TD2010 DC High Current Standard Source

*Reference only.

1. Summary

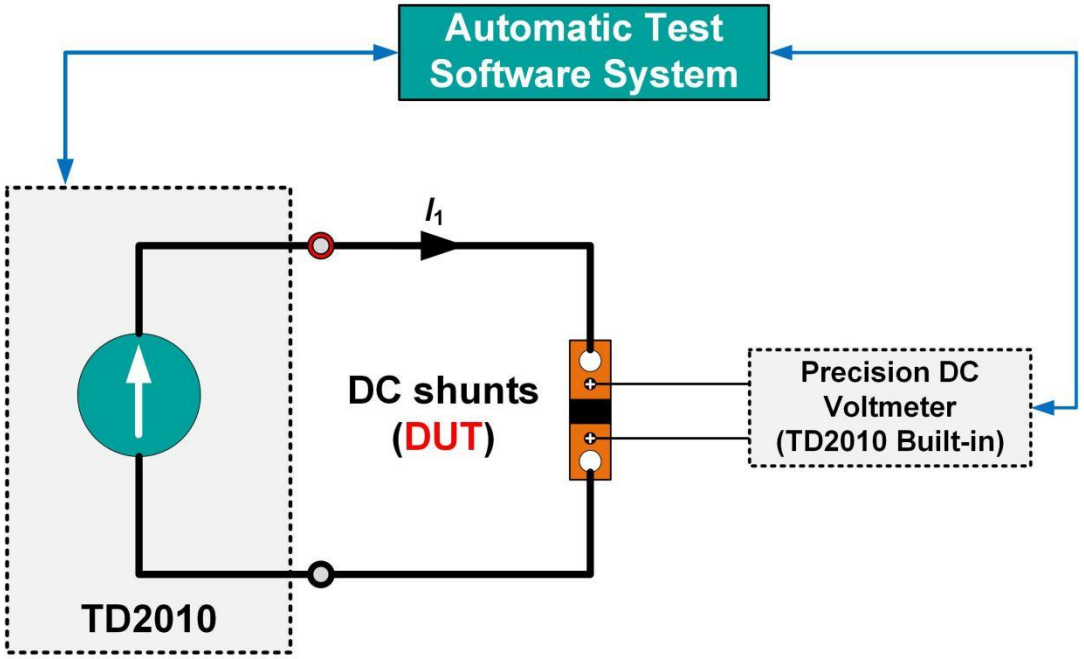
TD2010 is a set of DC high current standard source equipment, using modular design, multiple current output units in parallel can directly generate a maximum of 15 kA of high-precision DC high current. The device has high accuracy, good stability, high reliability, and supports continuous 24 hours of work. It also supports optional sensor test work to form a DC current sensor test system, can also be equipped with a special bracket and secondary voltage measurement module, easy to access DC shunt for testing.

2. Features

- Support multiple module source superposition output, current output up to 15 kA;
- Accuracy: class **0.01**, class **0.02**, class **0.05**
- Typical peak stability is 15 ppm/h and variance stability is 6 ppm/h;
- Built-in precision DC voltmeter, no need to attach a digital multimeter for voltage measurement;
- 24-hour work
- RS232 interface

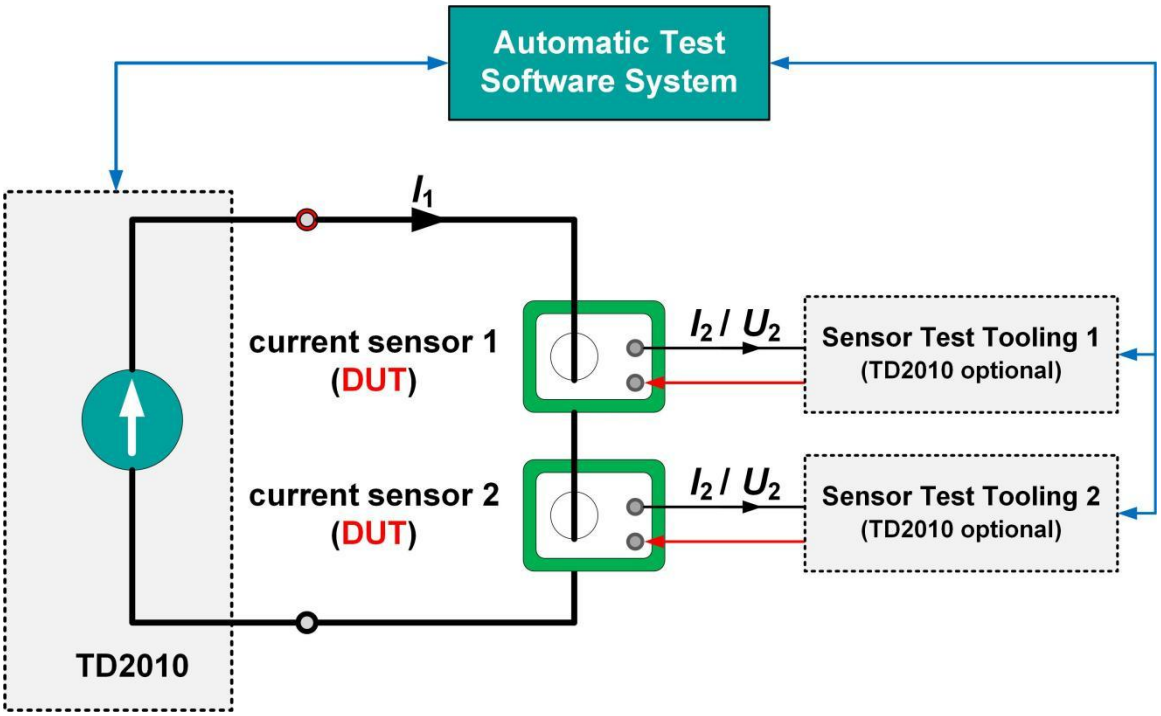
3. Applications

☆ Testing DC Shunt



- Supports standard source method calibration and testing of DC shunts.
- Built-in precision DC voltmeter to measure the output voltage value of the shunt.
- Support docking with the user's automated test system (or customized software) to achieve automatic testing.

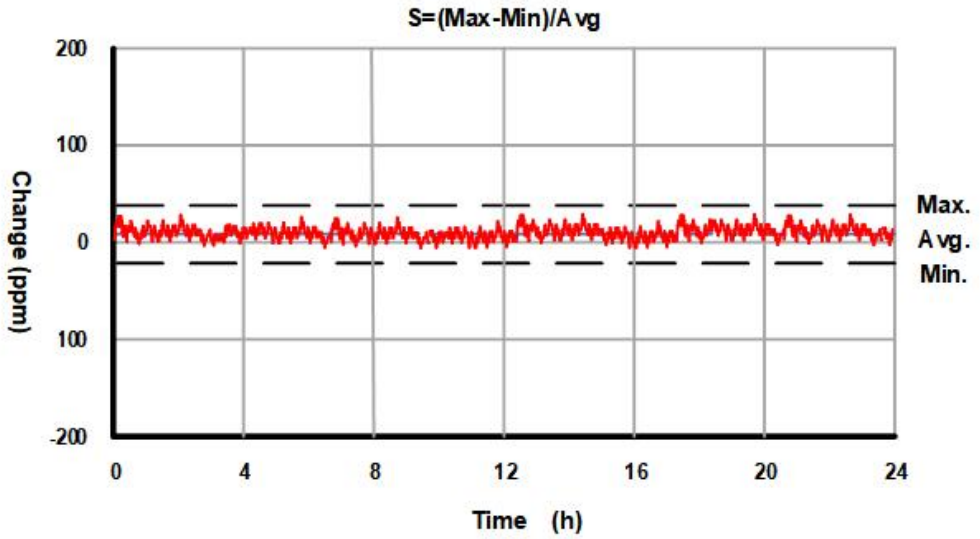
☆ Testing Current Sensor



- The standard source method is used to calibrate and measure the current sensor.
- The user can choose the sensor test fixture to measure the power supply and secondary signal of the sensor.
- Support docking with the user's automated test system (or customized software) to achieve automatic testing.

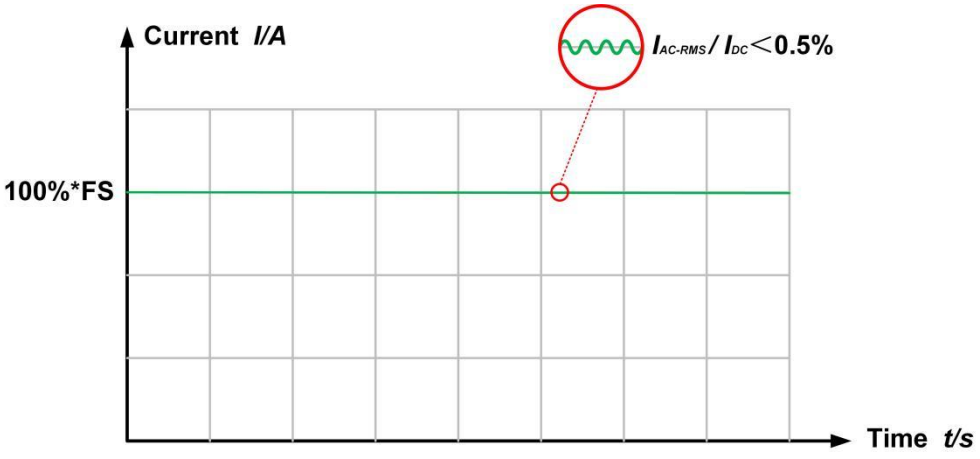
4. Characteristics

☆ High Stability



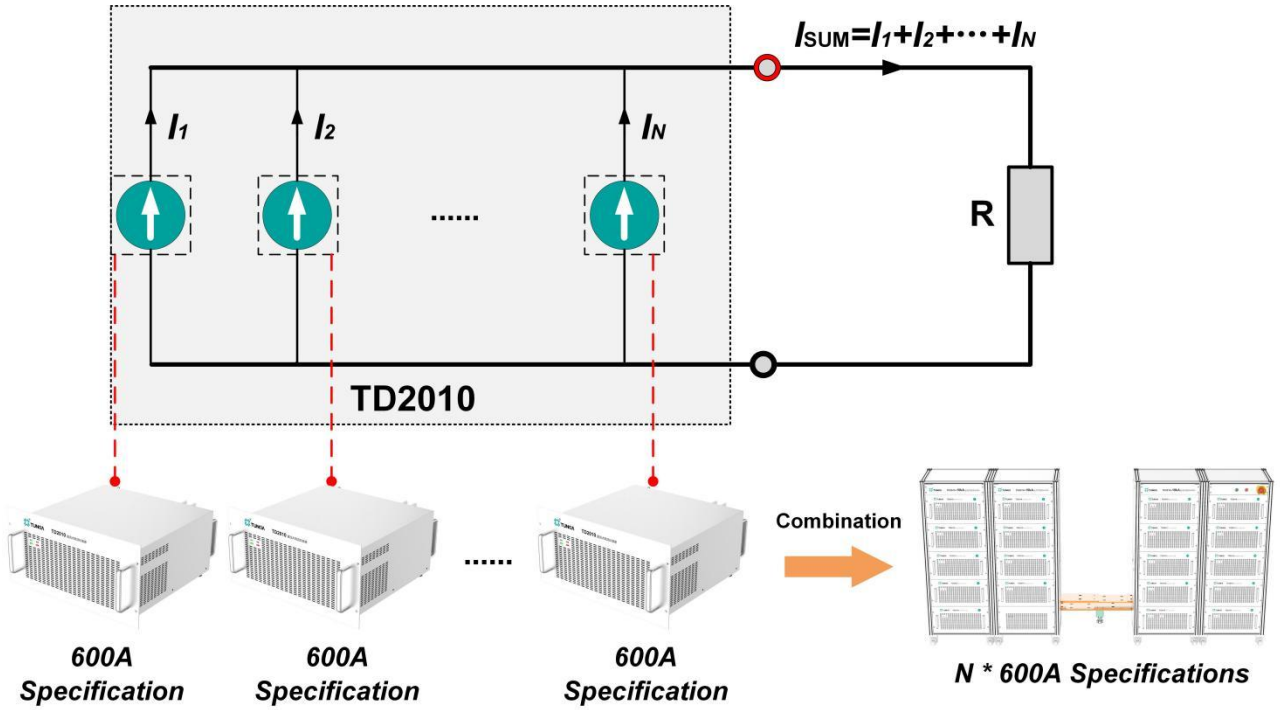
- 24-hour stability typical: 0.003 % (class 0.01), 0.005 % (class 0.02).
- It can effectively ensure good repeatability and consistency of sensor and shunt detection.

☆ Low Ripple Content



- The current ripple content of the instrument is less than 0.5 %, which can effectively reduce noise interference and ensure the accuracy of test results and avoids surge voltage or current caused by strong ripple to ensure the safety of equipment operation.

☆ Module Source Combination Output



- The instrument supports DC high-current output in combination mode of multiple module sources, up to 15 kA;
- The instrument supports adjusting multiple source outputs, improving the current sharing coefficient, and ensuring stability and accuracy under high-current output.

5. Specifications

5.1 DC High Current Standard Source

Range	Short-term Stability (%/min)			Measurement Uncertainty (k=2). (ppm*RD+ppm*RG)①			Maximum Load Voltage (V)
	0.05	Class 0.02	Class 0.01	Class 0.05	Class 0.02	Class 0.01	
100 A	0.01	0.005	0.003	400+100	150 + 50	60 + 40	3.5
200 A	0.01	0.005	0.003	400+100	150 + 50	60 + 40	3.5
500 A	0.01	0.005	0.003	400+100	150 + 50	60 + 40	3.5
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
15 kA	0.01	0.005	0.003	400+100	150 + 50	60 + 40	3.5
Note: (1) RD is the reading value, RG is the range value, the same below							

- Output range: 10 A~600 A (expandable to N*600A), 7-bit display
- Fineness: 5 ppm*RG, ripple coefficient: <0.5% @ 5 kHz or less
- Settling time: The output time to 0.01% accuracy is less than 3 s
- Protection function: open circuit protection, overload protection

5.2 DC Voltage Measurement

Voltage Range	Resolution	Measurement Uncertainty (k=2). (ppm*RD+μV)			Temperature Coefficient @ (15~30)°C (±ppm*RD/°C)		
		Class 0.05	Class 0.02	Class 0.01	Class 0.05	Class 0.02	Class 0.01
1mV	1 nV	150 + 1	80 + 0.5	70+ 0.5	< 30	< 15	< 15
10mV	10 nV	150 + 3	80 + 1.5	70 + 1	< 10	< 5	< 5
100mV	100 nV	150 + 10	80 + 5.0	70 + 3	< 10	< 5	< 5
1V	1 μV	150 + 20	80 + 20	70 + 30	< 5	< 2	< 2
10V	10 μV	150 + 100	80 + 50	70 + 300	< 5	< 2	< 2

- Measuring range: ± (100 μV~11 V), manual/automatic range switching
- Input resistance: >1GΩ; Input protection: ±50Vpk, continuous.

5.3 Sensor Power Supply and Output Measurement (optional).

Sensor secondary signal measurement	Voltage Measurement Range	100 m V, 1 V, 10 V, manual or automatic shifting
	Voltage Measurement Range	±(10mV~12V)
	Current Measurement Range	10 mA, 1 00 mA, 1 A, manual or automatic shifting
	Current Measurement Range	±(1 mA~1.1 A)
	Measurement Uncertainty (k=2)	0.002%*RD + 0.003%*RG
	Displays the Number of Digits	7-digit decimal
	Temperature Coefficient	5 ppm/°C @ (0°C~40°C)
Sensor power supply	Supply Voltage	DC ±(5.0 V~50.0 V) adjustable
	Maximum Load Capacity	1 A
	Measurement Uncertainty (k=2)	Voltage/current: 0.2%, power: 0.5%.
	Protection Features	Short circuit protection, overload protection, overtemperature protection
	AC Power Supply (customized)	The AC 220 V power supply can be increased according to the user's needs

6. General Specifications

Power Supply		Three-phase five-wire, AC 38 0 V ± 38 V, 50 Hz ± 2 Hz
Maximum Power		N×4 kVA (N is the number of current output units).
Working Environment		0°C ~ 50°C, (20% ~ 85%) R· H, no-condensing
Storage Environment		-20°C ~ 70°C, <85% R· H, no-condensing
Warm-up Time		2 hours
Device Size	**600 A Module**	560 mm (W) X 560 mm (D) X 1500 mm (H)
	5 kA Module	1980 mm (W) X 756 mm (D) X 1700 mm (H)
	15 kA Module	5100 mm (W) X 2400 mm (D) (with sensor test fixture).
Communication Interface		RS232

7. Ordering Information

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Accuracy Class	
Code	***Note***
100	***Class 0.01***
200	***Class 0.02***
500	***Class 0.05***

Maximum Current Range	
Code	***Note***
600A	***600 A***
1200A	***1200 A***
⋮	⋮
N*600A	***N*600 A***

E.g. TD2010-100-15 kA means that the accuracy is Class 0.01, and the Maximum Current Range is 15 kA.