DDZY858

Single-phase Tariff Control Smart Meter

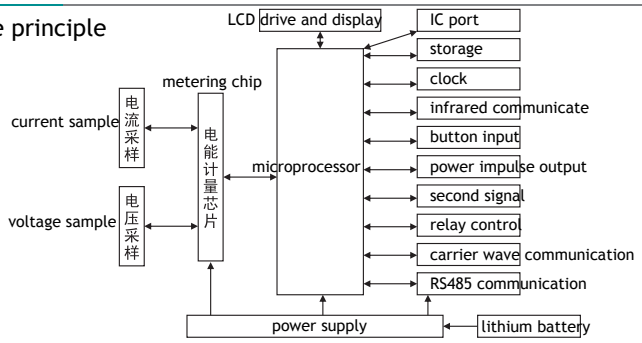


Single-phase tariff control smart meter

1.Summary

Single-phase tariff control smart meter, is used to measure the rated frequency 50Hz single-phase active electric power, to realize the manage function of prepaid before using.
This product adopts the large-scale integrated circuit and SMT technology, the Important Components adopt International brand,low consumption,long life. The product adopts multiply anti-interference technology to improve the reliability and using life,and the digital display adopts LED screen for easy copy.
This tariff measurement, can be stored the total power of the 12 settlement date and the power of each tariff rate. And it has event records function. And it supports the 6 Year time zones,2 Day time period tables,12 Day time periods,4 kinds tariff. And it also has Infrared communication and RS485 communication function to achieve Remote meter reading,and the communication rule conforms to DL/T645-2007.
And it directly and accurately measure the positive and negative active power,and can measure multiple time period according to relative tariff .

2.Operate principle



Working principle frame

energy meter consists of two main functions:1.energy measurement part 2.Microprocessor control part. The measurement part adopts shunt multiplier circuit,produce pulse sequence which means energy consumption and send it to microprocessor to measure,and then the microprocessor transits the data by card port,to realize each function.

3.Specification

connect type	accuracy	rated voltage V	Max current A	Constant
single-phase direct	2.0 level	220	20	3200
		220	30	2400
		220	40	1600
		220	50	1600
		220	60	1200
		220	80	800
single-phase direct	2.0 level	220	100	800
		220	120	600
single-phase through current transformer	2.0 level	220	6	12000

DDZY858

Single-phase Tariff Control Smart Meter

4.Technical index

◆ rated frequency: 50Hz

◆ basic error(see following table)

load current	power factor	basic error (%) 2.0 level
0.05Ib～0.1Ib	1.0	±1.5
0.1Ib～Imax	1.0	±1.0
0.1Ib～0.2Ib	0.5L 0.8C	±1.5
0.2Ib～Imax	0.5L 0.8C	±1.0

◆ start

under power factor 1.0 and current 0.4%Ib,meter shall start and continuous recording

◆ shunt running

When the meter is under 115% reference voltage and circuit without current,meter test output shall produce no more than one impulse.

◆ electrical parameter

Normal voltage: 0.9Un~1.1 Un

Extended voltage: 0.8Un~1.15Un

Ultimate voltage:0.0Un~1.15Un

Insulation voltage:≥2000VAC

power consumption: ≤1.5W and 10VA

◆ environment

Temperature range

◆ Humidity

annual average humidity: ≤75%

30 days in the year(Natural diffusion):max up to 95%

the others can up to 85%

◆ mechanical parameter

shape dimension:160mm x 112mm x 71mm (Local expenses)

Net weight: about 1.1kg

rated range	-25℃～+60℃
ultimate range	-40℃～+70℃
storage and transport range	-40℃～+70℃

5.Install,wiring,and test

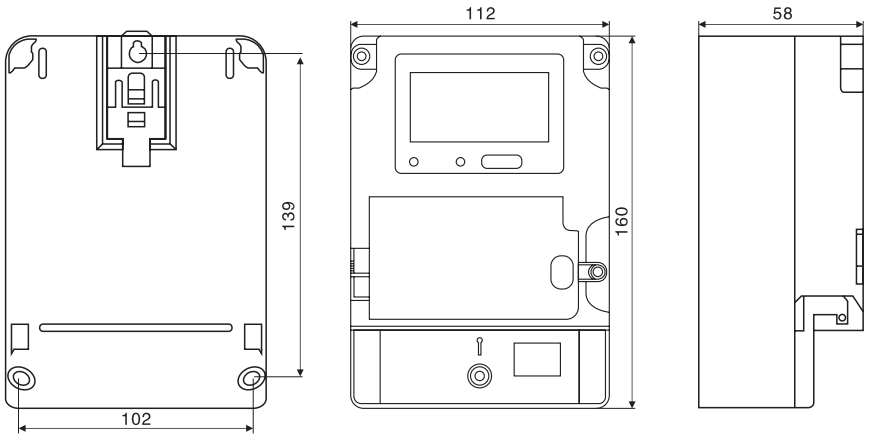
The meter is after inspection and the lead seal can be installed for use.

◆ install

Meter shall install indoors. The hook screw hole is on the meter basic upside. And two install hole is in the bottom of meter,can be fixed on the wiring plate with screw. And the bottom plate shall put on the strong fire resistance wall, Installation height recommended is 1.8m. The install positioning see the following figure:

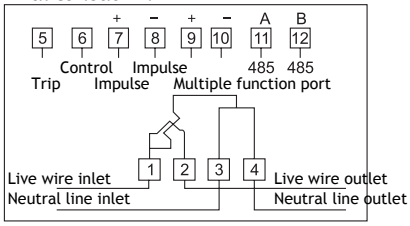
DDZY858

Single-phase Tariff Control Smart Meter

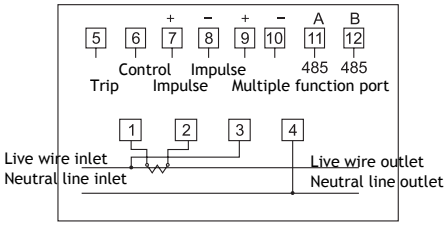


◆ Wiring

meter shall be wiring according to terminal box figure, better to use copper wire or copper terminal to lead in.



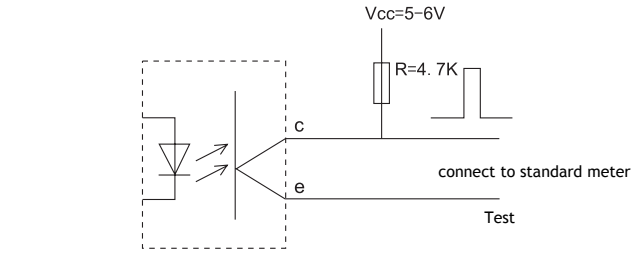
directly connect wiring diagram



Connect to CT wiring diagram

◆ Test

This series meter has Photoelectric coupling test output port,at terminals,see figure,c,e. the wiring type as following:



Meter inside photoelectric coupling output

DDZY858
Single-phase Tariff Control Smart Meter

6.Function and operate

◆ Measurement
a) Forward direction and reserve active power measurement function,can storage the data and Combine active power according to settings.
b) Time-sharing measure function, forward direction power can be collected,measure and amount according to relative time.

◆ Event record
a) permanent record time of reset and meter data of reset.
b) record programming total number, and the latest 10 times of programming time,operator code, programming item data
c) record timing total number(not including Broadcasting timing), and the latest 10 timing data and operator code.
d) record power off total number, the latest 10 times power-off happening and end time.
e) record the latest 10 times remote control break and the latest 10 times remote control closing, and power data and time of the making and closing event happening.
f) record the open cover total time,and the latest 10 times open cover happening and ending time.

◆ Date storage
a) Storage the latest 12 months settlement date unidirectional or bidirectional total power and electric energy data rate, Data transfer time at 24 at the end of the month,Every month from 1th to 28th.
b) Under the energy meter power-off, the all settlement data can be storage for 10 years,others is for 3 years.

◆ Freeze function
a) timing freeze: according to agreed time and space to freeze energy data, storage 12 times per freeze
b) instant freeze: under abnormal condition, freezing the present date,time,all energy amount and important measure data, and instant freeze storages the latest 3 times data.
c) agreed freezing: when premium rate/time table, Time zone table transferring, or special needing, freeze transfer time power and other important data, Save the last 2 frozen data
d) day freeze: save the electric energy of every day zero hour, can save the latest 2 time freeze data.
e) integral time freezing:The total active power can be stored at the Integral point or half point, can be stored 96 data.

◆ Settlement date transfer
Monthly electricity settlement date and time can be set according to needs, At Zero in the set power settlement day, Settlement of the current rates and the total cumulative active power

◆ Clock
a) adopt the built-in hardware clock circuit With temperature compensation function, Calendar, timing, leap year automatic conversion function, the inside clock terminal output frequency is 1Hz. From -25°C up to +60°C, accuracy ≤ ±1s/d. Under the reference temperature(23°C),accuracy ≤ ±0.5s/d.

b) Broadcast time check: meter can accept broadcasting time signal which has time difference less than 5min.No need for coordination of programming keys and communication password. Should be avoided in the electric energy meter to perform the freezing or settlement data transfer operation within 5 minutes

◆ load control

When the user load is more than power load for 1 minutes (can be set),meter alarming,alarm lighting,buzzer calling.

◆ Charge control function

The realization of the cost control function is divided into local and remote two ways: the local way through the CPU card, the remote way through the remote sale of electricity system

◆ Local charge control

Real time electricity calculation, its main funtion include:

When the remaining amount is less than or equal to the amount of the set alarm 1, Electric energy meter would alarm to remind users to recharge. When the remaining amount is less than or equal to the amount of the set alarm 2, meter relay would break and power off,but the power can be recover by any card. The overdraft amount is recorded in real time, and the electric energy meter can send out the power off signal when the electric energy meter reaches the limit of the setting overdraft limit. After the electric energy meter receives the valued information of renewal fee, First deducting the amount of overdraft, when the remaining sum is greater than the set value(default is 0), then it can be returned to the allowed closing state by remote or local way, and power supply can be recovery by manual at local.

b) remaining amount shall no more than the Max storage amount of meter

c) the amount of pre-stored electricity can accurately superimposed and power meter within the remaining amount.

d) After the completion of electric fee prestore, meter write the information like remain amount,the electrical parameter back to electricity sale system by the Solid medium or Virtual medium according to different Charge control mode

e) Meter do not accept using non specified medium to input purchase amount and others information.

f) if lost the CPU card, the new card can be replaced by card replacement process. And when the new CPU is available, the old card would be abnegated.

g) when using non specified medium or processing the non illegal operation, Meter would take the effective protection. After cancelling the non specified medium or non illegal operation,meter can operate normally and no lose parameter.

h) Within 3 second after inserting card, the all operation of reading and writing shall be completed.

◆ Remote cost control

Electricity tariff is calculated in the remote electricity sale system,and Meter has no storage,display and electricity tariff,price and relative information. After the password authentication and security authentication, meter can receive the instructions of break,close,ESMA parameter read from the remote electricity sale system.

◆ Display

a) have auto-circuilation and pushbutton two display mode:auto-circuilation display time interval can be set between 5 to 20 seconds. Pushbutton display:LCD start backlight,and it would turn the backlight off automatically after 60s without operating.

b) Display of electricity amount,voltage,current,power,time,remain amount value, display number has 8 bits. Unit adopts Universal measurement unit,likes kW,kWh,V,A. Specific display item remote fee control see appendix1,2 and Local fee control see appendix3,4.

DDZY858

Single-phase Tariff Control Smart Meter

c) display signal includes power direction,cost rate,programming state,battery undervoltage, fault(like relay fault,clock)
d) display code includes display content code and fault code,If any fault happens,fault code would stay at display screen. code see Appendix5.
e) auto-cycle display and push button turn display,each screen display content is programmable and set.
f) has display-wake after power-off function

◆Safe protection

Meter has programming switch and password to prevent the Unauthorized operation. And Only meter is at allowed programming state can be programming, and when the operation of Broadcasting timing and reading meter is not controlled by the programming switch.

◆Programming switch

a) The programmable switch should adopts button design,and only after open the seal,it could be touched.
b) Under programmable state, meter would turn it off automatically within 240min without any operating.

◆Programming password

a) meter first shall be verified by password to operate program or others.
b) password has two grade management,each password is consisted of 6 bits number. Different grade password operates different operate.
c) high-level password authority can charge the low-level password.
d) enter the wrong password 3 times, The meter automatically shut down the programming function for 24 hours.

◆Communication

Meter adopts two communication way of 485 and infrared to copy back the meter data by 485/ infrared communicate line, communication conforms to standard of DL/T645-2007.RS485 Communication speed can be set, standard speed is 1200bps,1400bps,4800bps,9600bps,default value is 2400bps,infrared communicate speed is 1200bps.
support infrared,RS485 communicate port to change Tariff rate and schedule.