

# TK3300 Installed Three-Phase Standard Energy Meter



## 1. Summary

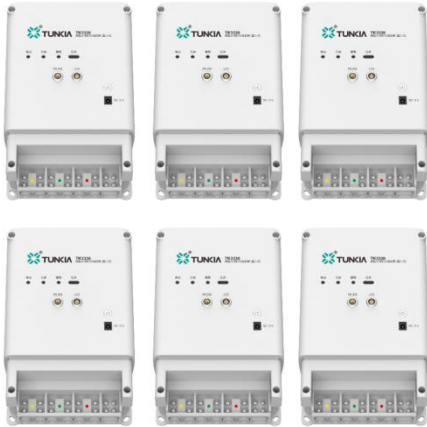
The TK3300 miniature installed three-phase standard energy meter is a standard energy meter with the same physical dimensions as conventional installed three-phase energy meters. TK3300 is specially used for calibration or intermediate check of three-phase energy meter test bench or assembly line devices, and can complete testing items such as basic errors and multi-channel output consistency.

## 2. Features

- Accuracy **class 0.01** and **class 0.02** are optional.
- There are two types: direct connection and connection via transformer (indirect connection).
- Voltage measurement range: 288 V (direct connection), 144 V (indirect connection).
- Current measurement range: 120 A (direct connection), 12 A (indirect connection).
- Voltage and current support fully automatic switching of range.
- Phase uncertainty typical value:  $0.003^\circ$  (class 0.01).
- Lithium battery power supply to avoid the impact of PT power taking on measurement.
- The battery can last for 8 hours and the charging time is less than 2 hours.
- Optional manual charging or automatic charging. The automatic charging standard version requires an optional charging system.
- Supports RS485 and RS232 communication interface.
- An external display screen (optional) can be connected to display the measured power.

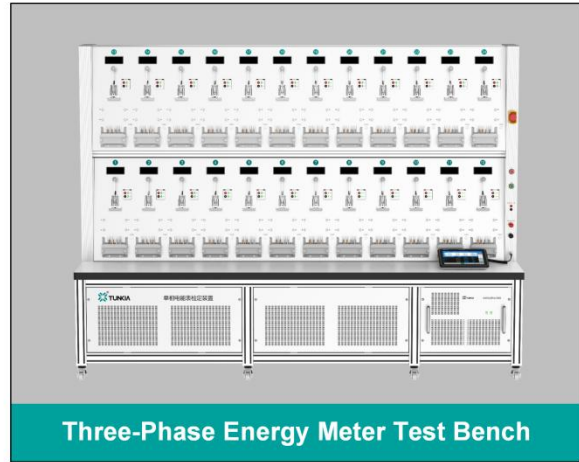
### 3. Applications

#### ★ Calibration of Three-Phase Energy Meter Device

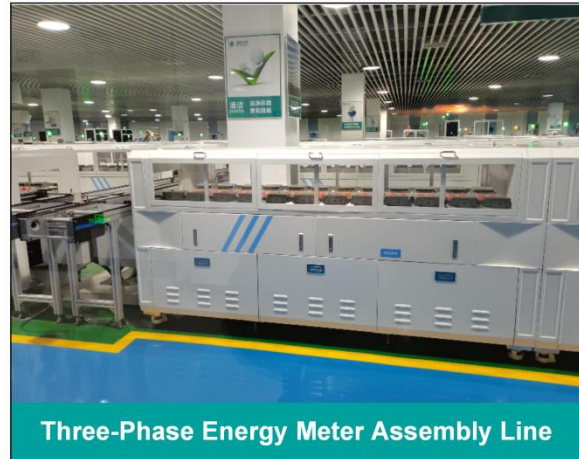


Multiple Installed Miniature Standard Meters

Calibration  
 Intermediate Check



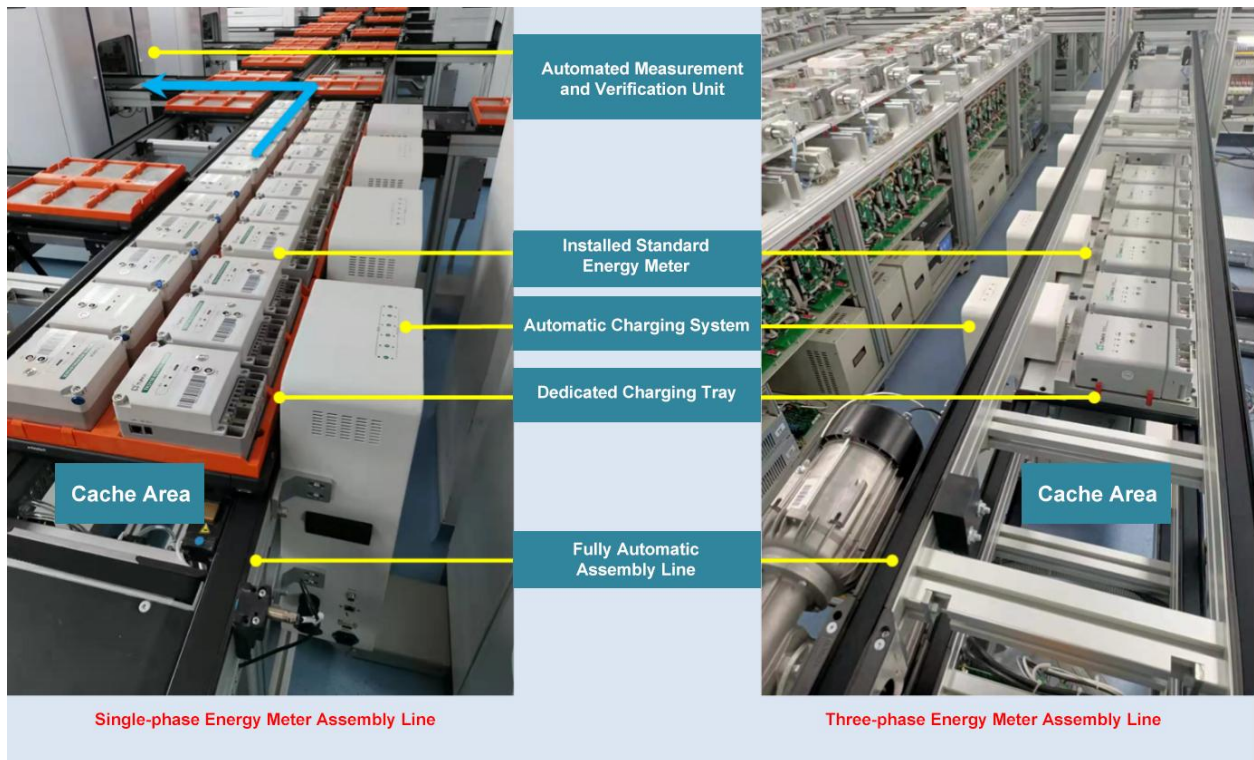
Three-Phase Energy Meter Test Bench



Three-Phase Energy Meter Assembly Line

- Install standard meters in batches to conduct calibration or intermediate check on the platform or assembly line equipment.
- Test items include basic errors, multi-channel output consistency, etc.

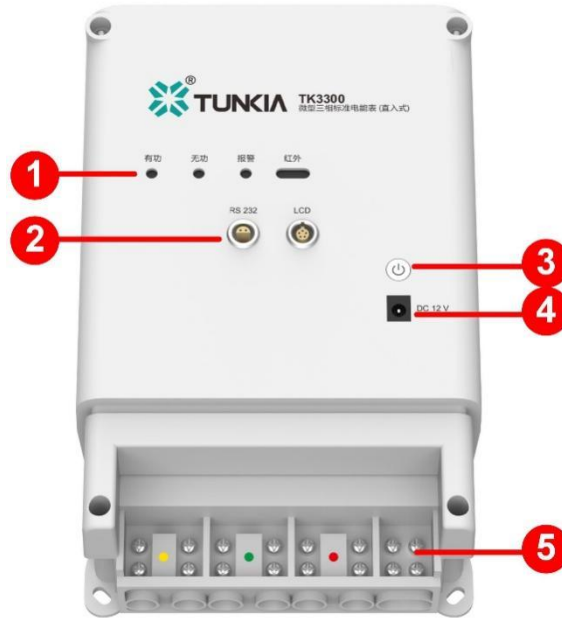
☆ Fully Automatic Intermediate Check



- Equipped with installed standard meters and automatic charging systems in batches
- Fully automatically complete the intermediate check of the assembly line equipment without manual participation.

## 4. Instrument Appearance

### ☆ Instrument Front Panel



S/N	Function
1	Indicator lights, including pulse indicator lights, alarm indicators, and infrared indicators.
2	232 Interface, used to configure standard energy meter energy constants, etc.; LCD Interface, used to connect the display screen;
3	Power button.
4	Power charging port.
5	Terminals.

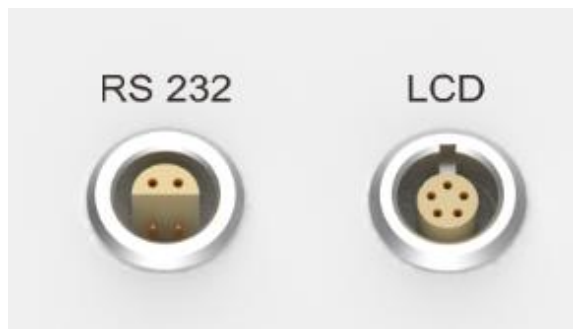
## 5. Characteristics

### ☆ Complies with Installed Meter Standard Dimensions



- The size, wiring terminals and pulse lamp position of the installed energy meter are consistent.
- It can be directly crimped to the meter position of the device without separate wiring, meeting the needs of automated detection.

### ☆ Communication Interface



- Supports RS485 and RS232 communication.
- Set the energy pulse constant and read the power information.
- An external LCD display (optional) can be connected to display the measured power value in real time.

### ☆ Automatic Charging System (optional)



- The compact size does not affect the automatic operation of the assembly line.
- It is powered by lithium batteries when working.
- It can be automatically transferred to the cache area for charging when not working.
- It communicates and controls with the master control system through Ethernet.
- It has charging over-voltage, over-current

and other fault alarm functions.

- It has automatic and manual start and stop functions.

## 6 Specifications

### 6.1 TK3300-X-D (Direct Connection)

#### 6.1.1 Three-Phase Voltage Measurement

Range	Measurement Uncertainty ( $k = 2$ ) ( $\text{ppm} \cdot \text{RD} + \text{ppm} \cdot \text{RG}$ ) <sup>[1]</sup>		Temperature Coefficient @ (15~30)°C ( $\text{ppm} \cdot \text{RD} + \text{ppm} \cdot \text{RG}$ ) / °C	
	Class 0.02	Class 0.01	Class 0.02	Class 0.01
60 V	60 + 40	30 + 20	< 6	< 3
120 V	60 + 40	30 + 20	< 6	< 3
240 V	60 + 40	30 + 20	< 6	< 3

Note [1]: RD is the reading value, RG is the range value, the same below.

- Measuring range: 50 V~288 V, 7-digit display, automatic range switching

#### 6.1.2 Three-Phase Current Measurement

Range	Measurement Uncertainty ( $k = 2$ ) ( $\text{ppm} \cdot \text{RD} + \text{ppm} \cdot \text{RG}$ ) <sup>[1]</sup>		Temperature Coefficient @ (15~30)°C ( $\text{ppm} \cdot \text{RD} + \text{ppm} \cdot \text{RG}$ ) / °C	
	Class 0.02	Class 0.01	Class 0.02	Class 0.01
50 mA	120 + 80	60 + 40	< 10	< 6
100 mA	60 + 40	30 + 20	< 6	< 3
200 mA	60 + 40	30 + 20	< 6	< 3
500 mA	60 + 40	30 + 20	< 6	< 3
1 A	60 + 40	30 + 20	< 6	< 3
2 A	60 + 40	30 + 20	< 6	< 3
5 A	60 + 40	30 + 20	< 6	< 3
10 A	60 + 40	30 + 20	< 6	< 3
20 A	60 + 40	30 + 20	< 6	< 3
50 A	60 + 40	30 + 20	< 6	< 3
100 A	60 + 40	30 + 20	< 6	< 3

- Measuring range: 5 mA~120 A, 7-digit display, automatic range switching



**6.1.3 Frequency/Phase Measurement**

<b>Frequency</b>	Measuring Range		45 Hz~65 Hz
	Measurement Uncertainty (k=2)		0.005%*RD
<b>Phase</b>	Measuring Range		0~360° (I ≥ 50mA)
	Measurement Uncertainty (k=2)	Class 0.02	0.006°
		Class 0.01	0.003°

**6.1.4 AC Power/Energy Measurement**

Current Range	Power Factor	Measurement Uncertainty(k=2)	
		Class 0.02	Class 0.01
100 mA ≤ I ≤ 120 A	0.5L~1~0.5C	0.02%*RD	0.01%*RD
50 mA ≤ I < 100 mA	1	0.02%*RD	0.01%*RD
	0.5L~1~0.5C	0.04%*RD	0.02%*RD
5 mA ≤ I < 50 mA	1	0.04%*RD	0.02%*RD
	0.5L~1~0.5C	0.08%*RD	0.04%*RD

- Power/energy measurement range: combination of AC voltage range and AC current range
- Power factor measurement range: -1.000 000...0.000 000...1.000 000
- Standard energy pulse output: high frequency full scale value corresponds to 60 kHz, low frequency full scale value corresponds to 6 Hz



## 6.2 TK3300-X-I (Indirect Connection)

### 6.2.1 Three-Phase Voltage Measurement

Range	Measurement Uncertainty ( k = 2 ) ( ppm*RD + ppm*RG ) <sup>[1]</sup>		Temperature Coefficient @ (15~30)°C (ppm*RD+ppm*RG) /°C	
	Class 0.02	Class 0.01	Class 0.02	Class 0.01
60 V	60 + 40	30 + 20	< 6	< 3
120 V	60 + 40	30 + 20	< 6	< 3

Note [1]: RD is the reading value, RG is the range value, the same below.

- Measuring range: 6 V~144 V, 7-digit display, automatic range switching

### 6.2.2 Three-Phase Current Measurement

Range	Measurement Uncertainty ( k = 2 ) ( ppm*RD + ppm*RG ) <sup>[1]</sup>		Temperature Coefficient @ (15~30)°C (ppm*RD+ppm*RG) /°C	
	Class 0.02	Class 0.01	Class 0.02	Class 0.01
10 mA	60 + 40	60 + 40	< 6	< 15
20 mA	80 + 60	40 + 30	< 3	< 6
50 mA	80 + 60	40 + 30	< 15	< 6
100 mA	60 + 40	30 + 20	< 6	< 3
200 mA	60 + 40	30 + 20	< 6	< 3
500 mA	60 + 40	30 + 20	< 6	< 3
1 A	60 + 40	30 + 20	< 6	< 3
2 A	60 + 40	30 + 20	< 6	< 3
5 A	60 + 40	30 + 20	< 6	< 3
10 A	60 + 40	30 + 20	< 6	< 3

- Measuring range: 1 mA~12 A, 7-digit display, automatic range switching

**6.2.3 Frequency/Phase Measurement**

<b>Frequency</b>	Measuring Range		45 Hz~65 Hz
	Measurement Uncertainty (k=2)		0.005%*RD
<b>Phase</b>	Measuring Range		0~360° (I ≥ 50mA)
	Measurement Uncertainty (k=2)	Class 0.02	0.006°
		Class 0.01	0.003°

**6.2.4 AC Power/Energy Measurement**

Current Range	Power Factor	Measurement Uncertainty(k=2)	
		Class 0.02	Class 0.01
100 mA ≤ I ≤ 12 A	0.5L~1~0.5C	0.02%*RD	0.01%*RD
10 mA ≤ I < 100 mA	1	0.02%*RD	0.01%*RD
	0.5L~1~0.5C	0.04%*RD	0.02%*RD
1 mA ≤ I < 10 mA	1	0.04%*RD	0.02%*RD
	0.5L~1~0.5C	0.08%*RD	0.04%*RD

- Power/energy measurement range: combination of AC voltage range and AC current range
- Power factor measurement range: -1.000 000...0.000 000...1.000 000
- Standard energy pulse output: high frequency full scale value corresponds to 60 kHz, low frequency full scale value corresponds to 6 Hz

## 7. General Specifications

<b>Power Supply</b>	Built-in lithium battery power supply
<b>Warm up time</b>	30 minutes
<b>Temperature Performance</b>	Operating temperature: 5°C~45°C; Storage temperature: -10°C~55°C
<b>Humidity Performance</b>	Working humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: (20%~80%) R·H, no condensation.
<b>Altitude</b>	< 3000 m
<b>Weight</b>	About 1kg
<b>Communication Interface</b>	RS232、RS485
<b>Power Supply</b>	Built-in lithium battery power supply

## 8. Ordering Information

TK3300  -  -

Connection Type	
Code	Note
<i>D</i>	Direct Connection
<i>I</i>	Indirect Connection

Accuracy Class	
Code	Note
<i>200</i>	Class 0.02
<i>100</i>	Class 0.01

Charging Mode	
Code	Note
-	Manual Charging
<i>A</i>	Automatic Charging

Eg. TK3300-D-100 means that the meter is a direct connection type, has an accuracy of class 0.01, and is a manual charging type.

**Note: Selecting the automatic charging mode requires adding an automatic charging system.**