 1Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5: IA1 6:IB1 7:IC1 8:I .AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 21:A.E1 22;R.E1 2Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I .AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2 37:A.E1 38:R.E1 39;A.E2 40:R.E2	0	R/W
F:LOCK	004Eh	0~3	0:NONE 1:USER 2.ENG. 3:ALL	0	R/W
EEP STA-TUS	004Fh	0~3	0:OK 1:EEPROMNG 2:FLASHING 3:EEPROM & FLASHING	0	R
tL.rst	0050h		Clear Energy (Write 2100)	0	R/W

Relay output function group

RY1.SL	0051h	1Loop0~20 2Loop0~36	Relay 1 action parameters 1 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 2 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I.AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2	8	R/W
RY1.MD	0052h	0~5	Relay 1 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY1.SP	0053h	-32768~32767	Relay 1 set point	1000	R/W
RY1.Sb	0054h	0~9999	Relay 1 start band	0	R/W
RY1.Sd	0055h	0000~5999 (0.1second)	Relay1start delay time	0	R/W

RY1.Hy	0056h	0~9999	Relay 1 hysteresis time	0	R/W
RY1.rd	0057h	0000~5999 (0.1second)	Relay 1 start delay time	0	R/W
RY1.Fd	0058h	0000~5999 (0.1second)	Relay 1 de-energizeddelay time	0	R/W

RY2.SL	9h	1Loop 0~20 2Loop 0~36	Relay 2 action parameters 1Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 2 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I.AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2	8	R/W
RY2.MD	005Ah	0~5	Relay 2 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY2.SP	005Bh	-32768~32767	Relay 2 set point	2000	R/W
RY2.Sb	005Ch	0~9999	Relay 2 start band	0	R/W
RY2.Sd	005Dh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Hy	005Eh	0~9999	Relay 2 hysteresis time	0	R/ W
RY2.rd	005Fh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Fd	0060h	0000~5999 (0.1second)	Relay 2 de-energizeddelay time	0	R/W

RY3.SL	0061h	1Loop 0~20 2Loop 0~36	Relay 3 action parameters 1 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 2 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I.AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2	8	R/W
RY3.MD	0062h	0~5	Relay 3 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY3.SP	0063h	-32768~32767	Relay 3 action mode	3000	R/W
RY3.Sb	0064h	0~9999	Relay 3 start band	0	R/W
RY3.Sd	0065h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Hy	0066h	0~9999	Relay 3 hysteresis time	0	R/W
RY3.rd	0067h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Fd	0068h	0000~5999 (0.1second)	Relay 3 de-energizeddelay time	0	R/W

RY4.SL	0069h	1Loop 0~20 2Loop 0~36	Relay 4 action parameters 1 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 2 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I.AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2	8	R/W
RY4.MD	006Ah	0~5	Relay 4 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY4.SP	006Bh	-32768~32767	Relay 4 set point	4000	R/W
RY4.Sb	006Ch	0~9999	Relay 4 start band	0	R/ W
RY4.Sd	006Dh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Hy	006Eh	0~9999	Relay 4 hysteresis time	0	R/ W
RY4.rd	006Fh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Fd	0070h	0000~5999 (0.1second)	Relay 4 de-energizeddelay time	0	R/W

RY5.SL	0071h	1Loop 0~20 2Loop 0~36	Relay 5 action parameters 1Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:PA1 10:PC1 11:P.SUM1 12:QA1 13:QC1 14:Q.SUM1 15:SA1 16:SC1 17:S.SUM1 18:PFA1 19:PFC1 20:PF.AVG1 2 Loop==> 0:Freq. 1:UAB 2:UBC 3:UCA 4:ULL.AVG 5:IA1 6:IB1 7:IC1 8:I.AVG1 9:IA2 10:IB2 11:IC2 12:I.AVG2 13:PA1 14:PC1 15:P.SUM1 16:QA1 17:QC1 18:Q.SUM1 19:SA1 20:SC1 21:S.SUM1 22:PFA1 23:PFC1 24:PF.AVG1 25:PA2 26:PC2 27:P.SUM2 28:QA2 29:QC2 30:Q.SUM2 31:SA2 32:SC2 33:S.SUM2 34:PFA2 35:PFC2 36:PF.AVG2	8	R/W
RY5.MD	0072h	0~5	Relay 5 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY5.SP	0073h	-32768~32767	Relay 5 set point	5000	R/W
RY5.Sb	0074h	0~9999	Relay 5 start band	0	R/W
RY5.Sd	0075h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Hy	0076h	0~9999	Relay 5 hysteresis time	0	R/W
RY5.rd	0077h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Fd	0078h	0000~5999 (0.1second)	Relay 5 de-energizeddelay time	0	R/W

Communication function group

Addr	**007Bh**	**1~255**	**Station number**	**1**	**R/W**
Baud	007Ch	0~5	Transmission rate 0:12001:24002:48003:9600 4:192005:38400	3	R/W
Prity	007Dh	0~3	Parity Check 0:N.8.1 1:N.8.2 2:E.8.1 3:O.8.1	1	R/W
Format	007Eh	0~1	0:High 1:Lo	0	R/W

Date Time function group

Year	**007Fh**	**2000~2099**	**Year**	**2012**	**R/W**
Month	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
Hour	0082h	0~23	Hour	0	R/W
Minute	0083h	0~59	Time	0	R/W

Second	0084h	0~59	Second	0	R/W

FLASH read(CODE : 03h , 06h)

	0200h		The number of each record WORD		R
	0201h		Unread items		R
	0202h		Read the next record, if no data returned error code 0020h		R
	0203h	0~2	Read status reports 0:Clear all records 1:Give up this read 2:Read successfully		W
	0204h	0~1	Stop recording 0:Stop1:Restart	1	R/W

FLASH setting(CODE : 03h , 06h , 10h)

	0210h	0~1	0:Full Record 1:Individual choice	0	R/W
	0211h	1~32767	The value of the recording interval time	15	R/W
	0212h	0~3	Recording interval time units 0:sec 1:min2:hour3:day	1	R/W
	0213h	2000~2099	Start recording time -Year	2012	R/W
	0214h	1~12	Start recording time -Month	1	R/W
	0215h	1~31	Start recording time -Day	1	R/W
	0216h	0~23	Start recording time -Hour	0	R/W
	0217h	0~59	Start recording time -Minute	0	R/W
	0218h	0~59	Start recording time -Second	0	R/W
	0219h	2000~2099	Stop recording time-Year	2012	R/W
	021Ah	1~12	Stop recording time-Month	1	R/W
	021Bh	1~31	Stop recording time-Day	1	R/W
	021Ch	0~23	Stop recording time-Hour	0	R/W
	021Dh	0~59	Stop recording time-Minute	0	R/W
	021Eh	0~59	Stop recording time-Second	0	R/W
	021Fh	0~1	Stop / Start recording 0:Stop1:Start	0	R/W

Record field01	0220h	1Loop0~23 2Loop0~41 1Loop(Balanced) 0~15 2Loop(Balanced) 0~25	Record field, store the recorded content index 1Loop==> 0: none1: Freq. 2: UAB 3: UBC 4: UCA 5: ULL. AVG 6: IA1 7: IB1 8: IC1 9: I. AVG1 10PA1 11:PC1 12: P. SUM1 13: QA1 14: QC1 15: Q. SUM1 16: SA1 17: SC1 18: S. SUM1 19: PFA1 20: PFC1 21: PF. AVG1 22; A. E1 23: R. E1 2Loop==> 0: none1: Freq. 2: UAB 3: UBC 4: UCA 5: ULL. AVG 6: IA1 7: IB1 8: IC1 9: I. AVG1 10: IA2 11: IB2 12: IC2 13: I. AVG2 14: PA1 15: PC1 16: P. SUM1 17: QA1 18: QC1 19: Q. SUM1 20: SA1 21: SC1 22: S. SUM1 23: PFA1 24: PFC1 25: PF. AVG1 26: PA2 27: PC2 28: P. SUM2 29: QA2 30: QC2 31: Q. SUM2 32: SA2 33: SC2 34: S. SUM2 35: PFA2 36: PFC2 37: PF. AVG2 38: A. E1 39: R. E1 40: A. E2 41: R. E2 1Loop(Balanced)==> 0: none1: Freq. 2: UAB 3: UBC 4: UCA 5: ULL. AVG 6: IA1 7: PA1 8: P. SUM1 9: QA1 10: Q. SUM1 11: SA1 12: S. SUM1 13: PFA1 14: A. E1 15: R. E1 2Loop(Balanced)==> 0: none1: Freq. 2: UAB 3: UBC 4: UCA 5: ULL. AVG 6: IA1 7: IA2 8: PA1 9: P. SUM1 10: QA1 11: Q. SUM1 12: SA1 13: S. SUM1 14: PFA1 15: PA2 16: P. SUM2 17: QA2 18: Q. SUM2 19: SA2 20: S. SUM2 21: PFA2 22: A. E1 23: R. E1 24: A. E2 25: R. E2	R/ W
Record field02	0221h			R/ W
Record field03	0222h			R/ W
Record field04	0223h			R/ W
Record field05	0224h			R/ W
Record field06	0225h			R/ W
Record field07	0226h			R/ W
Record field08	0227h			R/ W
Record field09	0228h			R/ W
Record field10	0229h			R/ W
Record field11	022Ah			R/ W
Record field12	022Bh			R/ W
Record field13	022Ch			R/ W
Record field14	022Dh			R/ W
Record field15	022Eh			R/ W
Record field16	022Fh			R/ W
Record field17	0230h			R/ W
Record field18	0231h			R/ W
Record field19	0232h			R/ W
Record field20	0233h			R/ W
Record field21	0234h			R/ W
Record field22	0235h			R/ W
Record field23	0236h			R/ W
Record field24	0237h			R/ W
Record field25	0238h			R/ W
Record field26	0239h			R/ W
Record field27	023Ah			R/ W
Record field28	023Bh			R/ W
Record field29	023Ch			R/ W
Record field30	023Dh			R/ W
Record field31	023Eh			R/ W
Record field21	023Fh		initial(Full Record) 1loop==> Record field 01Record field23 Sequence 1 ~23 , Record field24~ Record field41 all 0 2loop==> Record field01~Record field 41Sequence 1 ~41 1loop(Balanced)==> Record field 01~Record field15Sequence1~15, Sequence16~ Sequence41all 0 2loop(Balanced)==> Record field01~Record field 25 Sequence1 ~25 , Sequence26~ Sequence41all 0 initial Record field01~Record field 41 all 0	R/ W
Record field33	0240h			R/ W
Record field34	0241h			R/ W
Record field35	0242h			R/ W
Record field36	0243h			R/ W
Record field37	0244h			R/ W
Record field38	0245h			R/ W
Record field39	0246h			R/ W
Record field40	0247h			R/ W
Record field41	0248h			R/ W

3P4W Measurement screen quickly read the information(CODE : 03h):

Name	Address	Range	Explain	Initial	R/W
Freq.	0000h	45.00~65.00	Frequency		R
UA	0001h	0~9999	A phase-phase voltage		R
UB	0002h	0~9999	B phase-phase voltage		R
UC	0003h	0~9999	C phase-phase voltage		R
ULN.AVG	0004h	0~9999	Average phase voltage		R
UAB	0005h	0~9999	A-B phase line voltage		R
UBC	0006h	0~9999	B-C phase line voltage		R
UCA	0007h	0~9999	C-A phase line voltage		R
ULL.AVG	0008h	0~9999	Average line voltage		R
IA	0009h	0~9999	A phase line current		R
IB	000Ah	0~9999	B phase line current		R
IC	000Bh	0~9999	C phase line current		R
IN	000Ch	0~9999	Neutral current		R
I.AVG	000Dh	0~9999	Average current		R
PA	000Eh	-32768~32767	A phase active power		R
PB	000Fh	-32768~32767	B phase active power		R
PC	0010h	-32768~32767	C phase active power		R
P.SUM	0011h	-32768~32767	total active power		R
QA	0012h	-32768~32767	A phase reactive power		R
QB	0013h	-32768~32767	B phase reactive power		R
QC	0014h	-32768~32767	C phase reactive power		R
Q.SUM	0015h	-32768~32767	total reactive power		R
SA	0016h	0~32767	A apparent power		R
SB	0017h	0~32767	B apparent power		R
SC	0018h	0~32767	C apparent power		R
S.SUM	0019h	0~32767	total apparent power		R
PFA	001Ah	-1.000~1.000	A phase Power Factor		R
PFB	001Bh	-1.000~1.000	B phase Power Factor		R
PFC	001Ch	-1.000~1.000	C phase Power Factor		R
PF.AVG	001Dh	-1.000~1.000	average power factor		R
A.E1	0027h	0~99999.9kWh	Loop 1 total active energy (High Word)		R
A.E1	0028h		Loop 1 total active energy (Low Word)		R
R.E1	0029h	0~99999.9kVARh	Loop 1 total reactive energy (High Word)		R
R.E1	0030h		Loop 1 total reactive energy (Low Word)		R

Relay Status and Control(CODE : 01h , 05h):

	0000h		Relay 1	bit0~bit4 behalf relay 1~relay 5 state,1=on, 0=off;code 05 is relay control, at register address write		R/W
	0001h		Relay 2			R/W
	0002h		Relay 3			R/W
	0003h		Relay 4			R/W
	0004h		Relay 5			R/W

General operating Level(CODE : 03h , 06h , 10h):

WIRE	003Fh	0~5	0:1P2W1:1P3W2:3P3W3:3P4W 4:3P3W-b5:3P4W-b		R
LOOP	0040h	0	number of loop0: 1LOOP		R
FLASH	0041h	0~65535	FLASH remaining time		R

General operating Level(CODE : 03h , 06h , 10h): Input Group

U.UNIT	0043h	0~1	PT primary voltage unit 0:V 1:kV	0	R/W
PT.PRI	0044h		PT primary voltage	5000	R /W
PT.SEC	0045h		PT secondary voltage	5000	R/W
CT.PRI	0046h		CT primary current	50	R/W
V.UNT	0047h	0~4	Voltage display unit and resolution setting 0:0.1(V) 1:1(V) 2:0.01k(V) 3:0.1k(V) 4:1k(V)	0	R/W
I.UNT	0048h	0~3	Current display units and resolution setting 0:0.001(A) 1:0.01(A) 2:0.1(A) 3:1(A)	0	R/W
W.UNT	0049h	0~7	Power display unit and resolution settings 0:0.1(W) 1:1(W)2:0.01k(W) 3:0.1k(W)4:1k(W)5:0.01M(W) 6:0.1M(W)7:1M(W)	2	R/W
Lo.CUT	004Ah	0~10000	Current display low cut	40	R/W
P.CODE	004Bh	0~9999	Modify the P.COD	1000	R /W
b.Light	004Ch	0~15	Backlight time 0(Always lights)~15Min	1	R/W
dSPLY	004Dh	0~31	Select Permanent screen 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23:SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG 30:A.E1 31:R.E1	0	R/W
F.LOCK	004Eh	0~3	0:NONE 1:USER 2.ENG. 3:ALL	0	R/W
EEP STSTUS	004Fh	0~3	0:OK 1:EEPROMNG 2:FLASHING 3:EEPROM & FLASHING	0	R
tL.rst	0050h		Clear Energy (Write 2100)	0	R/W

Relay Status and Control(CODE : 01h , 05h):

	0000h		Relay 1 status	bit0~bit4 behalf relay 1~relay 5 state,1=on, 0=off;code 05 is relay control, at register address write Ff00h or 0000hmake the relay on or off? Be noted,relay mode is Ro write FF00h or 0000h,relay mode is Lo.HLd or Hi.HLd write 0000h, rest model is non-writable		R/W
	0001h		Relay 2 status			R/W
	0002h		Relay 3 status			R/W
	0003h		Relay 4 status			R/W
	0004h		Relay 5 status			R/W

Relay output function group

RY1.SL	0051h	0~29	Relay 1 action parameters 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23:SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG	13	R/W
RY1.MD	0052h	0~5	Relay 1 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY1.SP	0053h	-32768~32767	Relay 1 set point	1000	R/W
RY1.Sb	0054h	0~9999	Relay 1 start band	0	R/W
RY1.Sd	0055h	0000~5999 (0.1second)	Relay1start delay time	0	R/W
RY1.Hy	0056h	0~9999	Relay 1 hysteresis time	0	R/W
RY1.rd	0057h	0000~5999 (0.1second)	Relay 1 start delay time	0	R/W
RY1.Fd	0058h	0000~5999 (0.1second)	Relay 1 de-energizeddelay time	0	R/W
RY2.SL	0059h	0~29	Relay 2 action parameters 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23:SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG	13	R/W
RY2.MD	005Ah	0~5	Relay 2 action mode 0:OFF 1:Lo 2:Hi3:Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY2.SP	005Bh	-32768~32767	Relay 2 set point	2000	R/W
RY2.Sb	005Ch	0~9999	Relay 2 start band	0	R/W
RY2.Sd	005Dh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W

RY2.Hy	005Eh	0~9999	Relay 2 hysteresis time	0	R/ W
RY2.rd	005Fh	0000~5999 (0.1second)	Relay 2 start delay time	0	R/W
RY2.Fd	0060h	0000~5999 (0.1second)	Relay 2 de-energizeddelay time	0	R/W

RY3.SL	0061h	0~29	Relay 3 action parameters 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23:SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG	13	R/W
RY3.MD	0062h	0~5	Relay 3 action mode 0:OFF 1:Lo 2:Hi3: Lo. HLd 4:Hi.HLd5:DO	2	R/W
RY3.SP	0063h	-32768~32767	Relay 3 action mode	3000	R/W
RY3.Sb	0064h	0~9999	Relay 3 start band	0	R/W
RY3.Sd	0065h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Hy	0066h	0~9999	Relay 3 hysteresis time	0	R/W
RY3.rd	0067h	0000~5999 (0.1second)	Relay 3 start delay time	0	R/W
RY3.Fd	0068h	0000~5999 (0.1second)	Relay 3 de-energizeddelay time	0	R/W
RY4.SL	0069h	0~29	Relay 4 action parameters 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23:SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG	13	R/W
RY4.MD	006Ah	0~5	Relay 4 action mode 0:OFF 1:Lo 2:Hi3: Lo. HLd 4:Hi.HLd5:RO	2	R/W
RY4.SP	006Bh	-32768~32767	Relay 4 set point	4000	R /W
RY4.Sb	006Ch	0~9999	Relay 4 start band	0	R/ W
RY4.Sd	006Dh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Hy	006Eh	0~9999	Relay 4 hysteresis time	0	R/ W
RY4.rd	006Fh	0000~5999 (0.1second)	Relay 4 start delay time	0	R/W
RY4.Fd	0070h	0000~5999 (0.1second)	Relay 4 de-energizeddelay time	0	R/W

RY5.SL	0071h	0~29	Relay 5 action parameters 0:Freq. 1:UA 2:UB 3:UC 4:ULN.AVG 5:UAB 6:UBC 7:UCA 8:ULL.AVG 9:IA 10:IB 11:IC 12:IN 13:I.AVG 14:PA 15:PB 16:PC 17:P.SUM 18:QA 19:QB 20:QC 21:Q.SUM 22:SA 23: SB 24:SC 25:S.SUM 26:PFA 27:PFB 28:PFC 29:PF.AVG	13	R/W
RY5.MD	0072h	0~5	Relay 5 action mode 0:OFF 1:Lo 2:Hi 3: Lo.HLd 4:Hi.HLd5:RO	2	R/W
RY5.SP	0073h	-32768~32767	Relay 5 set point	5000	R/W
RY5.Sb	0074h	0~9999	Relay 5 start band	0	R/W
RY5.Sd	0075h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Hy	0076h	0~9999	Relay 5 hysteresis time	0	R/W
RY5.rd	0077h	0000~5999 (0.1second)	Relay 5 start delay time	0	R/W
RY5.Fd	0078h	0000~5999 (0.1second)	Relay 5 de-energizeddelay time	0	R/W

Communication function group

Addr	**007Bh**	**1~255**	**Station number**	**1**	**R/W**
Baud	007Ch	0~5	Transmission rate 0:12001:24002:48003:9600 4:192005:38400	3	R/W
Prity	007Dh		Parity Check 0:N.8.1 1:N.8.2 2:E.8.1 3:O.8.1	1	R/W
Format	007Eh	0~1	0:High 1:Lo	0	R /W

Date Time function group

Year	007Fh	2000~2099	Year	2012	R/W
Month	0080h	1~12	Month	1	R/W
Day	0081h	1~31	Date	1	R/W
Hour	0082h	0~23	Time	0	R/W
Minute	0083h	0~59	Minute	0	R/W
Second	0084h	0~59	Second	0	R/W

FLASH read(CODE : 03h , 06h)

	0200h		The number of each record WORD		R
	0201h		Unread items		R
	0202h		Read the next record, if no data returned error code 0020h		R
	0203h	0~2	Read status reports 0:Clear all records 1:Give up this read 2:Read successfully		W

	0204h	0~1	Stop recording 0:Stop1:Restart	1	R/W

FLASH setting (CODE : 03h , 06h , 10h)

	0210h	0~1	0:Full Record 1:Individual choice	0	R/ W
	0211h	1~32767	The value of the recording interval	15	R /W
	0212h	0~3	Recording interval time units 0:sec 1:min2:hour3:day	1	R/ W
	0213h	2000~2099	Start recording time -Year	2012	R/ W
	0214h	1~12	Start recording time -Month	1	R/ W
	0215h	1~31	Start recording time -Day	1	R/ W
	0216h	0~23	Start recording time -Hour	0	R/ W
	0217h	0~59	Start recording time -Minute	0	R/ W
	0218h	0~59	Start recording time -Second	0	R/ W
	0219h	2000~2099	Stop recording time- Year	2012	R/ W
	021Ah	1~12	Stop recording time- Month	1	R/ W
	021Bh	1~31	Stop recording time- Day	1	R/ W
	021Ch	0~23	Stop recording time- Hour	0	R/ W
	021Dh	0~59	Stop recording time- Minute	0	R/ W
	021Eh	0~59	Stop recording time- Second	0	R /W
	021Fh	0~1	Stop / Start recording 0:Stop1:Start	0	R/ W

Record	0220h	1Loop0~32 1Loop(Balanced) 0~19	Record field, store the recorded content index 1Loop==> 0:none1: Freq. 2: UA 3: UB 4: UC 5:ULN.AVG 6:UAB 7:UBC 8:UCA 9:ULL.AVG 10:IA 11:IB 12: IC 13: IN 14:I.AVG 15:PA 16:PB 17: PC 18: P. SUM 19:QA 20:QB 21:QC 22: Q. SUM 23: SA 24:SB 25:SC 26:S.SUM 27: PFA 28: PFB 29:PFC 30:PF.AVG 31: A. E1 32: R. E1 1 loop(Balanced)==> 0:none1: Freq. 2: UA 3: UB 4: UC 5:ULN.AVG 6:UAB 7:UBC 8:UCA 9:ULL.AVG 10:IA 11:PA 12: P. SUM 13: QA 14:Q.SUM 15:SA 16: S. SUM 17: PFA 18:A.E1 19:R.E1	R/W
Record	0221h			R/W
Record	0222h			R/W
Record	0223h			R/W
Record	0224h			R/W
Record	0225h			R/W
Record	0226h			R/W
Record	0227h			R/W
Record	0228h			R/W
Record	0229h			R/W
Record	022Ah			R/W
Record	022Bh			R/W
Record	022Ch			R/W
Record	022Dh			R/W
Record	022Eh			R/W
Record	022Fh			R/W
Record	0230h			R/W
Record	0231h			R/W
Record	0232h		initial(Full Record) 1loop==> Record field01~Record field20 Sequence1~20, Record field21~Record field41all 0 2loop==> Record field01~Record field36 Sequence1~36, Record field37~ Record field41all 0 initial Record field 01~Record field 41 all 0	R/W
Record	0233h			R/W
Record	0234h			R/W
Record	0235h			R/W
Record	0236h			R/W
Record	0237h			R/W
Record	0238h			R/W
Record	0239h			R/W
Record	023Ah			R/W
Record	023Bh			R/W
Record	023Ch			R/W
Record	023Dh			R/W
Record	023Eh			R/W
Record	023Fh			R/W
Record	0240h			R/W
Record	0241h			R/W
Record	0242h			R/W
Record	0243h			R/W
Record	0244h			R/W
Record	0245h			R/W
Record	0246h			R/W
Record	0247h			R/W
Record	0248h			R/W

Write this area To define the address, fill in the following table. Done memorandum

For example, 0000h is written to address 1100h, read address 0100h will read the frequency

User-defined area (CODE : 03h , 06h, 10h) :

Defined position UI display	Defined parameter value Temporary Addresses	Read / Write	Predefined address	Defined address parameter temporary	Read / Write
U.DF01V	0100h	R		1100h	R/W
U.DF02V	0101h	R		1101h	R/W
U.DEF03	0102h	R		1102h	R/W
U.DEF04	0103h	R		1103h	R/W
U.DEF05	0104h	R		1104h	R/W
U.DEF06	0105h	R		1105h	R/W
U.DEF07	0106h	R		1106h	R/W
U.DEF08	0107h	R		1107h	R/W
U.DEF09	0108h	R		1108h	R/W
U.DEF10	0109h	R		1109h	R/W
U.DEF11	010Ah	R		110Ah	R/W
U.DEF12	010Bh	R		110Bh	R/W
U.DEF13	010Ch	R		110Ch	R/W
U.DEF14	010Dh	R		110Dh	R/W
U.DEF15	010Eh	R		110Eh	R/W
U.DEF16	010Fh	R		110Fh	R/W
U.DEF17	0110h	R		1110h	R/W
U.DEF18	0111h	R		1111h	R/W
U.DEF19	0112h	R		1112h	R/W
U.DEF20	0113h	R		1113h	R/W

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All product specifications are subject to change without notice.