

5.14 Wiring diagram is shown in Fig. 2.

Note: Please turn off the power supply when wiring the energy meter in order to avoid accidents.

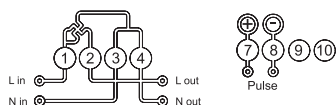


Fig. 2: Wiring diagram

6. Common faults and troubleshooting, as listed in Table 3.

Note: It is assumed that the energy meter is in the normal working state before the following situations happening.

Table 3 Common faults and troubleshooting

Fault	Solution
The pulse lamp does not flash	At the power-off state, check whether the wiring of the energy meter is correct; if incorrect, follow the User Manual for correct wiring; if correct, please contact the after-sales personnel.
Register does not work	

7. Transportation and storage

7.1 The energy meter shall not be subjected to severe impact during transportation and unpacking.

7.2 The energy meter shall be packed in the original package; the storage ambient temperature is ranged from -25°C to +70°C, the average relative humidity does not exceed 75%, and the storage environment shall be free of corrosive gas and moisture-proof.

7.3 The energy meter shall be put on the bench in warehouse, and stacking height is not more than 6 cartons.

7.4 Do not power on the energy meter if the shell has obvious damage traces caused by severe impact or high-place falling during the handling, use, and installation, and please contact the supplier immediately.

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HDDS606

Single-phase Electronic Watt-hour Meter

User Manual

Applicable Standard: IEC 62053-21

□ please carefully read the User Manual before the installation and use of the products, keep it properly as backup.



1. Purpose and application

HDDS606 single-phase electronic watt-hour meter is widely used for metering the electric energy of lightings and home appliances in residential houses, institutions, and shops. This meter is manufactured using SMT process and the internationally advanced ultra-low power consumption large scale integrated circuit technology to measure the AC single-phase active electric energy with a rated voltage of 220V or 230V and a rated frequency of 50Hz.

2. Functions and features

2.1 The energy meter is accurate and stable on metering, and no any adjustment is required after delivery. It can extend the inspection period and greatly reduce the workload of power department for the testing and calibration of the energy meter.

2.2 With bidirectional metering function, the meter can accurately measure the powers in both positive and negative directions, and it can accumulate the electric energy in one direction.

2.3 Output the electric energy pulse signal by using optoelectronic isolation technology. It can be for error detection, and the light emitting diode is used to indicate electricity consumption.

2.4 The manganin shunt is used as a current circuit, greatly improving the overload capacity of the meter, and the overload capacity can be up to 6 times and above.

2.5 The large-scale integrated circuit and SMT surface mounting technology are used. Advanced process and simple structure.

This product has advantages of wide load, high accuracy, high reliability, high sensitivity, straight error curve, small volume, light weight, low power consumption, strong overload capacity, and convenient installation.

3. Working principle

The energy meter can use current divider and voltage divider for current and voltage sampling, and sampling values are processed by various circuits such as A/D conversion, DSP multiplier, D/F transformation, frequency division, and count driver to output the cumulative electric energy of the pulse drive register, driving pulse indicator to show this electric energy at the same time.

4. Specifications and main technical parameters

The specification of the energy meter is listed in Table 1, and the thresholds of the percentage error are listed in Table 2.

Table 1 Watt-hour Meter Specifications

Model	HDDS606
Spec.	
Accuracy level	Class 1, Class 2
Reference voltage	220V or 230V
Basic current (Max. current)	1.5(6)A, 2.5(10)A, 5(20)A, 10(40)A, 15(60)A, 10(100)A

Remarks: Special specification shall be customized by user.

Table 2 Thresholds of Percentage error

Load current	Power factor cosΦ	Basic error limit (%)	
		Class 1	Class 2
0.05Ib ≤ I < 0.1Ib	1	±1.5	±2.5
0.1Ib ≤ I ≤ Imax	1	±1.0	±2.0
0.1Ib ≤ I < 0.2Ib	0.5L 0.8C	±1.5	±2.5 (no requirements for 0.8C)
0.2Ib ≤ I ≤ Imax	0.5L 0.8C	±1.0	±2.0 (no requirements for 0.8C)

Ib is the basic current and Imax is the maximum current

4.1 Start

The energy meter is in the state with reference voltage, reference frequency, and power factor are 1, and the load current is direct connection type: ≤ 0.004Ib (for Class 1) and ≤ 0.005Ib (for Class 2), the energy meter can start and meter the electricity energy continuously.

4.2 Creeping

When 115% reference voltage is applied to the voltage circuit and there is no current in the current circuit, the output pulse shall not be more than 1.

4.3 Range of working voltage

Range of specified working voltage: (0.9~1.1) reference voltage
Range of expanded working voltage: (0.8~1.15) reference voltage
Range of ultimate working voltage: 0.0~1.15 reference voltage

4.4 Power consumption of voltage circuit: ≤ 2W/10VA; Power consumption of current circuit: ≤ 4.0VA.

4.5 Environment conditions

4.5.1 Temperature range

Range of specified working temperature: -10°C~+45°C;

Range of ultimate working temperature: -25°C~+55°C.

4.5.2 Humidity range: Annual average relative humidity: <75%.

5. Installation and wiring method

5.1 The energy meter shall pass the inspection and sealed in the manufacturer factory before shipment. Please carefully read this User Manual before installation and use. Please directly contact the manufacturer if found damaged seal. To correctly connect wire, please follow the wiring diagram, otherwise this may cause permanent damage to the energy meter.

5.2 The energy meter shall be fixed and installed indoors where a dry and ventilated place is. The base plate where the energy meter is installed shall be placed on a solid and fire-resistant wall where vibration is not easily generated. The energy meter shall be vertical after installation.

5.3 The energy meter shall be connected to the circuit according to the specified phase sequence (positive phase sequence), and wires are connected according to the wiring diagram on the terminal cover. The copper wire or copper connector must be used for leading-in. If multi-stranded copper wire is used, its head shall be twisted tightly and then tinned before connecting to the terminal box of the energy meter. All screws of the terminal box must be tightened firmly to prevent being burnt due to poor contact of the connector in the terminal box. Furthermore, when the energy meter is installed, check whether the circuit works normally by using a multimeter to test before power -on, otherwise failure reason should be found out and then remove faults.

5.4 Lightning protection measures are taken at the installation place where there are many thunderstorms in order to prevent being damaged to lightning stroke.

5.5 If installed at the place where there is dirty and being mechanical damaged,

the energy meter shall be put into the protection cabinet.

5.6 Only the personnel authorized by the authority can be allowed to install, remove, check and seal the energy meter. The voltage of the connected energy meter shall meet the specified reference voltage, and the current shall not exceed the maximum rated value.

5.7 The load capacity of energy meter shall be ranged from 0.05Ib to Imax, and the metering will be inaccurate if out of this range.

5.8 The electricity consumption can be directly read on the window of the direct connection type energy meter. When the energy meter uses a current transformer, the actual electricity consumption can be obtained through multiplying the electricity consumption reading on the window by the transformer ratio.

5.9 Before connecting the energy meter, the protection switch that is consistent with the load of energy meter and has protection function shall be first connected.

5.10 Before installing energy meter, slightly shake the entire energy meter. Please contact the manufacturer immediately if heard any abnormal sound from the meter.

5.11 The reading range of the register is 0~99999.9, and five-integer (black) and one-decimal (red) are used for display. The displayed value is the actual electric energy (kWh).

5.12 The red lamp flashing indicates the metering operation of the energy meter. It is normal when the red lamp is in the ON or OFF state.

5.13 Outline and installation dimensions are shown in Fig. 1.

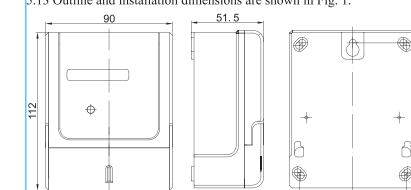


Fig. 1 Outline and installation dimensions