KIMANS
metering

User Manual of

ELCM-3P **Prepaid Keypad Three Phase**

Electricity Meter

Catalogue

1. Product Introduction

The prepaid three-phase four-wires electricity meter adopted large-scale integrated circuit and digital sampling techniques, designed for the power system, communication industry, construction industry, and other power monitoring and power measuring needs. It mainly measures and displays the parameters of three-phase voltage, three-phase current, active power, reactive power, frequency, positive and negative electric energy, and four-quadrant electric energy in real-time. The RF communication module for remote functions could be added, which is convenient for users to monitor electricity consumption, collect data, and switch on/off for the smart meter. As monitoring terminal product of energy management system, it can be widely used in the internal power assessment and monitoring of industrial and mining enterprises, hotels, schools, and large public buildings.

The product complies with IEC62052-11, IEC62053-21, and IEC62055-41 standards. For the raw materials like metering chips and other key components, we use the high-level international brands, to ensure the meter is high-precision and high-reliability. All of our meters are produced in accordance with ISO9001 and ISO14001 standards, to ensure the reliability and stability of the product, thereby extending product service life.
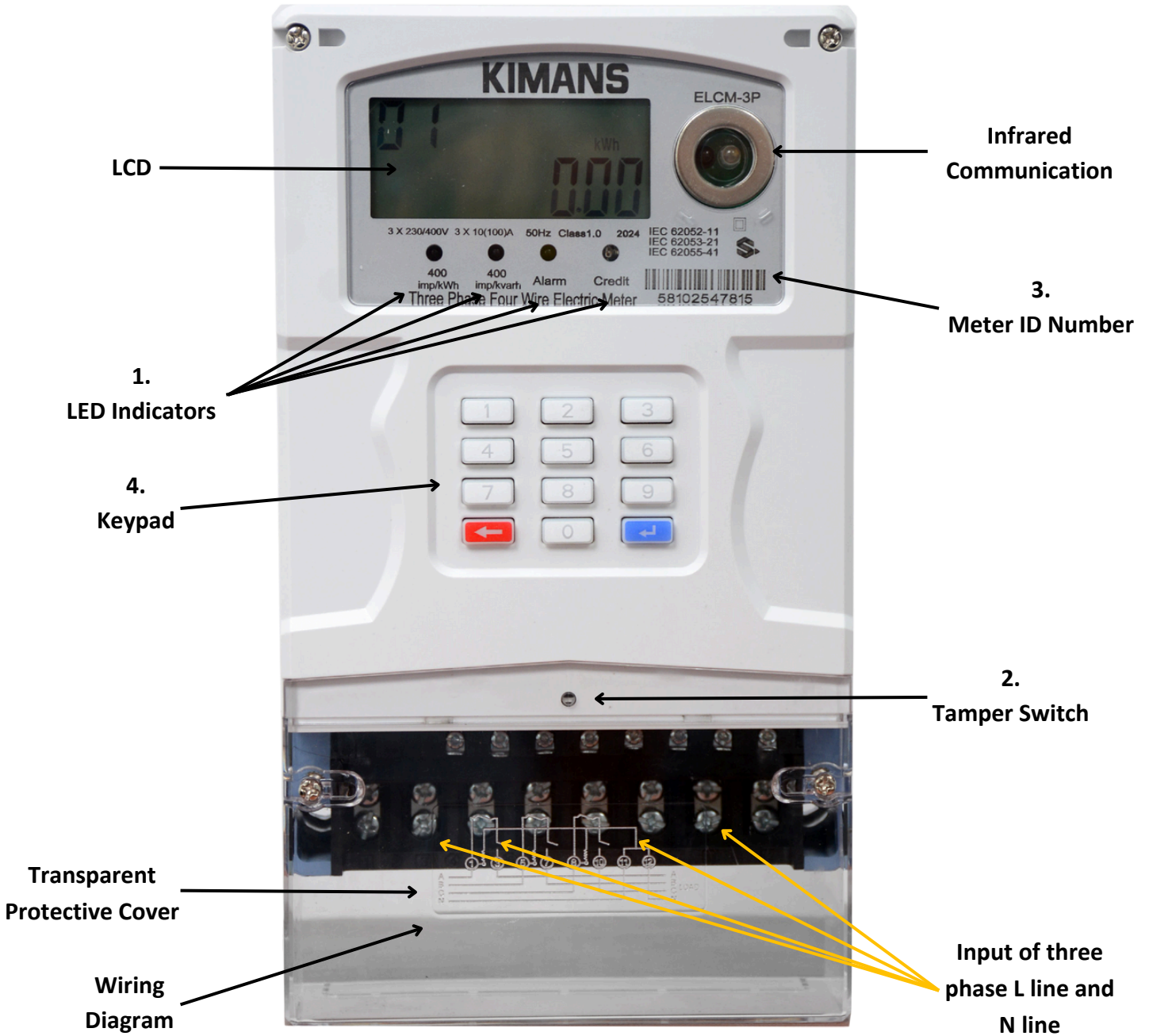
2. Specifications

2.1. Electrical parameters

Item Number	ELCM- 3P
Norminal Voltage	3×230V
Max Voltage	3×400V
Working Voltage Range	70%~120%Un
Frequency	50-60Hz
Basic Current (Ib)	10A
Maximum Current (Imax)	100A
Starting Current(Ist)	30mA
Active Energy Constant	400imp/kWh
	400imp/kvarh
Measuring Accuracy	Class 1.0
Power Consumption in Voltage Circuit	<2W <8VA
Power Consumption of in Current Circuit	<1VA
Operation Temperature Range	-25℃ - 70℃
Storage Temperature Range	-40℃ - 85℃
Communication	433RF
Dimension	258.4mm×147.3mm×64mm
Weight	1.1kg
Waterproof Level	IP54
Battery Voltage	3.3V
Sleep Current	0.5mA

2.2. Electromagnetic Compatibility

AC Insulation Strength		4kV / 50Hz during 1min
Impulse voltage1.2/50 us mains connection		8kV
Electrostatic Discharge	Contact Discharge	8kV
	Air Discharge	16kV
Insulation Electromagnetic RF Field	27MHz-500MHz	10V/m
	100KHz-1GHz	30V/m
Fast Transient Burst Test		4kV
Protection level		Class II

3. Overview

LCD

Infrared Communication

3. Meter ID Number

1. LED Indicators

4. Keypad

2. Tamper Switch

Transparent Protective Cover

Wiring Diagram

Input of three phase L line and N line

Sequential Wiring

1. LED indicators:

[400imp/kWh]: Active Energy Pulse light. When the meter works normally after being connected to the load, it shows Blue light, and every 400 flashes is 1 kWh Active Energy.

[400imp/kvarh]: Reactive Energy Pulse light. Every 400 flashes is 1 kWh Reactive Energy.

[Alarm]: Warning light. When the meter in the tamper state or the balance is 0, it shows Yellow light.

[Credit]: When the credit balance is sufficient, it shows green light; when the balance is 0, it shows Red light.

2. Tamper Switch: Tamper protection function. When the cover is opened, the meter is in the tamper state, it shows Yellow light.

3. Meter Number: Each meter is identified with a special ID code. Used for vending portal registration

4. Keypad: Inputting the 20-digit token for (Recharge, Clear Credit, and Clear Tamper Token). Checking data from the meter by entering the special codes see page 16.
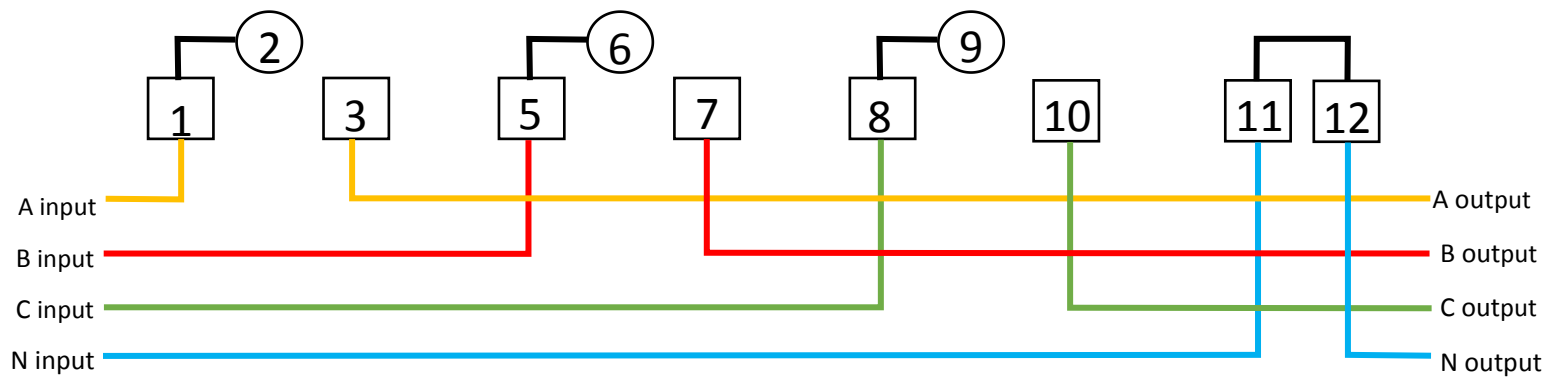
4. Meter Dimensions
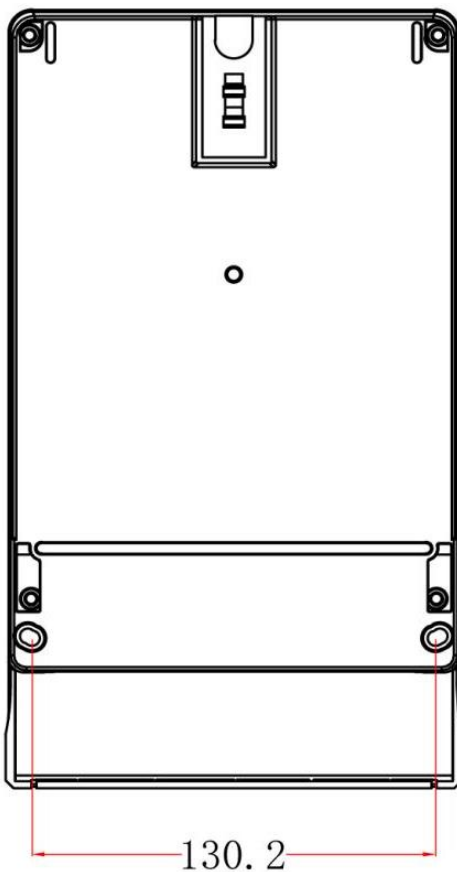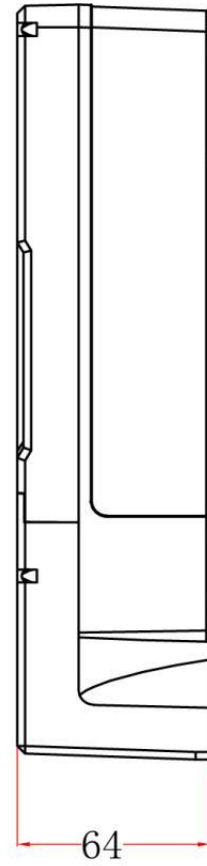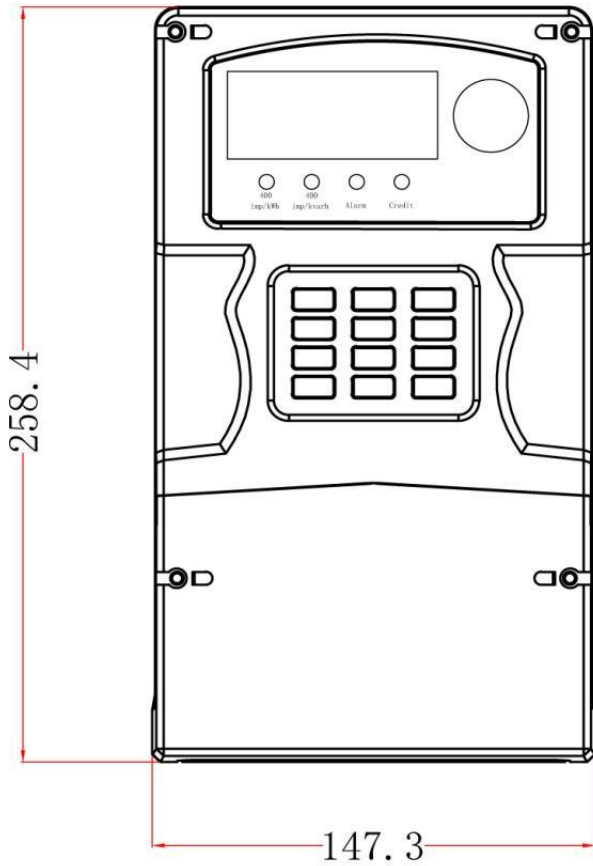
-Dimensions: 258.4mm×147.3mm×64mm

(length×width×height)

-Installation: Suspension Installation.

5. Wiring Diagram

A input ── 1 ─┐ 2
B input ── 3
C input ── 5 ─┐ 6
N input ── 7
        8 ─┐ 9
        10
        11 ┐ 12
A output
B output
C output
N output

6. Functions

6.1 Remote Communication:

The three-phase energy meter is an STS standard smart meter, which requires users to input a 20-digit Token to top up electricity, clear credit, and clear tamper.

The three-phase energy meter supports RF wireless communication, using CIU for meter reading, which is about 350m; using DCU for batch meter reading, the distance can reach 1000m.

The tokens could be sent to the meter by CIU remotely, the Admin also could log the system to send tokens to the meter by DCU automatically.

6.2 Anti-Tamper:

When the transparent protective cover is opened, the tamper switch is triggered, the valve will be closed and the "Warning" indicator will show a yellow light, This function plays the role of power theft protection.
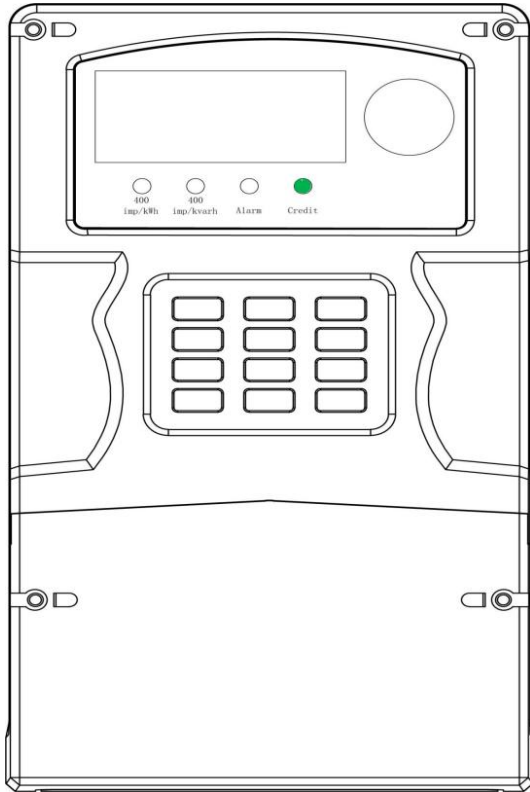
6.3 Parameter settings:

There is an infrared interface on the meter, Admin could use this to set special parameters for the meter.
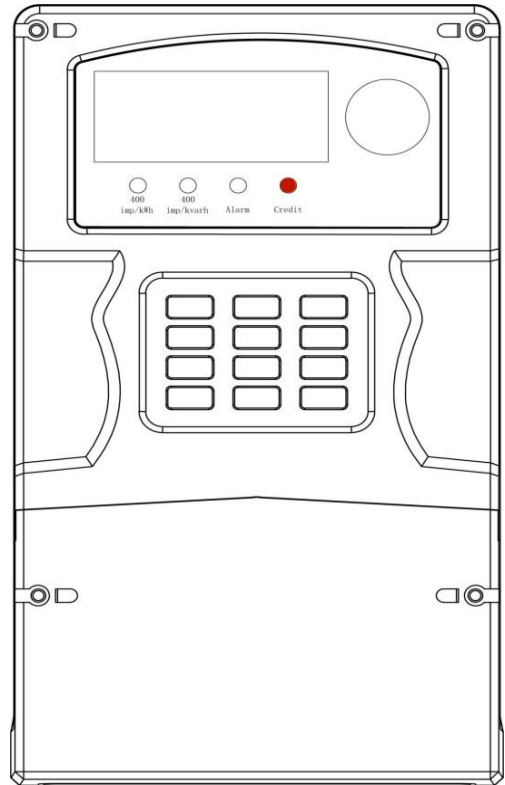
6.4 Credit Alarming:

The "Warning" indicator flashes red light when the meter credit reaches the threshold, the "Warning" indicator shows red light and the "Alarming"shows yellow light when the credit is zero.
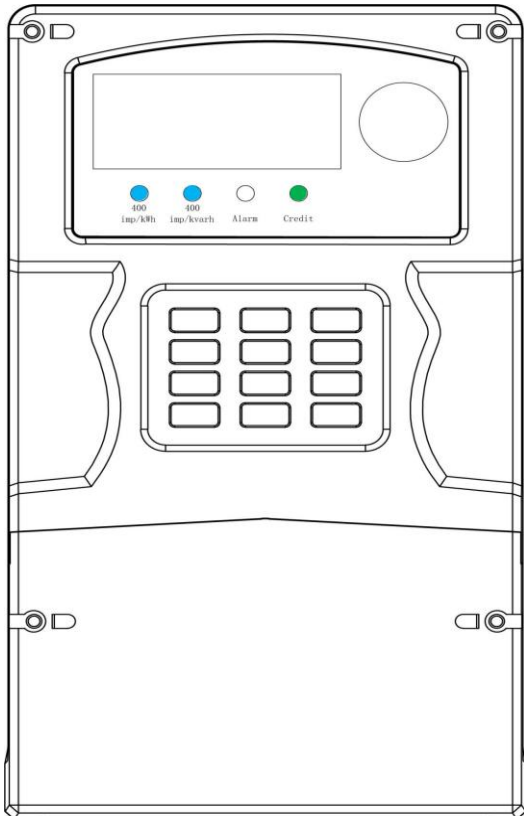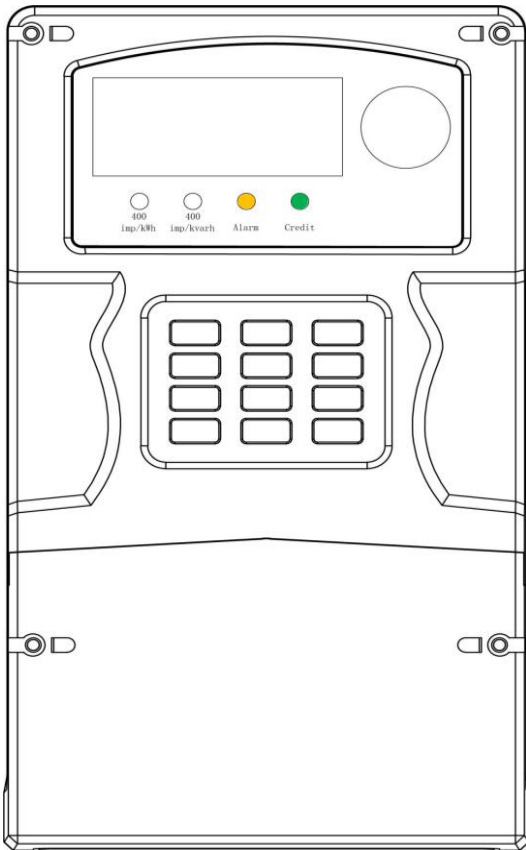
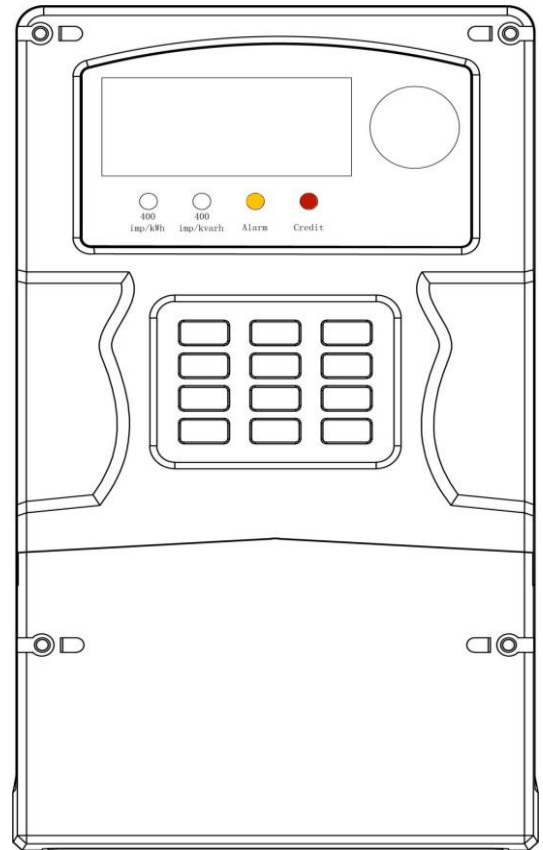# 7. LED Indicators

Power On

Insufficient Credit
(Red light flashing)

Normal working status
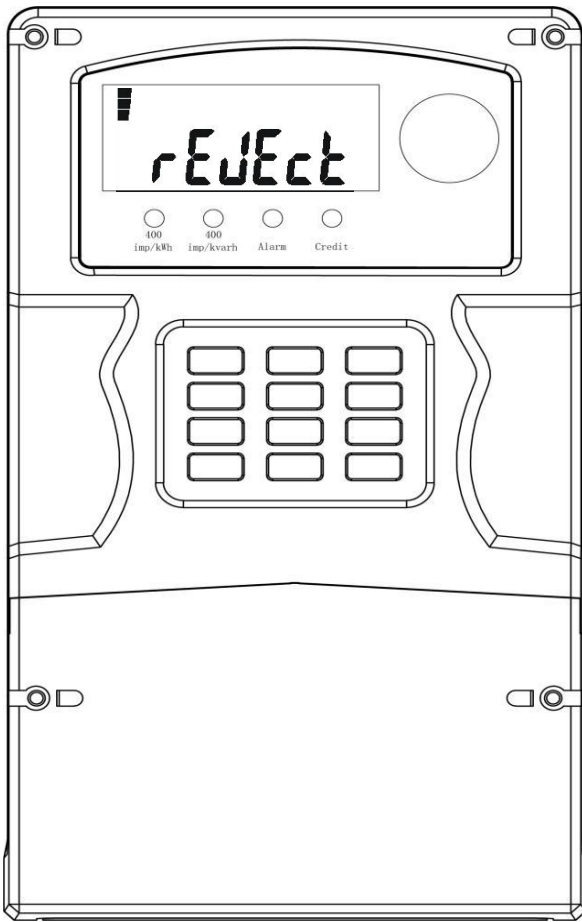(the blue light will flash for billing)

The balance is zero and
the valve is open.

Insufficient balance, in
the tamper state.

8. LCD Display

"REJECT": The token is not accepted by the meter or the wrong token input.
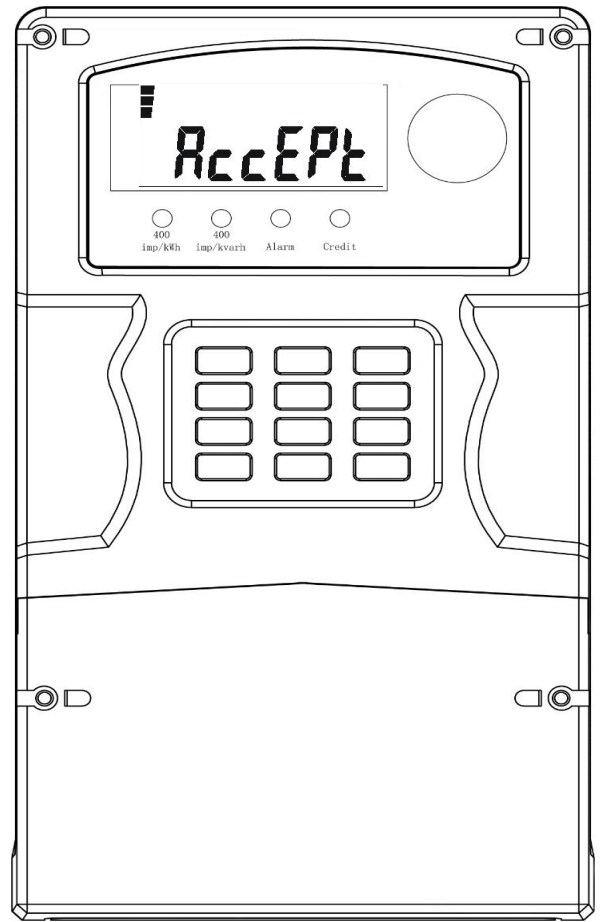
"ACCEPT": The token accepted by meter.
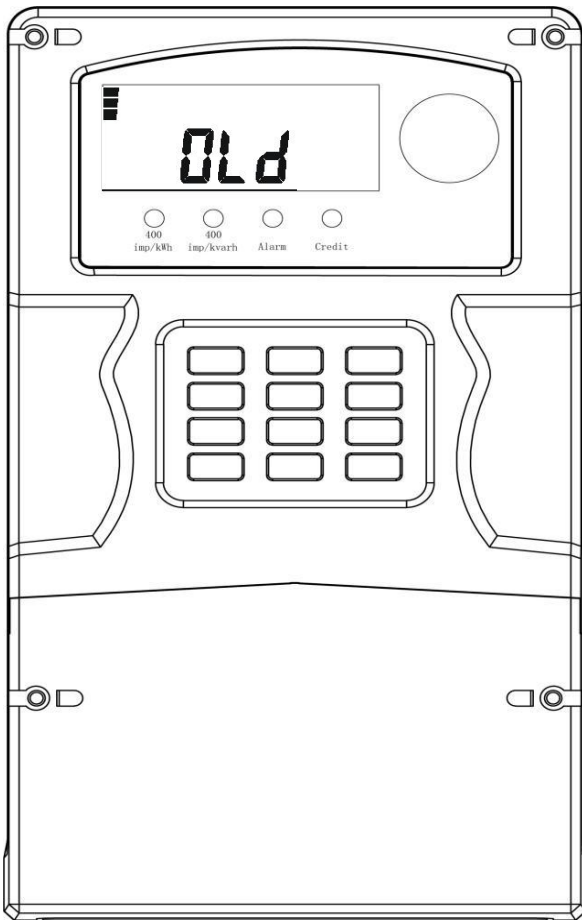
"OLD": The input Token is expired and needs to generate a new token.

"USED": The input Token has been used before and cannot be reused.

"OVER PO": The consumption exceeds the overdraft, the power will be cut off within the specified time.

"Err-06": The input Token is missing one or more digits, need to input the token again.

9. Instruction Manual

The three-phase energy meter has a credit for 10kwh when it is completed in the factory, the balance is sufficient but the meter is in the tamper state. After powering on the meter, we need to input a 20-digit anti-tamper token into meters by keypads or matched CIU. Users could use energy normally after the meter clears the tamper and closes the valve.
Then users can buy electricity as requested.

10. Short Codes

Display number	Item	Display number	Item
1	Cumulative total kWh consumption	2	Cumulative total reverse kWh consumption
3	Cumulative total reactive power consumption	4	Cumulative total reverse reactive power consumption
5	NULL	6	Cumulative purchased amount
7	Residual amount	8	NULL
9	Date (year/month/day)	10	Time (hour/minute/second)
11	The alarm threshold 1	12	The alarm threshold 2
13	Load threshold	14	NULL
15	NULL	16	NULL
17	NULL	18	NULL
19	Power consumption of last month	20	Power consumption of last 2nd month
21	Power consumption of last 3rd month	22	Power consumption of last 4th month
23	Power consumption of last 5th month	24	Power consumption of last 6th month
25	Power consumption of last 7th month	26	Power consumption of last 8th month
27	Power consumption of last 9th month	28	Power consumption of last 10th month
29	Power consumption of last 11th month	30	Power consumption of last 12th month
31	The current total active power	32	The current A phase active power
33	The current B phase active power	34	The current C phase active power
35	The current total power factor	36	The current A phase power factor
37	The current B phase power factor	38	The current C phase power factor
39	NULL	40	The number of meter cover open
41	The last cover open time	42	The last 2nd cover open time
43	The last 3rd cover open time	44	The last 4th cover open time
45	The last 5th cover open time	46	The number of overload break power
47	the last overload time	48	the last 2nd overload time
49	the last 3rd overload time	50	the last 4th overload time
51	the last 5th overload time	52	The number of power down
53	The last power downtime	54	The last 2nd power down time
55	The last 3rd power down time	56	The last 4th power down time
57	The last 5th power down time	58	The number of phase down
59	The last phase down time	60	The last 2nd phase down time
61	The last 3rd phase down time	62	The last 4th phase down time
63	The last 5th phase down time	64	NULL
65	Meter Address High Bit	66	Meter Address Low Bit
67	NULL	68	NULL
69	NULL	70	A phase voltage
71	B phase voltage	72	C phase voltage
73	A phase current	74	B phase current

75	C phase current	76	the last 1 power purchase TOKEN
77	the last 2nd power purchase TOKEN	78	the last 3rd power purchase TOKEN
79	the last 4th power purchase TOKEN	80	the last 5th power purchase TOKEN
81	Last credit kWh	82	Last 2nd credit kWh
83	Last 3rd credit kWh	84	Last 4th credit kWh
85	Last 5th credit kWh	86	Total number of token accepted
87	NULL	88	NULL
89	NULL	90	NULL
91	NULL	92	NULL
93	NULL	94	NULL
95	NULL	96	NULL
97	NULL	98	NULL
99	NULL	100	NULL