

Operation Instruction

of DDZY217(S26-1) Singe Phase Smart Energy Meter with Built-in Module

1、General

DDZY217(S26-1) Singe Phase Smart Energy Meter with Built-in Module is designed and made by using the advanced special chip of energy metering and the SMT manufacturing workmanship. It is with advantages of high metering accuracy, good reliability, strong overload ability, low power consumption and long lifetime, etc.. It is used for measuring the active energy in a.c. single phase circuit with the rated frequency of 50 Hz. It is with LCD display and has the communication function via RF module.

It meets the following standards:

IEC 62052-11:2003: General requirements, tests and testing conditions for electric measuring devices.

IEC 62053-21:2003: Specific requirements for meters measuring static effects (accuracy class 1 & 2)

DL/T645-2007: Exchanging data readings from meters, electric tariffs and transmission control units.

2、Specification

2.1 Specification

Specification Name	Accuracy Class	Rated voltage (V)	Current rating (A)	Constant
	Active			Active
DDZY217(S26-1) Singe Phase Smart Energy Meter with Built-in Module	1.0	220	5(80)A	1000imp/kWh

2.2 Outside Dimension: 255.5*112*71 mm

3、Main Technical Parameters

3.1 Basic error

Load current	Power factor	Limit of Error (%)
		For Class 1.0
$0.02I_b \leq I < 0.05I_b$	1.0	± 1.5
$0.05I_b \leq I \leq I_{max}$		± 1.0
$0.05I_b \leq I < 0.1I_b$	0.5L, 0.8C	± 1.5
$0.1I_b \leq I \leq I_{max}$		± 1.0

3.2 Power consumption

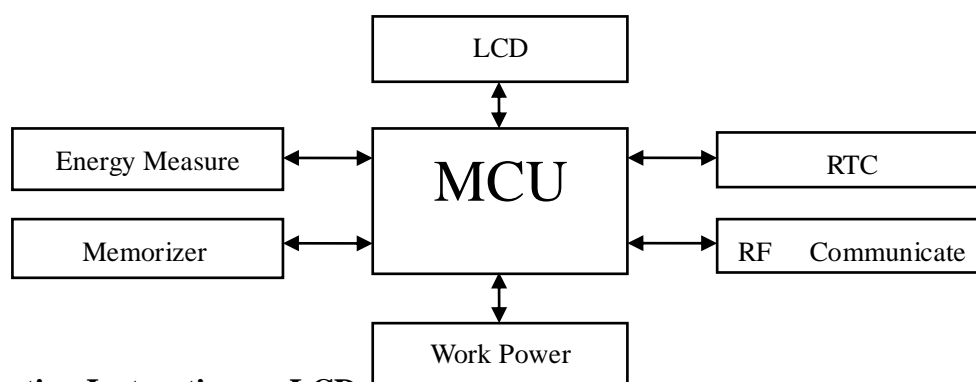
For voltage circuit: At reference voltage, reference temperature and reference frequency, the consumption of the active power and apparent power is not more than 1.5W and 9VA under non-communication condition, and not more than 3W and 12VA under communication condition.

For current circuit: At basic current, reference temperature and reference frequency, the consumption of the apparent power in current circuit of meter is not more than 3VA.

Operating lifetime: 10 years

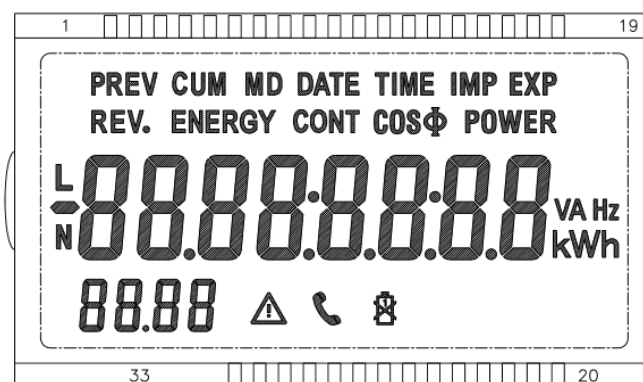
4 、 Working Principle

It adopts the special single phase multifunction metering chip to realize the accurate measurement of single phase a.c. active energy. The metering energy will be read by the microprocessor and stored into the non-volatile memory. Meter reading and control to the meter can be done via RF communication. The non-volatile memory inside the meter adopts the ferroelectric memory to guarantee the data can be saved more than 10 years after the system is power off. The diagram of working principle is as follows:



5 、 Operating Instruction on LCD

5. 1 Schematic diagram of LCD Display



Schematic Diagram of LCD Display

5.2 Status indicating lamp

- Impulse LED indicating lamp: Red impulse LED indicating lamp will flash one time once the

energy meter measures one active metering impulse per time.

5.3 Data display

5.3.1 It is with two display modes. One is the automatically cyclic display, and the other one is the cyclic display by pressing the button.

5.3.2 It can awake the auto-cyclic display via pressing the button at power outage. LCD will automatically switch off the auto-cyclic display after finishing to display a complete auto-cyclic display if there is no operation again after awaking the LCD. The cyclic display will be automatically switched off 30s later after the operation for displaying the LCD via pressing the button is finished.

5.3.3 The maximum displaying numbers for energy are 6 integrals and 2 decimals. The unit is kWh.

5.3.4 It can display the energy and time of last 1 billing day. The display position of billing energy is the same with the display position of common energy. The display position of billing time is at the left low corner of LCD. The time format is Day. Hour.

5.3.4 When the following conditions happen, LCD display will display the relevant code or alert to hint. If several faults happen, the LCD will display them cyclically. The relevant display information is as follows:

Item Sl. No.	Error code	Error information
1	Err04	Voltage of clock battery is low.
2	Err06	Memory fault
3	Err08	Clock fault
4	Err56	Power is reverse.
5	Err01	Tamper

6 、 Basic Function

6.1 Freezing function

- Timing freezing: It will freeze the appointed energy data as per the appointed time and time interval. The freezing energy data of each timing freezing can be saved at least 12 times.

- Instantaneous freezing: Under the abnormal condition, it will freeze the current calendar, time, all of energy and important measuring data, moreover the data of last 3 times can be saved.

- Daily freezing: It will store the energy at 00:00(hour) per day, moreover it can store the date of last 62 days.

- Freezing at the time of whole point hour: It will store the active total energy at the time of whole point hour or half point hour. It can store 96 data.

- If there is a freezing event happened at the power outage, it is required to complement the freezing data of latest one time at power on.

6.2 Measuring function

- Measuring unit: kWh(For Active Energy)
- Measuring capacity: 999999.99 kWh(For Total Active Energy)
- It can measure the forward active energy, reverse active energy and combined active energy, and store the energy data into the non-volatile memory.
- It can store the total energy at billing date of last 12 times and the electric energy of each tariff. The boundary time of data storage is at 00:00 hour of last day of each month, or at the time of whole point hour of any day between 1 and 28 of each month.
- If the billing time is missed because of power outage, the freezing data shall be completely complemented at power on. It can at most complement the freezing data of latest 12 times.

6.3 Event records

- It can permanently record the electrical energy information at reset events.
- It can record the total times for programming and calibrating the time. It can record the programming, the time for calibrating the time, the operator code, the data identification of programming item of last 10 times.
- It can record the total times of power off. It can record the occurrence time of power off and energy data of last 10 times.

6.4 Timing function

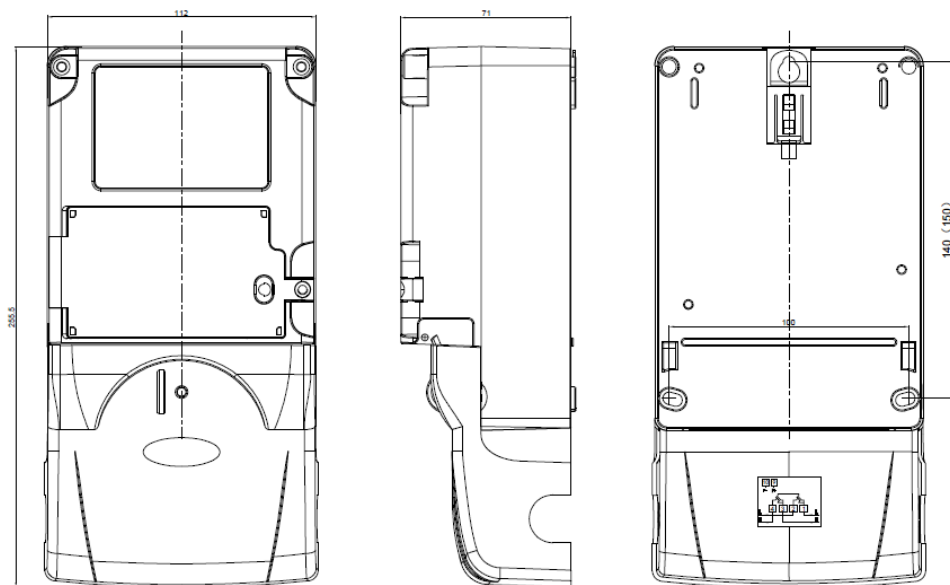
- It has the built-in hardware clock circuit with the temperature compensation. It has the function of calendar, timing, and the automatic changeover for leap year.
- It receives the broadcast calibrating time operation of energy meter. The acceptable broadcast calibrating time range is not more than 5 minutes.

6.5 Tamper-proof function

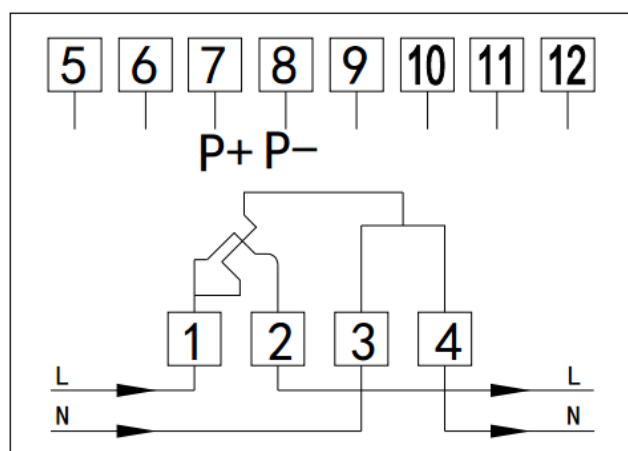
- It is with the tamper-proof function. When the power of phase line is reverse, or the current tolerance between phase line and neutral line is more than 10%, the meter will determine it as the tamper condition and alarm.
- When the tamper event happens, LCD will display additionally “ERR-01” basing on the normal display item. If power is reverse, “ERR-56” will be additionally displayed as well basing on the normal display item.

7、 Outside Dimension Diagram and Wiring Diagram

7.1 Outside Dimension Diagram



7.2 Wiring Diagram



8. Installation

8.1 The meters shall be qualified and sealed after examination before they leave the manufactory.

8.2 The meter will be installed within the meter box for using. The mounting bottom board for the meter shall be fixed to a solid, fireproof wall. The meter is recommended to be installed in a height about 1.8 meters above sea level. In the air there does not exist corrosive gas which could damage the meter.

8.3 The meter should be wired as per the wiring diagram shown in Clause 7.2. It is better to use the copper wire or copper joint for connection.

9. Transportation and Storage

9.1 The meters shall not be shocked during the transportation and unpacking.

9.2 The meter stored should be with the original packing box, and the ambient temperature shall be $-25^{\circ}\text{C} \sim +75^{\circ}\text{C}$. The relative humidity shall not exceed 95%, in the atmosphere there does not exist substance that could corrode the meter.

9.3 The meter shall be placed on the rack and stack one on top of another for the purpose of storage in the warehouse. The stacked height of the storage of meters only with inside packing box shall not exceed 5 Pcs.

10. Warranted period

The users shall follow the operation instructions. If the meter is found not to meet the requirements within 12 months from the day that the meter left the manufactory and meter is not sealed off, the manufacturer shall repair or replace it free of charge.