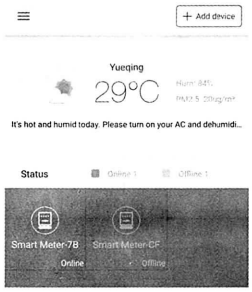
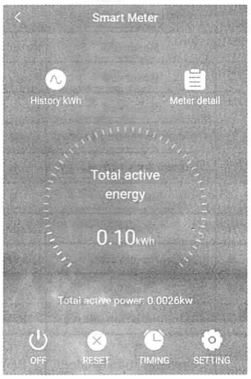
4 APP Menu instruction

The meter will display online or offline after you add the device successfully . You can clicker the device to check the meter detailed information



4.1 You will see the active energy data and remote control button and timing setting button in the menu



Control button : used for control on / off of meter output

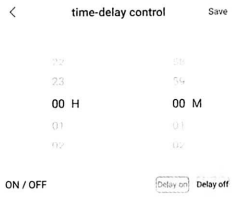
Reset button: used for reset the total active energy to zero

Timing button: used for timing control on/off and time delay control on/off

A. time control :you can add the time which is control and which is control off ,if you do not select week , it will save as single time control . if you select the week, it will save as cycle control .

B. time-delay control : you can set 1minute to 24hour max to time delay control. For example ,you can use delay time control to control off the Battery car charging after 2hours .

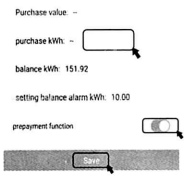
A



B

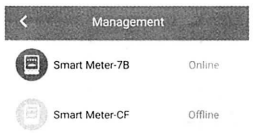
the meter do not have time clock internal ,the time control is decide to cloud serve, so make sure the meter connect the available WIFI network.

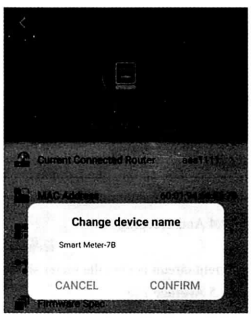
Setting button : for protection value and unit price ,starting active energy value setting .



If you open the prepayment function ,you can purchase kWh energy and click save, then APP will write the balance kWh value into the meter . when the meter balnce value used up to zero, the meter will cut off load automatic. when you closed the prepayment function , the meter will recover to the normal function using .

6.1 Management : you can change the name of your meter and delete the meter from your device list





6.2 Smart interaction: you can use voice to control the meter on/off , now only support the Cat Elf smart sound and Echo smart sound device

Note: If your wifi network is not well, you can buy wifi meter with external antenna.

HIKING

DTS238-7 WIFI

Three Phase Smart Meter

USER MANUAL

7. Transportation and Storage

7.1 Heavy impact should be burdened to the products while transportation and unpacking.

7.2 The products should be stored in the original package and kept in place with temperature between -40℃～+70℃,the relative humidity less than 75% and no corrosive gas around .

7.3 In storehouse , the meter should be placed on the shelf when kept in stock , there should not be more than 7 cartons piled up in vertical. Single-packed meters can not be piled up with more than 5 meters in vertical.

8. Warranty period

Within 12 months from the day of selling and provided that users operate correctly according to the requirement of the user's manual , if the meter doesn't reach its technical specification. It can be repaired or replaced in free f charge by the manufacturer .

9. Frame format

9.1 Read command（function code 03）

Send frame

Meter ID	Function code	Register address	Data number	Check code (CRC)
1byte	1byte	2byte	2byte	2byte

Receive frame

Meter ID	Function code	Data length n	Data area	Check code (CRC)
1byte	1byte	1byte	n byte	2byte

9.2 Write command（function code 10）

Send frame

Meter ID	Function code	Register address	Data number	Data length n	Data area	Check code (CRC)
1byte	1byte	2byte	2byte	1byte	n byte	2byte

Receive frame

Meter ID	Function code	Register address	Data number	Check code (CRC)
1byte	1byte	2byte	2byte	2byte

9.3 Energy meter register address

Address	Variable	Belong to R/W	Data format	sign	Data Model
0000H 0001H	Current total energy	R	Each electric energy kWh occupy 4 byte XXXXXX.XX	unsigned	Dword
0002H 0003H	Reserved	Reserved	Reserved	unsigned	Dword
0004H 0005H	Reserved	Reserved	Reserved	unsigned	Dword
0006H 0007H	Reserved	Reserved	Reserved	unsigned	Dword
0008H 0009H	Current reversing energy	R	Each electric energy kWh occupy 4 byte XXXXXX.XX	unsigned	Dword
000AH 000BH	Current forword energy	R	Each electric energy kWh occupy 4 byte XXXXXX.XX	unsigned	Dword
0011H	Frequency	R	XX.XX	unsigned	Word
0012H	Reserved	Reserved	Reserved	unsigned	Dword
0013H	Reserved	Reserved	Reserved	unsigned	Dword
0014H	Reserved	Reserved	Reserved	unsigned	Dword
0015H High Byte	Communication address	R/W	001-247	unsigned	Char
0015H Low byte	Communication baudrate	R/W	01 —— 9600bps(default) 02 —— 4800bps 03 —— 2400bps 04 —— 1200bps	unsigned	Char
0080H	A phase Voltage	R	XXX.X V	unsigned	Word
0081H	B phase Voltage	R	XXX.X V	unsigned	Word
0082H	C phaseVoltage	R	XXX.X V	unsigned	Word
0083H	A phase Current	R	XXX.XX A	unsigned	Word
0084H	B phase Current	R	XXX.XX A	unsigned	Word
0085H	C phaseCurrent	R	XXX.XX A	unsigned	Word
0086H 0087H	Total Active power	R	XX.XXX KW	signed	Dword
0088H	A phase Active power	R	XX.XXX KW	signed	Word
0089H	B phase Active power	R	XX.XXX KW	signed	Word
008AH	C phase Active power	R	XX.XXX KW	signed	Word
008BH 008CH	Total Reactive power	R	XX.XXX Kvar	signed	Dword
008DH	A phase Reactive power	R	XX.XXX Kvar	signed	Word
008EH	B phase Reactive power	R	XX.XXX Kvar	signed	Word

1. General Description

DTS238-7 WIFI type multi-function smart energy meter is designed to measure three phase four wire active energy and variable parameter.The meter have RS485 communication port and WIFI communication, it can use APP for remote reading and control on/off. All of its functions comply with the relative technical requirement for class 1 three phase watt hour meter in IEC62053-21 and its data communication rules obey the requirement of MODBUS-RTU and WIFI 802.11b/g/n.It is a long life meter with the advantage of high stability , high over load capability , low power loss and small volume .

The meter should be installed in suitable environment with ambient temperature range between -25℃～+55℃,the relative humidity less than 75% and temperature limits between and-40℃～+70℃.

The meter is manufactured complying with international standard IEC62052-11 on "Electricity metering equipment (AC) General requirements tests and test conditions" and IEC62053-21 on "Static meters for active energy (classes 1 and 2)".

2.Specification and Technical Parameters

2.1Specification

Meter type	DTS238-7 WIFI
Rate frequency	50 or 60 Hz
Rated current	1.5(6)A,5A/CT,5(60)A,10(80)A
Rate voltage	3X120/208V,3X220/380V,3X230/400V,3X240/415V
Normal voltage range	90%Un～110%Un
Limits voltage range	70%Un～120%Un
kWh Accuracy	Class 1
R.M.S accuracy	Class 0.5
Pulse constant	See meter
RS485 port	MODBUS-RTU protocol, 1200～9600bps,None parity ,default 9600**bps**
WIFI	802.11b/g/n ,only support 2.4GHz network , not support 5GHz network

2.1.1 basic parameters

Delayed power on/off time	60±5s
overvoltage / undervoltage / overload event judgment time	3s
Overvoltage protection value	270V±1(default)，APP can set value
Overvoltage recovery value	260V±1(default)= (APP overvoltage value - 10V)
Undervoltage protection value	170V±1(default)，APP can set value
Undervoltage recovery value	170V±1,(default)= (APP overvoltage value+10V)
Overload protection value	65A(default)， APP can set value
Delay on/off control	00:01—24:00 Hour

Note: when it happens interrupt power-supply , the meter will not cut off , undervoltage event must last 3s , then it will cut off.
the voltage protection set value is according the voltage between phase line and neutral line .

2.2 Technical Parameters

2.2.1 Basic tolerance

Load Current		Power factor (COSΦ)	Basic error(%)
Direct connection	CT connection		1
0.05Ib≤I<0.1Ib	0.02Ib≤I<0.05Ib	1.0	±1.5
0.1Ib≤I≤Imax	0.05Ib≤I≤Imax	1.0	±1.0
0.1Ib≤I<0.2Ib	0.05Ib≤I<0.1Ib	0.5(L) 0.8(C)	±1.5
0.2Ib≤I≤Imax	0.1Ib≤I≤Imax	0.5(L) 0.8(C)	±1.0

2.2.2 Self

Current circuit is less than 1.5VA

Voltage circuit is less than 2W/8VA

2.2.3 Starting current

Under the rated voltage , rated frequency and COSΦ=1 , the meter shall start and continue to register on application of 0.2% In (if CT is used) or 0.4% Ib .

2.2.4 Anti-creeping

The meter has anti-creeping logical circuit. When 115%Un is connected to the meter and current circuit is cut , the meter shall not create more than one pulse in a stipulated time

2.2.5 Average-life

The meter can be used for at least 10 years in normal operation specified in this manual

2.2.6 LCD: 6+2 (999999.99kWh)

3.Basic Features

3.1 Measuring positive & negative active energy with negative energy accumulated into positive energy .

3.2 The meter also display three phase real voltage , real current , real active power , real power factor , real frequency

3.3 Pulse LED indicates working of meter

3.4 RS485 communication port and WIFI communication

3.5 Measuring active energy without calibration under long term operation

3.6 display step by step with button

3.7 it can use APP software for data reading and remoter control on/off.

3.8 it has overvoltage and undervoltage protection , it can set value from APP

3.9 it has overload protection ,it can set value from APP

3.10 it has timing control function , it can set value from APP

3.11 it can reset the active energy to zero from APP

008FH	C phase Reactive power	R	XX.XXX Kvar	signed	Word
0090H 0091H	Total Apparent power	R	XX.XXX Kvar	unsigned	Dword
0092H	A phase Apparent power	R	XX.XXX Kva	unsigned	Word
0093H	B phase Apparent power	R	XX.XXX Kva	unsigned	Word
0094H	C phase Apparent power	R	XX.XXX Kva	unsigned	Word
0095H	Total Power factor	R	X.XXX	unsigned	Word
0096H	A phase Power factor	R	X.XXX	unsigned	Word
0097H	B phase Power factor	R	X.XXX	unsigned	Word
0098H	C phase Power factor	R	X.XXX	unsigned	Word

for data please according to the signed /unsigned to decode (active power or reactive power)

10. Display item

	Display Item		LCD display
01	Impulse constant	imp/kWh	C 0000
02	Total active energy	kWh	000000.0
03	Import active energy	kWh	00000.0
04	Export active energy	kWh	-00000.0
05	Interval active energy	kWh	EP 0000.0
06	A phase real current	A	IA 000.00
07	B phase real current	A	Ib 000.00
08	C phase real current	A	IC 000.00
09	A phase real voltage	V	UC 000.0
10	B phase real voltage	V	Ub 000.0
11	C phase real voltage	V	UC 000.0
12	Total conjunction active power	kw	P 00.00
13	A phase real active power	kw	PA 00.00
14	B phase real active power	kw	Pb 00.00

15	C phase real active power	kw	PC 00.00
16	Total conjunction reactive power	kvar	q 00.00
17	A phase real reactive power	kvar	qA 00.00
18	B phase real reactive power	kvar	qb 00.00
19	C phase real reactive power	kvar	qC 00.00
20	Total conjunction power factor	COSΦ	PF 0.00
21	A phase real power factor	COSΦ	PFA 0.00
22	B phase real power factor	COSΦ	PFb 0.00
23	C phase real power factor	COSΦ	PFC 0.00
24	Frequency	Hz	F 00.00

"WISEN"software instruction

1.Please download the "wisen"software google play or app store

2. Meter input power

When the meter power on , you can push the setting button last 5s , meter enter into the status of waiting for WIFI distribution network and the WIFI led will flash 1s interval . its means meter enter into the status of waiting for WIFI distribution network . if WIFI led light on 5s , light off 0.1s ,it means meter connect the WIFI successfully.

3. Add device

Please check firstly that your telephone have connected the available WIFI network , then click the "add device " button .now the meter only used under 2.4GHz WIFI network , it can not use under 5GHz WIFI network .

4.Working principles

Three phase voltage and current are sampled from respective sampling circuit and transformed into suitable signal, which is carried into integrated circuit , then the meter output pulse signal in positive appropriation to measured power to drive step-motor counter or LCD counter to realize energy measurement. The meter has energy pulse output for testing with pulse width of 80+20ms

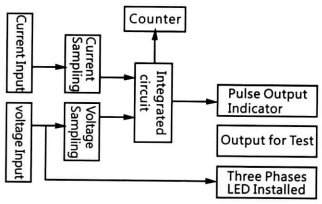


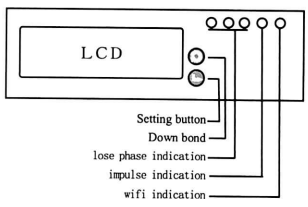
Diagram for Working Principles

5. Structure

The meter consists of meter base , meter cover , terminal base , terminal cover . there are lead seal on meter cover and terminal cover . A special screw is used to fix the terminal cover on which a lead seal can be installed

6. Usage

6.1 schematic diagram



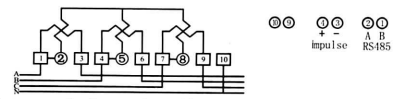
WIFI led indication, if you push the setting button last 5s, the WIFI led will flash 1s interval ,its means meter enter into the status of waiting for WIFI distribution network . if WIFI led light on 5s , light off 0.1s ,it means meter connect the WIFI successfully.

Impulse led indication: it will flash with different speed according the current load of the meter

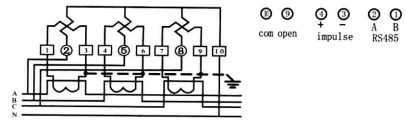
Down bond: you can push this button to check the different data display , it will reset the resettable active energy to zero when you push this button last 5s ,but total active energy will not reset.

Setting button: if you push the setting button last 5s ,meter will enter into the status of waiting for WIFI distribution network .if you want to reset status of WIFI distribution network, you also can push the setting button last 5s.

6.1 Connection diagram



(current wire bottom in and bottom output)
Direct input type connection diagram



(current wire bottom in and bottom output)
Transformer input type connection diagram

Noting: for CT input type connection , the power consumed display in register is not fact power consumed. The fact power= the power display in register of meter X CT rate. For example , the power display in the register is 0.5 kWh and the CT is 800/5A , the fact power consumed=0.5 kWh X 160=80kWh

6.2 Installation

The meter can be installed on a 35 mm DIN rail

6.2.1 The meter can not installed and used until it is checked goods and sealed before delivery

6.2.2 The meter should be install in the water proof box indoor or outdoor . the meter's box should be fixed on strong and flame-resistant wall with a recommended height of about 1.8 m , where there is no corrosive gas around .

6.2.3 The meter should be install fully in accordance with connection diagram on the terminal cover, it is better to use copper as the leading wire for connection. All screws should be tightened.

6.2.4 Diagram for installation dimension