



DDS3366D-2PLE Intelligent Power Consumption Protector Instruction Manual

Please read this manual carefully before using the product

Guangdong Yada Electronics Co., Ltd.



Danger and Warning

Before installing, operating, or maintaining this device, please read this manual carefully and gradually familiarize yourself with the device through this manual. This document is not an operation manual suitable for untrained personnel. Our company shall not be liable for any problems arising outside its normal scope of use.



Hazard of Electric Shock, Fire, or Explosion

Parts of this device present electrical hazards; please operate in strict accordance with specifications.

Before maintenance and inspection, the device must be de-energized and grounded.

Before the device is powered on, all mechanical parts, protective covers, and shields must be restored to their original positions.

Device maintenance and installation work must be performed by qualified personnel.

Failure to observe these precautions may result in serious injury.

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Chapter 1 Product Introduction

1.1 Overview

The DDS3366D-2PLE is a cost-effective intelligent power consumption protector developed for low-voltage power supply systems such as municipal buildings, commercial buildings, residential electricity use, industrial power distribution automation, and school dormitory & apartment management. As a through-type meter, it integrates measurement, LCD display, protection tripping, communication, and other functions. Equipped with a built-in relay and malicious load identification function, it can remotely control switching on/off via RS485 communication interface/Bluetooth, control the on-off of power supply lines, and urge users to use electricity safely.

All technical indicators of the product comply with national and industry standards such as GB/T17215.321-2021, GB/T 17215.322-2008, and DL/T645-2007. It features high measurement accuracy, stable and reliable performance, convenient installation, high overload capacity, high stability, low power consumption, and automatic power-off data storage. Cooperating with remote power management software, it can realize remote power monitoring and power distribution automation management.

1.2 Function Introduction

Table 1-1 Basic Functions

Function	Function Description
Real-time Measurement	Voltage and current measurement; Active power, reactive power, apparent power, power factor, and frequency measurement
Electric Energy Metering	Forward and reverse active energy metering and combined active energy metering (default combination = forward + reverse)
Remote/Local Switching On/Off	The meter is equipped with a built-in relay, supporting remote/local switching on/off functions
Automatic Reclosing	After tripping due to illegal power consumption, the meter will automatically recline. The automatic reclosing delay time is adjustable from 0s to 65535s (factory default: 60s). The number of daily automatic reclosing times is adjustable from 2 to 99 times. If the number of daily trips exceeds the set value (factory default: 3 times), reclosing must be controlled remotely or via local button. Note: Setting the daily automatic reclosing times or delay time to 0 will disable the automatic reclosing function.

Function	Function Description
Timed Power Off/On Function	Equipped with 8 timed power off/on tables, allowing arbitrary setting of power off/on times. A maximum of 14 time zones can be set within a year, and a maximum of 8 time periods per day to realize timed automatic power off and on functions (each time period is set in chronological order; setting the number of time periods to 0 disables the timed power off/on function). Supports special power off/on time period settings for weekends and up to 20 public holidays.
Air Conditioner Standby Detection Function	The function can be enabled/disabled by setting the standby detection status word. When the standby detection function is enabled, the meter will trip immediately if the voltage is above 170V and the current is 0 (this function is designed to protect air conditioner sockets from being plugged/unplugged; factory default: disabled). Note: This function cannot be enabled simultaneously with the timed power off/on function, as simultaneous enabling will cause failure to reclose automatically after timed power off.
Event Recording	Saves the latest 100 power-off records, each including power-off time, power-off reason, and illegal data at the time of power-off
LCD Display	6+1 segment LCD display with automatic cycle display. Displays current combined active total energy, voltage, current, active power, date, time, and other parameters. The displayed units adopt national legal measurement units, such as kW, kWh, V, A, etc.
Pulse Indication	The pulse indicator is an active pulse indicator light, which flashes during active energy metering and shares the same indicator light with the trip indication.
Trip Indication	When the relay is in the open state, the trip indicator light is on, sharing the same indicator light with the pulse indication.
Communication Indication	RS485 communication and Bluetooth wireless communication status indication
Buttons	Used with local switching on/off and local learning functions
Clock	The clock has automatic calendar calculation, timing, and leap year automatic conversion functions, requiring active time calibration for use.

Chapter 2 Installation

2.1 Installation Precautions

Please read before starting operation

1. Before use, check whether the basic technical parameters on the nameplate or mark meet the requirements.

2. This product has passed factory inspection; do not disassemble or adjust it arbitrarily during use.

3. Before use, the wiring screws must be tightened to avoid product damage due to poor connection.

4. This product cannot replace a miniature circuit breaker and does not have a short-circuit protection function; it is recommended to install a miniature circuit breaker at the front end.

5. The product should be installed in a dry, well-ventilated place away from heat sources, and in a firm, fire-resistant, and vibration-resistant location.

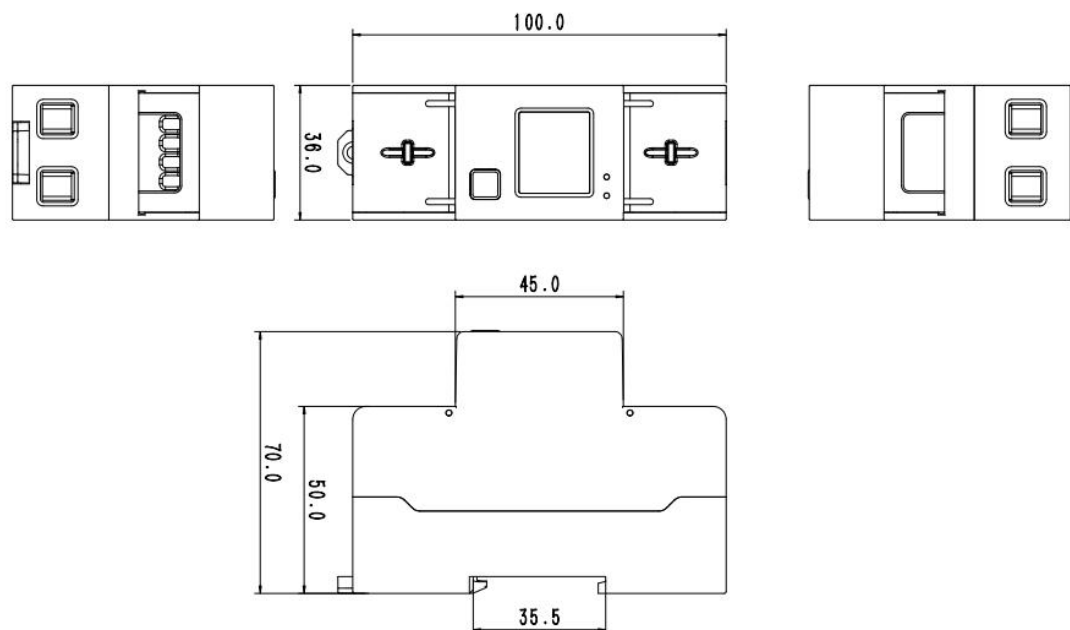
2.2 Installation Information

2.2.1 Installation Environment and Location

The device should be installed in a dry, clean place away from heat sources and strong electromagnetic fields, avoiding direct sunlight. It is usually installed in an unshielded switch gear/distribution box, ensuring that the device is not attacked by oil, dirt, dust, corrosive gases, or other harmful substances. During installation, attention should be paid to convenient maintenance, with sufficient space for relevant wires, terminal blocks, short-circuit plates, and other necessary equipment.

2.2.2 Installation Dimensions

Installation Method: DIN rail mounting or wall-mounted installation



Unit: mm;

Tolerance: $\pm 0.5\text{mm}$

Overall Dimensions: Length $\times$ Width $\times$ Height $104\pm 0.5\text{mm} \times 36\pm 0.5\text{mm} \times 70\pm 0.5\text{mm}$;

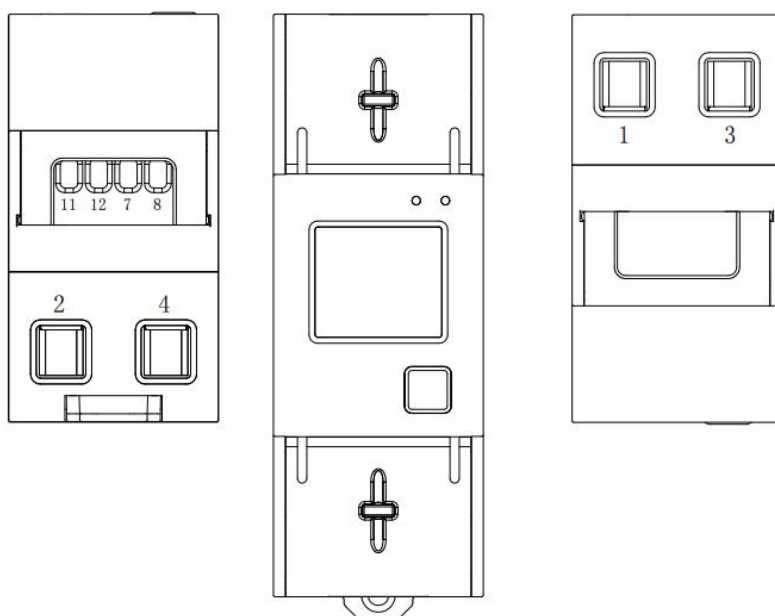
DIN Rail Slot Width: 35mm

Weight: Approximately 0.18kg

2.2.3 Installation Method

35mm standard DIN rail mounting.

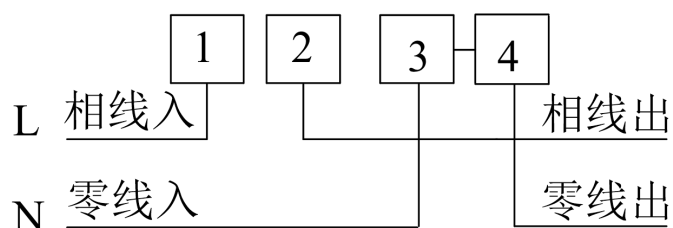
2.3 Terminal Definition



Terminal No.	Terminal Definition	Terminal No.	Terminal Definition
1	Phase In	7	Energy Pulse + / Second Pulse +
2	Phase Out	8	Energy Pulse - / Second Pulse -
3	Neutral In	11	RS485 Port A
4	Neutral Out	12	RS485 Port B

Note: The specific terminal definition shall be subject to the actual product.

2.4 Wiring Diagram



2.5 Wiring Precautions



The product adopts left-in and right-out wiring mode.

No short circuit is allowed between terminal 1 and 3, or between terminal 2 and 4.

The incoming line must enter through terminals 1 and 3, and exit through terminals 2 and 4.

Terminals 1 and 2 are phase (live wire) interfaces, and terminals 3 and 4 are neutral wire interfaces.

The input voltage shall be within the rated voltage range of the device.

The voltage input circuit must be protected by a circuit breaker or fuse.

The recommended incoming cable is 6mm² or 10mm² multi-strand flexible wire.

Strong electricity is strictly prohibited from being connected to the RS485 communication (11, 12) ports and energy pulse (7, 8) ports.

Chapter 3 Usage and Operation

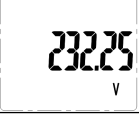
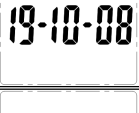
3.1 Display Instructions

3.1.1 Display Function Description

Adopts LCD display with automatic cycle display (each screen display cycle is 5 seconds).

Display contents include: voltage, current, active power, date, time, and current combined active total energy.

3.1.2 Data Display Screen Description

Serial No.	Display Interface	Description
0		Current combined active total energy
1		Current voltage
2		Current current
3		Current active power
4		Date
5		Time

3.1.3 Indicator Light Instructions

◎Pulse/Trip Indicator Light: Red flashing indicates active pulse, yellow indicates trip (off normally, on when tripped).

◎Communication Indicator Light: Green, flashing in communication state.

3.2 Button Functions

3.2.1 Local Switching On/Off

Press the function button, the relay will open, prohibiting power consumption in the circuit, and the trip indicator light will be on; long press the button for 3 seconds to close the relay, restore power supply, and the trip indicator light will go off.

3.2.2 Usage with Local Learning Function

[To be used in conjunction with local learning function operations]

3.3 Malicious Load Identification Function

3.3.1 Common Load Power Examples in Student Dormitories

Serial No.	Load Name	Power (W)	Power Factor	Category
1	Laptop	≈25	≈0.6	Normal Load
2	Electronic Fluorescent Lamp	≈30	≈0.75	Normal Load
3	Wall Fan	≈65	≈0.95	Normal Load
4	Electric Blanket	≈50	≈1.0	Malicious Load
5	Incandescent Lamp	≈100	≈1.0	Malicious Load
6	Egg Steamer	≈350	≈1.0	Malicious Load
7	Water Dispenser	≈450	≈1.0	Malicious Load
8	Hair Dryer	≈650	≈1.0	Malicious Load
9	Immersion Heater	≈1000	≈1.0	Malicious Load
10	Electric Kettle	≈1300	≈1.0	Malicious Load

Malicious Load: High-power purely resistive loads are called malicious loads.

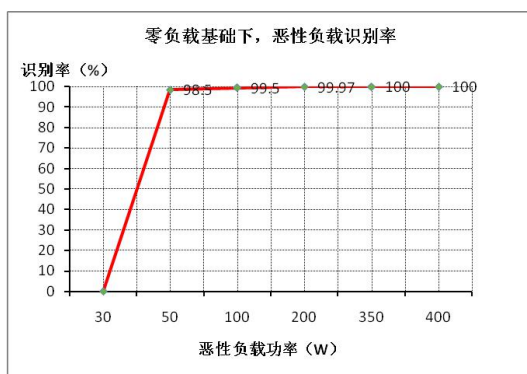
3.3.2 Malicious Load Identification

It can identify purely resistive loads, i.e., malicious loads (such as hair dryers, immersion heaters, electric kettles, etc.). By configuring the active power increment limit for purely resistive load judgment (adjustable, factory default 0W), malicious load identification and protection are realized; when the used load is judged as a malicious load, the meter will trip and cut off power immediately, and automatically recline after the set time. Within 10 seconds after automatic reclosing, it will judge whether the load has been removed to determine whether to supply power normally. For the judgment principle, refer to the detailed description in 3.4.4.

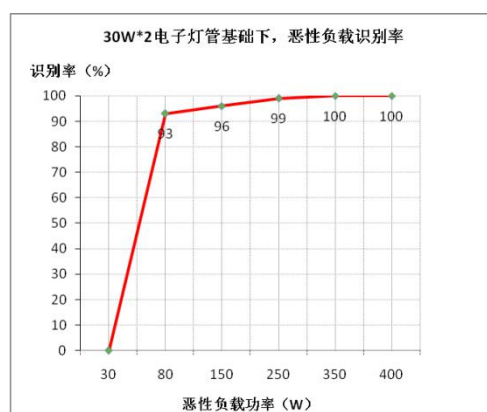
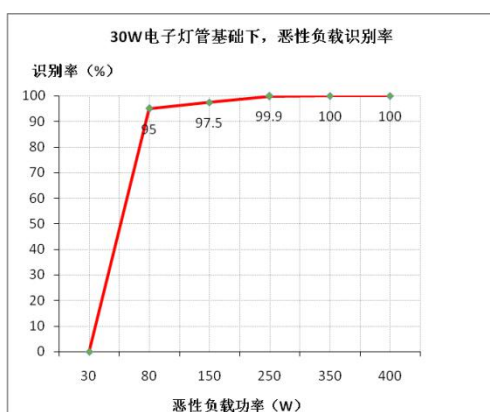
Note: After the meter identifies a malicious load and trips, all load power supplies must be turned off before normal power consumption can be resumed. Otherwise, the risk of false tripping and missing tripping will increase.

3.3.3 Malicious Load Identification Rate

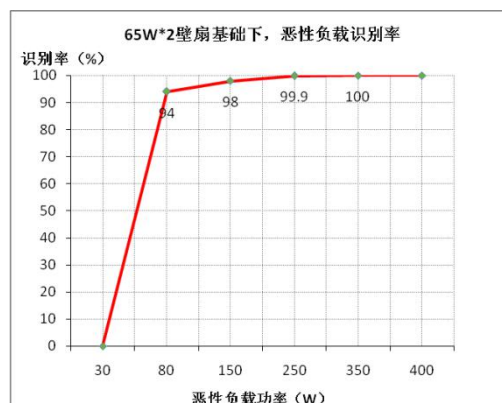
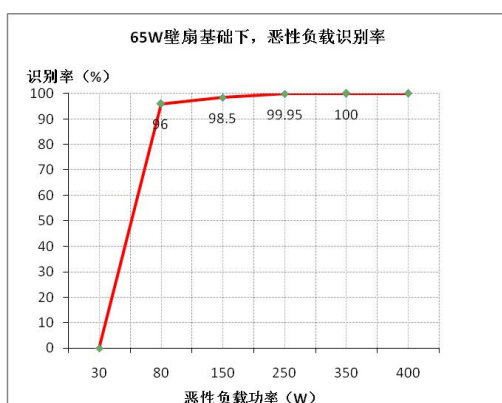
1) Under no-load background, add malicious load, the identification rate curve is as follows



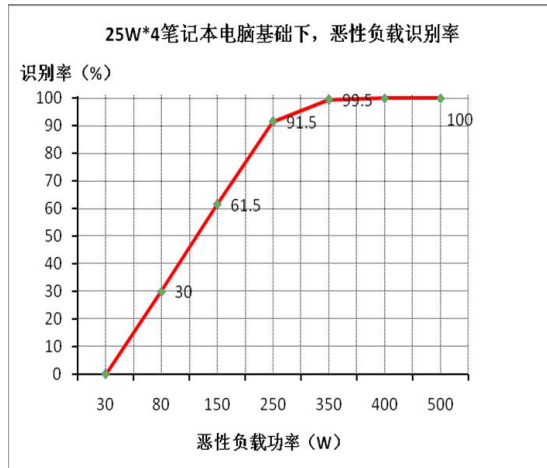
2) With electronic fluorescent lamp as the basic load, add malicious load, the identification rate curve is as follows



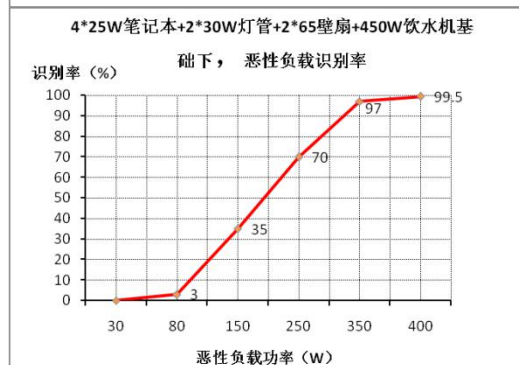
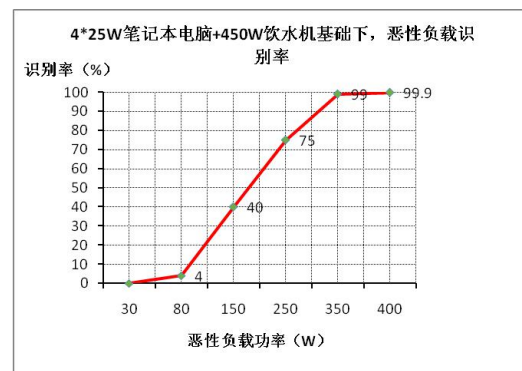
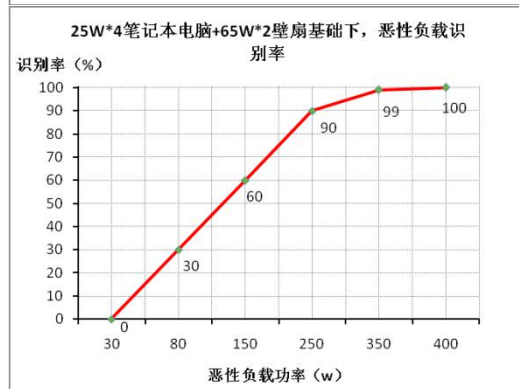
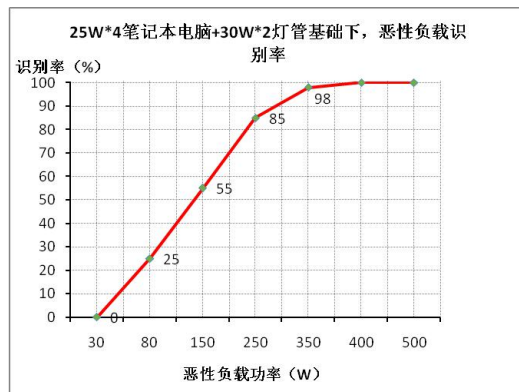
3) With wall fan as the basic load, add malicious load, the identification rate curve is as follows



4) With laptop as the basic load, add malicious load, the identification rate curve is as follows



5) With laptop + other loads as the basic load, add malicious load, the identification rate curve is as follows



3.4 Illegal Power Consumption Tripping Function

3.4.1 Power Overlimit Judgment

To ensure electrical safety, when the simultaneously connected load exceeds a certain limit (single power increment limit is adjustable, factory default 0W), the meter will trip for protection; when the total power exceeds the set value (active power load limit is adjustable, factory default 3KW), the meter will trip for protection.

Note: After the meter trips due to power overlimit identification, all load power supplies must be turned off to resume normal power consumption; otherwise, the risk of false tripping and missing tripping will increase.

3.4.2 Current Overlimit Judgment

To ensure electrical safety and reduce the damage to lines caused by excessive current, when the current in the line exceeds a certain limit (overcurrent threshold is adjustable, factory default 20A), the meter will trip for protection.

Note: After the meter trips due to current overlimit identification, all load power supplies must be turned off to resume normal power consumption; otherwise, the risk of false tripping and missing tripping will increase.

3.4.3 Phase-Shifted Socket Identification

By enabling the phase shifter judgment function and setting the phase shift detection power lower limit (factory default 0W), it can real-time collect voltage and current waveforms, analyze waveform data characteristics, judge anti-limit sockets (phase-shifted sockets), and trip for protection.

Note: After the meter identifies a phase-shifted socket and trips, all load power supplies must be turned off before normal power consumption can be resumed; otherwise, the risk of false tripping and missing tripping will increase.

3.4.4 Judgment Principle After Illegal Power Cut

In case of illegal power cut, the meter will automatically recline after the set time. The user should remove all loads within 10 seconds. After 10 seconds, if the meter detects that the load power is greater than the threshold (taking the smaller of the malicious load threshold and the phase shift detection threshold power), it will trip again. If it detects that the load power is less than the threshold (taking the smaller of the malicious load threshold and the phase shift detection threshold power), it will resume normal power supply.

3.5 Local Learning Function

To allow users to use specific loads, a local learning function for load whitelist is added, which can be divided into local addition and local removal. For optimal results,

it is recommended to perform under no-load conditions.

3.5.1 Local Operation to Add Load Whitelist

After tripping due to malicious load or single power overlimit identification, remove the load within 5 seconds and long press the function button. The meter will automatically save the load characteristic parameters, i.e., store them in the whitelist, and this learning is completed. When the load with this characteristic is added next time, the meter will not trip and allow normal power consumption. Local addition is only effective when the number of whitelists is less than 10; otherwise, it is invalid.

3.5.2 Local Operation to Remove Load Whitelist

After the corresponding power load in the whitelist operates normally, press the function button within 5 seconds to remove the corresponding whitelist, and the meter will remove the load characteristic parameters. When the load with this characteristic is added next time, the meter will trip for protection and prohibit power consumption. The local removal function is only effective when the number of whitelists is greater than 0.

Note: Within 10 seconds after the meter is powered on for the first time, reclosed after remote command tripping, or automatically reclosed after timed power off, it does not have malicious load identification function and phase-shifted socket identification function, but has single power overlimit, total power overlimit, and total current overlimit functions. The malicious load identification function and phase-shifted socket identification function will be enabled after 10 seconds.

Chapter 4 Technical Specifications

4.1 Measurement Accuracy

Parameter	Accuracy	Measurement Range
Current	Class 0.5	0.2A~60A
Voltage	Class 0.5	AC176V~264V
Frequency	±0.02Hz	45Hz~65Hz
Power	Active Power Class B (Class 1)	/
Power Factor	±0.02	0.5L~1.0~0.5C
Harmonic	Current Harmonic Class B	2nd Order
Electric Energy	Active Power Class B (Class 1)	

4.2 Specification Parameters

Rated Voltage	220V
Current Specification	0.2~0.5(60)A
Pulse Constant	1600imp/kWh

Reference Frequency	50Hz
Accuracy Class	Class B

Note: The above parameters are subject to the nameplate marking.

4.3 Application Scope

Name	Normal Operation	Limit Operation
Voltage	0.8Un~1.2Un	0.7Un~1.3Un
Frequency	45Hz~65Hz	45Hz~65Hz

4.4 Environmental Conditions

Environmental Conditions	
Storage Temperature: -40°C~70°C	Operating Temperature: -20°C~55°C
Humidity: 5%RH~75%RH	Limit Temperature: -25°C~60°C

4.5 Power Consumption

Input Circuit	Power Consumption
Voltage Circuit	≤1.5W、10VA
Current Circuit	≤1VA

Note: Voltage/current values exceeding the product's rated range will cause damage to the meter. Long-term full-range application will also cause damage to your device. Our company shall not be liable for accuracy changes caused by over-range operation.

4.6 Communication

Communication Parameters	
Communication Port: RS485, 2-wire half-duplex	Baud Rate: 1200bps, 2400bps, 4800bps, 9600bps, 19200bps optional; default 2400bps. For other requirements, please refer to the actual product.
Parity Bit: None/Odd/Even optional	default even parity
Communication Address	DL/T645-2007 communication address is 12-digit BCD code, default is meter code.
Communication Protocol	Supports DL/T645-2007 and ModBus-RTU protocols
Bluetooth	Connects to the server platform for data interaction; low-power BLE, within 20 meters, compatible with BLE4.0 ~ BLE5.2

4.7 Electrical Characteristics

Electrical Characteristics	
Creep	When 115% of the reference voltage is applied to the electricity meter and there is no current in the current circuit, the meter shall not produce more than one pulse output within the specified time.
Starting	Under rated voltage, when the load current rises to 0.04Itr, the meter shall have pulse output or the indicator light representing energy output shall flash within the specified time.

4.8 Electromagnetic Compatibility (EMC)

EMC Test	
Electrical Fast Transient/Burst Immunity Test	Implements standard GB/T 17626.4; IEC 61000-4-4; Level: Class IV (2kV for communication and pulse ports, 4kV for other ports)
Electrostatic Discharge (ESD) Immunity Test	Implements standard GB/T 17626.2; IEC 61000-4-2; Level: Class III (6kV contact discharge, 8kV air discharge)
Surge (Shock) Immunity Test	Implements standard GB/T 17626.5; IEC 61000-4-5; Level: Class IV (4kV for high-voltage circuits, 2kV for low-voltage circuits)
Radio Frequency (RF) Electromagnetic Field Radiation Immunity Test	Implements standard GB/T 17626.6; IEC 61000-4-6; Level: Class III (10V/m)

Chapter 5 Maintenance and Troubleshooting

5.1 Troubleshooting

Possible Problem	Possible Cause	Possible Solution
No Display After Power-On	Power is not supplied to the device	Check whether the correct working voltage is applied to the device's voltage input terminals
Inaccurate Measurement Data or Display 0 After Adding Signal	Incorrect Voltage Measurement	1. Check whether the voltage signal is correctly connected to the device 2. Check whether the voltage measurement signal is within the measurable range of the device
	Inaccurate current measurement	1. Check whether the current signal is correctly connected to the device 2. Check whether the current measurement signal is within the measurable range of the device
	Inaccurate power measurement	1. Check whether the measurement mode is set correctly 2. Check whether the phase sequence of the corresponding voltage and current is correct 3. Check whether the current direction is correct
Communication failure	Wiring error	Check whether the wiring of RS485 communication ports A and B is correct
	Address error	Check whether the address set on the meter is correct
Failure to execute switching on/off commands	Mode error	Check whether the power retention function of the meter is enabled
	Invalid command	Check whether the effective duration of the

Possible Problem	Possible Cause	Possible Solution
	duration	issued switching on/off control command is later than the current time of the meter

Note: If any problem cannot be resolved, please contact our after-sales service department in a timely manner.

Chapter 6 Quality Assurance

6.1 Quality Assurance

All new meters sold to users are covered by a free warranty for 12 months after power-on operation or 18 months after delivery, whichever comes first. This warranty covers faults caused by defects in design, materials or workmanship. If the product is confirmed to meet the above warranty conditions, our company will be responsible for free repair.

6.2 Warranty Limitations

- ① The following device issues are not covered by the free warranty:
- ② Damage caused by improper installation, operation or storage.
- ③ Malfunctions resulting from operation or application beyond the specified conditions of the product.
- ④ Meters repaired by unauthorized institutions or personnel.
- ⑤ Meters that have exceeded the free warranty period.

Note: The pictures above are for reference only; the actual product shall prevail.

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