TH1000 Ultra Stable Precision Current Source

1.Summary

TH1000 is a precision DC current standard source, which can accurately output ± (0~110 mA) DC current with an optimal uncertainty of ± 15 μA/A.

2. Features

- Optimal uncertainty: **± 15 μA/A**
- DC current standard source：±(0~110 mA)
- The maximum load voltage of constant current output reaches 10 V。
- Bipolar source generates positive and negative current directly through the circuit.
- Typical value of rise time < 10 ms, typical value of establishment time < 20 ms.

3. Specifications

3.1 DC Current Output

Range	Resolution (nA)	Short-term Stability [1]	Relative Accuracy	Absolute Measurement Accuracy (k=2)			
		24 hour (23±1)°C	24 hour (23±1)°C	24 hour (23±5)°C	90 day (23±5)°C	180 day (23±5)°C	1 year (23±5)°C
		(ppm of reading + nA) [2]					
100 μA	0.01	5 + 0.7	5 + 3	7 + 5	8 + 5	9 + 5	10 + 5
1 mA	0.1	5 + 4	5 + 5	7 + 6	8 + 6	9 + 6	10 + 6
10 mA	1	5 + 40	5 + 45	7 + 50	8 + 50	9 + 50	10 + 50
100 mA	10	8 + 250	8 + 300	10 + 500	12 + 500	13 + 500	15 + 500

note [1]： The 24-hour stability is expressed in the form of standard deviation of continuous measured values.

[2]：(ppm = parts per million) (e.g: 10ppm = 0.001%).

3.2 Auxiliary Performance

Range	Temperature Coefficient		Maximum Burden Voltage	Load Influence Error [3]	Noise	
	(10~40)°C	(0~10)°C (40~50)°C			(0.1~10) Hz (pk-pk)	(10~10k) Hz (rms)
	(ppm of reading + nA)/°C		(V)	(nA/V)	(ppm of reading + nA)	
100 μA	0.5 + 0.2	1.5 + 0.6	10	0.1	5 + 0.9	0 + 8
1 mA	0.5 + 1	1.5 + 5	10	0.2	5 + 5	0 + 8
10 mA	0.5 + 15	1.5 + 80	10	5	5 + 50	0 + 40
100 mA	0.8 + 150	2 + 800	10	50	8 + 300	0 + 400

note [3]：The load influence error is the addition of the absolute accuracy index. This rule applies when the load voltage exceeds 2.5 V; The rest are not applicable.

- Display digits: 7/8, adjustment fineness: 0.1 ppm;

- Establishment time: the time from setting the output to meeting the index requirements is less than 20 ms;
- Test conditions: 1 hour preheating, ambient temperature 23°C ± 1°C, sampling rate 0.2 sps;
- Protection mode: open circuit protection, overload protection

5. General Specifications

Power supply	AC (220 ± 22) V，(50 ± 2) Hz
Working Environment	0 °C ~ 40 °C，20% R·H ~ 80% R·H，non-condensing.
Storage environment	-10 °C ~ 50 °C，10% R·H ~ 90% R·H，non-condensing.
Interface	RS232、LAN