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DTSY450 three phase prepaid meter



Three-phase Prepayment Electronic Watt hour Meter for Active Energy, briefly named as three-phase IC card watt hour meter, is used for measuring three-phase AC active energy with rated frequency of 50Hz to realize using electrical energy after prepayment. The product adopts advanced micro-electronic technique to collect, process and memorize data Its technical performances are conform to the requirements of national standards of IEC 61036, GB/T8382-1996. It has advantages of small size light weight and high reliability.

Operating principle

The meter consists of four main function elements: The first is electrical energy measurement element, the second is control system based on microcomputer, the third is CPU card element, and the fourth is the power supply. The element of electrical energy measurement adopts special large integrated circuit that produces a series of pulse to represent electrical energy consumption and transmits them to micro computer for measurement. The measurement data is saved in the CPU card. The micro computer transmits data to IC card by interface of per-paid IC card to fulfill various functions. The power supply adopts three-phase circuit that works normally in the conditions of one or two phases are missing.

Specification

Mode	Accuracy class	Reference Voltage	Basic Current(A)
DTSY450- I (Direct connected)	Class 0.5	3×57.7/100V	3×1.5(6)A
	Class I	3×220/380V 3×230/400V	
DTSY450- II (Transformer operated)	Class I	3×220/380V 3×230/400V	3×5(30).3×10(40),3×20(80)

Technical specification

Meter constant:

Model DTSY450-I 1.5(6)A: 1600imp/kW•h;

Model DTSY450-II 10(40)A: 400imp/kW•h;

Basic error

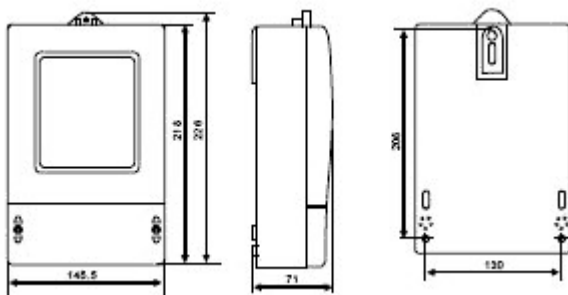


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Load current	Power factor	basic error (%)	
		Class 0.5	Class 1.0
0.05Ib	1.0	±1.0	±1.5
0.1Ib~I _{max}	1.0	±0.5	±1.0
0.1Ib	0.5L 0.8C	±1.0	±1.5
0.21Ib~I _{max}	0.5L 0.8C	±0.6	±1.0

Annual mean	≤75%
For 30 days, these days being spread in a natural manner over one year	95%
Occasionally on other days	85%

Installation and Connections



Suggest installing the meter indoors and the base for fixing the meter shall be fixed on the solid and fire-resistance wall.

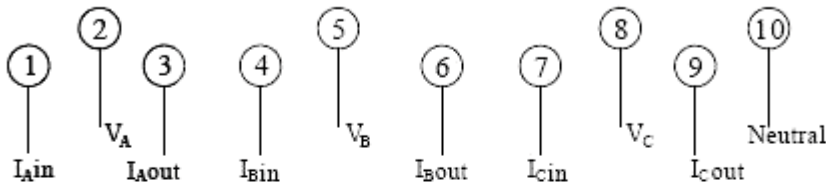
The upper end of the meter has a hole of pothook bolt, it is fixing by M4 pothook bolt. There are two fixing hole on the bottom part of the meter for fixing on the connection board by bolts of M4×10 and M4×12. The base for fixing the meter shall be fixed on the solid and fire-resistance wall. The outline of the meter is shown in Figure 1.

The meter shall be connected according to the connection diagram imprinted in the terminal Cover.

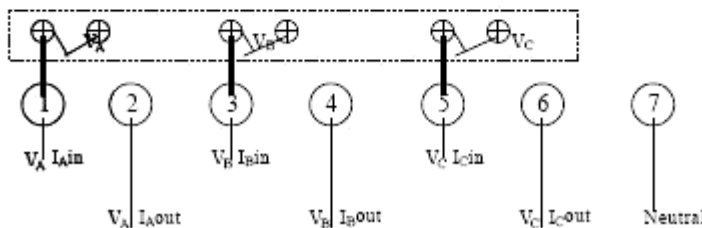
Connection for power supply terminals



Connection for power supply terminals for three-phase 4-wire meter with basic current of 1.5(6A)



1) Connection for power supply terminals for three-phase 4-wire meter with basic current of 10(40A)



Transport and Storage

The meter shall be handled carefully to avoid severe shock during transport, It should be transported and stored according to the requirements specified in the national standard GB/T 15464-1995 "General Technical Requirements for Packaging of Instruments and Apparatus"

The meter shall be stored on the shelves with its original package, the stacking height shall not more than five layers. Keep the storage place clean. The storage temperature shall be within 0~40 and the relative humidity is less than 85%.

There's no injurant in the atmosphere which result in corrosion.

Identification No. of the meter

The ID No. of the meter is the same as the number stated in the name plate.

Functions and Operations

1.1 Insert Electricity Pre-paid IC Card

Inset the pre-paid IC card slot of the meter. The direction of the insertion is the face of the card that has the golden slice and the arrow direction indicated in the pre-paid IC card slot in the meter.

After the insertion of the pre-paid IC card, the meter will read the card automatically without pressing the button. If it is a defective card, wrong card or illegal card. the meter will display "Card En" and can't read the data from the card. If it is a right card, the data in the card will be read in the meter immediately.

1.2 The meter testing process by the Electric Power Supply Bureau is as follows:

Electric power supply bureau may use production card, detecting card and zero reset card to test the meter, and change the meter from the production status to user status by the password change card.

1.2.1 When production card acts on the meter successfully , the "Add XX" will be displayed(wherer XX is the electrical energy value in the card).And the meter will switch on if previously status is switching-off, the production card can act on the meter and add its electrical energy value into the meter continuously.

1.2.2 When zero reset card acts on the meter successfully, the meter will display "PASS" and clear the remaining and consumed electrical energy, and then the meter will switch off.

1.2.3 Detecting card can act on the meter in any status of the meter ,The meter will display "PASS"



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if it's successfully. All the data in the meter will be returned to the detecting card. Software can be used to read the data in the detecting card.

1.2.4 After detection, the password change card must be used on the meter to change the meter from production status to user status, and it will display "PASS" if this is successful, otherwise "Card Err" will be shown. After having been change to user status , the meter cant be changed back to production status and the production card and zero reset card can't act on the meter any more.

In user status, the reset and zero reset operation in the meter are prohibited.

Electricity salesman can use the electrical energy pre-paid IC card to execute operations such as user logon and electricity selling by suing the electricity selling management software and card writing machine that provided by our company.

1.3 Installation place of the meter: install the meter in user's home.

1.4 User's electrical energy value input:

User buy the electrical energy from Electric Power Supply Bureau by using the pre-paid IC card and then insert the pre-paid IC card into the watt-hour meter, the meter will display "Add XX" and then the electrical energy value in the IC card is inputted into the meter.

1.5 Maximum cumulative amount of electrical energy

When the amount of the electrical energy bought in the IC card and remained in the meter exceeds the maximum cumulative amount of electrical energy, "overflow" will be displayed .The meter cant read in the data from the pre-paid IC card until the electrical energy in the meter is consumed to the status that the amount of electrical energy in the IC card and the energy remained in the meter doesn't exceed the maximum cumulative amount of electrical energy.

1.6 Maximum overdrawn amount of electrical energy

When the amount of electrical energy remained in the meter equals to zero, the meter will shut off immediately and flickeringly display "E20.0". If the overdrawn amount of electrical energy is not equal to zero and the user insert his(her) pre-paid IC card into the meter , the meter will display "Add-XX"(where XX is the maximum overdrawn amount of electrical energy) and switch on again .The meter start to use the overdrawn electrical energy and display negative value of electrical energy. when the overdrawn electrical energy is used up, the meter will be off again. Now the new overdrawn

operation is invalid by using the pre-paid IC card and the meter will display "Card Err".

The meter won't switch on until the user purchase the electricity again and add value into the meter. The meter will automatically deduct the overdrawn electrical energy after next bought value is inputted .

If the newly bought amount of electrical energy is less than or equal to the overdrawn amount, the meter may continue the overdrawn status. But if the overdrawn amount equals to zero, the meter can't be in the overdraft status.

1.7 Button scrolling display

Press the button , the LEDS of the meter will display the following information in turn:

Display "1_ XX. X", it represents that the amount of electrical energy that can be used and remained in the meter is XX. X(includes one decimal).

Display "2_ XX. X", it represents that the current consumed electrical energy in the meter is XX.X (includes one decimal).

Display "3_ XX. X A", it represents that the maximum load is XX.

Display "4_ XX. X", it represents the total electricity purchasing time.

1.8 Load setup and over-load display



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Electric power supply utility can set the current limit in the pre-paid IC card by management software. When the user input the electrical energy value from the pre-paid IC card to the meter ,the value of current limit is inputted in the meter simultaneously. If the load of the meter always exceeds the setting load value and 0.25 KWh is used, the meter will cut off the electricity automatically, warning the user to reduce the load, and the LED of the meter will flickering display "OLD". The meter will recover to supply the electricity automatically after 5 minutes and the flickering display of "OLD" will disappear.

Warning :When the user use the load control off function in the meter, it must assure that the using environment of the meter won't cause any severe accidents or casualty .

1.9 Alarm Display

1.9.1 Class one alarm: if the amount of electrical energy that can be used and remained in the meter is less than or equal to the class one alarming amount, the meter will flickeringly display "E1 XX X"(where XX X is the amount of electrical energy that can be used and remained in the meter) but provide the electrical energy normally.

1.9.2 Class two alarm: If the amount of electrical energy remained in the meter equals to 0, the meter will be off immediately and display "E2 0. 0".At this time ,when the user insert his pre-paid IC card and the overdrawn amount of electrical energy is not equal to zero, the meter will provide electricity again ,and the user can use the overdrawn electricity .

1.9.3 Class three alarm: This is displayed when the overdrawn amount of electrical energy in the meter is used up, the meter will cut off the electricity and the second overdrawn operation is invalid. Only the user continues to buy the electricity can the electricity be recovered. The meter will flickeringly display "E3-XX.0"(where XX is the maximum overdrawn amount of electrical energy).

1.10 meter energized display

The meter will fully display "8.8.8.8.8.8.8.8." when it is energized after being off. All the LEDS should turn on in this status. This is to check whether the segments of LEDS are complete or not.

1.11 Data protection

Solid-integrated circuit is introduced for data protection. No need for battery, in power failure state the data can be kept in the meter for 10 years without loss.

1.12 The pre-paid IC card watt-hour meter has impulse output that can be connected to the remote meter-reading system.