

# TH3600 Broadband Low Current Standard Power Source

## 1.Summary

TH3600 is a three-phase standard power source with wide frequency and low current output. The output bandwidth is 45 Hz~1kHz, and the low current output can be as low as 20 $\mu$ A. It can be used as a power/energy calibration source for high-precision current measurement and analysis below 120mA. It makes up for the serious shortcomings of traditional electric energy meter calibration devices in broadband and low current measurement. It has optional power accuracy of class 0.005 and 0.01.

## 2.Features

- Maximum output: 528 V / 120 mA, which can ensure the stability of value output under full load conditions.
- Minimum current output: as low as 20 $\mu$ A.
- Multi-functional electric energy measurement: It has forward, reverse active and reactive energy, and supports the calibration of electric energy meters.
- Harmonic function (optional): Can load 2nd to 63rd harmonics with adjustable amplitude and phase to complete the harmonic impact test.

### 3. Specification

#### 3.1 ACV Output

Range	Resolution	Load Capacity	Short-term Stability ( ppm / min )		Measurement Uncertainty ( ppm*RD+ppm*RG, 45Hz~65Hz)		Total Harmonic Distortion (THD, %)
			Class 0.005	Class 0.01	Class 0.005	Class 0.01	
60 V	0.01 mV	0.3A	5	10	12 + 8	25 + 15	< 0.01
120 V	0.1 mV	0.15A	5	10	12 + 8	25 + 15	< 0.01
240 V	0.1 mV	0.08A	5	10	12 + 8	25 + 15	< 0.01
480 V	0.1 mV	0.04A	5	10	12 + 8	25 + 15	< 0.01

- Output range: 6 V ~ 528 V, 7-digit display
- Adjustment fineness: 3ppm
- Protection functions: short circuit protection, overload protection, temperature protection

#### 3.2 ACI Output

Range	Resolution	Load Capacity	Short-term Stability ( ppm / min )		Measurement Uncertainty ( ppm*RD+ppm*RG, 45Hz~65Hz)		Total Harmonic Distortion (THD, %)
			Class 0.005	Class 0.01	Class 0.005	Class 0.01	
0.2 mA	0.1 nA	8V	12	20	30 + 20	50 + 30	< 0.02
0.5 mA	0.1 nA	8V	12	20	30 + 20	50 + 30	< 0.02
1 mA	1 nA	8V	8	15	20 + 10	30 + 20	< 0.02
2 mA	1 nA	8V	8	15	20 + 10	30 + 20	< 0.01
5 mA	1 nA	8V	8	15	20 + 10	30 + 20	< 0.01
10 mA	10 nA	8V	8	15	20 + 10	30 + 20	< 0.01
20 mA	10 nA	8V	8	15	20 + 10	30 + 20	< 0.01
50 mA	10 nA	8V	8	15	20 + 10	30 + 20	< 0.01
100 mA	100 nA	8V	8	15	20 + 10	30 + 20	< 0.01

- Output range: 0.02 mA~120 mA, 7-digit display
- Adjustment fineness: 3ppm
- Protection functions: open circuit protection, overload protection, temperature protection

### 3.3 Frequency / Phase

Parameter	Adjustment Range	Optimal Measurement Uncertainty (k=2)
Frequency	45.0000 Hz~1000.000 Hz	50 ppm*RD
Phase	0.000 0°~359.999 9°	0.001°
Harmonic (optional)	2nd~63rd, amplitude 0~40% (total harmonic distortion does not exceed 50%), phase adjustable from 0.0° ~ 359.99°	

### 3.4 Power / Energy

Measured Power	Voltage Range	Current Range	Measurement Uncertainty (45Hz~65Hz, k=2)	
			Class 0.005	Class 0.01
Active Power / Energy Apparent Power $ \cos\phi  \geq 0.5$	$30\text{ V} \leq U \leq 480\text{ V}$	$0.05\text{ mA} \leq I < 1\text{ mA}$	0.005%*FS	0.01%*FS
		$1\text{ mA} \leq I < 100\text{ mA}$	0.005%*RD	0.01%*RD
Reactive Power $ \sin\phi  \geq 0.5$	$30\text{ V} \leq U \leq 480\text{ V}$	$0.05\text{ mA} \leq I < 1\text{ mA}$	0.01%*FS	0.02%*FS
		$1\text{ mA} \leq I < 100\text{ mA}$	0.01%*RD	0.02%*RD
Power Factor	$30\text{ V} \leq U \leq 480\text{ V}$	$0.05\text{ mA} \leq I < 1\text{ mA}$	0.01%	0.02%
		$1\text{ mA} \leq I < 100\text{ mA}$	0.005%	0.01%

Note: ① FS = voltage range value × current range value

- Power/electric energy measurement range: combination of AC voltage range and AC current range
- Power factor measurement range: -1.000 00...0.000 00...1.000 00
- Standard electric energy pulse output: high frequency full scale value corresponds to 60 kHz, low frequency full scale value corresponds to 6 Hz
- Standard power pulse input: frequency ≤ 200 kHz, voltage: 0...3.3 V...24 V


- Power error display: automatic, resolution 0.0001%

#### 4. General Specification

<b>Power Supply</b>	AC ( 220 ± 22 ) V, ( 50 ± 2 ) Hz
<b>Preheat Time</b>	30mins
<b>Temperature Performance</b>	Working temperature: 15°C~30°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, non-condensing
<b>Communication Interface</b>	RS232、LAN

#### 5. Ordering Information

**TH3600** -  



Accuracy	
Code	Note
100	<i>Class 0.01</i>
50	<i>Class 0.005</i>

***E.g: TH3600-100 means that the accuracy of the device is class 0.01.***