

TD1858 Portable Multi-function Calibrator



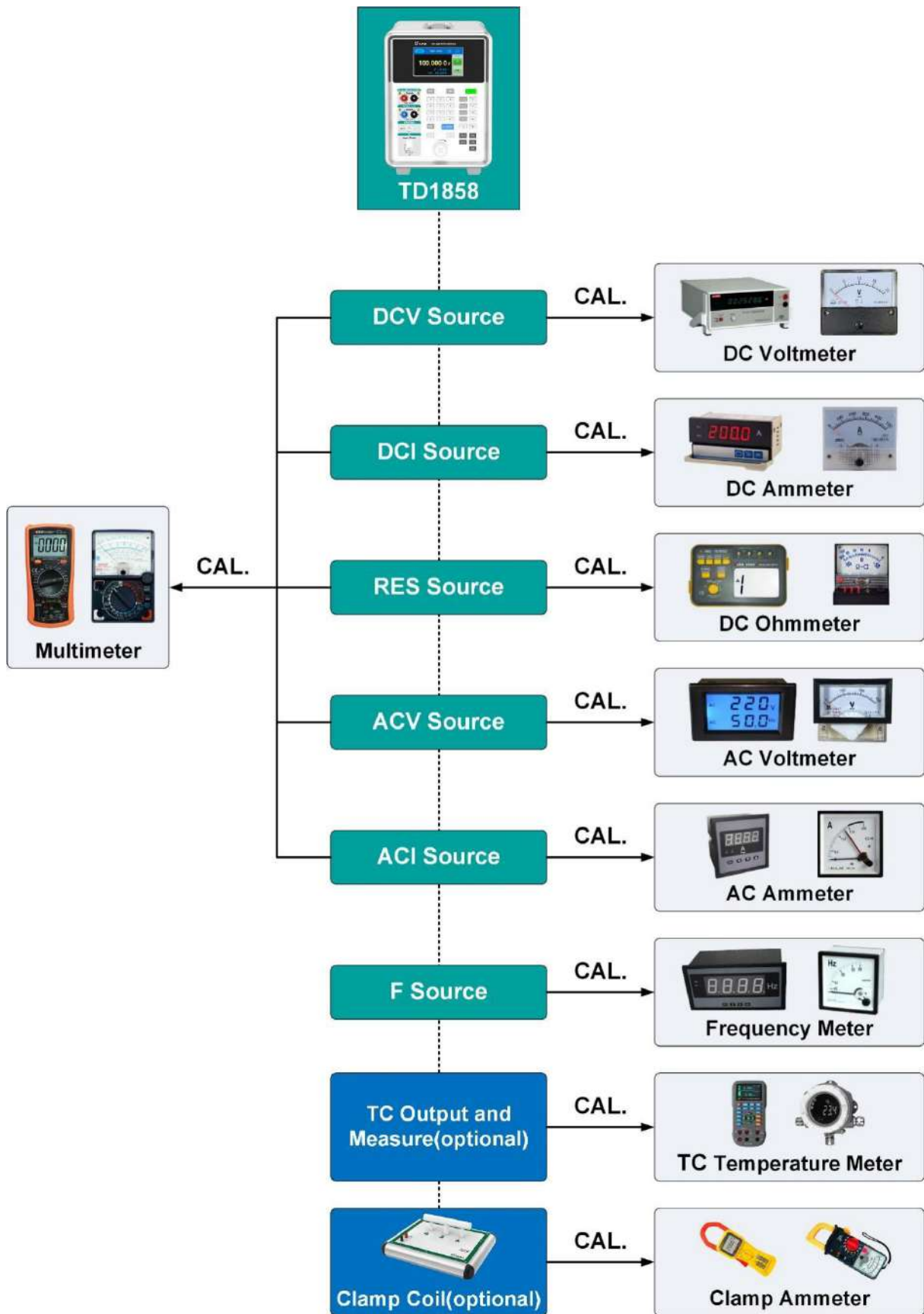
1. Summary

TD1858 is a high precision and multi-function calibrator, integrates AC\DC voltage source, AC\DC current source, DC resistance source, etc. It is portable and very suitable for on-site calibration

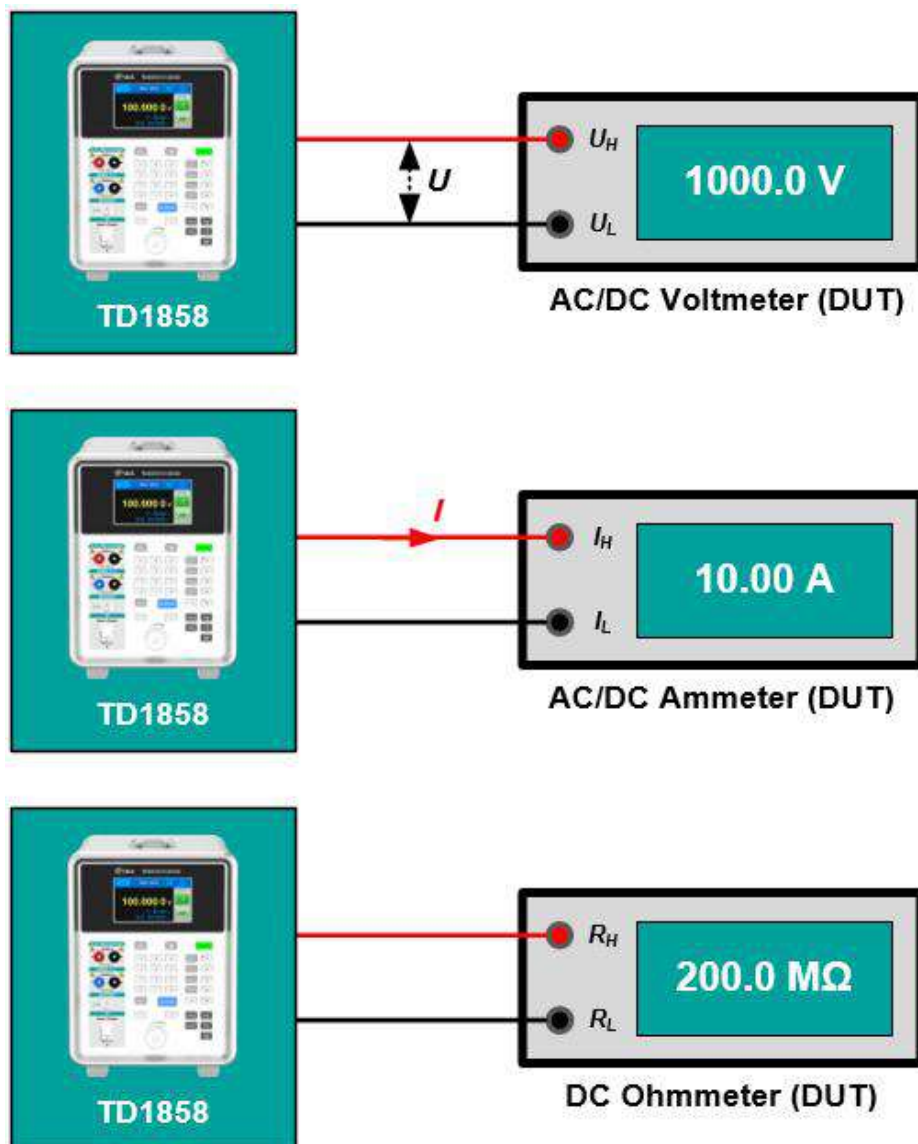
2. Features

- DC voltage output: +(10 mV ~ 1020 V)、-(10 mV ~ 10.4 V)
- DC current output: $\pm(10 \mu\text{A} \sim 10.2 \text{ A})$
- AC voltage output: 10 mV ~ 1020 V
- AC current output: 10 $\mu\text{A} \sim 10.4 \text{ A}$
- Sinusoidal Wave frequency: 10 Hz ~ 20 kHz
- Simulated DC resistance: 1 $\Omega \sim 220 \text{ M}\Omega$
- 2 MHz Square wave frequency output
- Thermocouple outputs (optional)
- Clamp meter calibration (optional)

3. Application

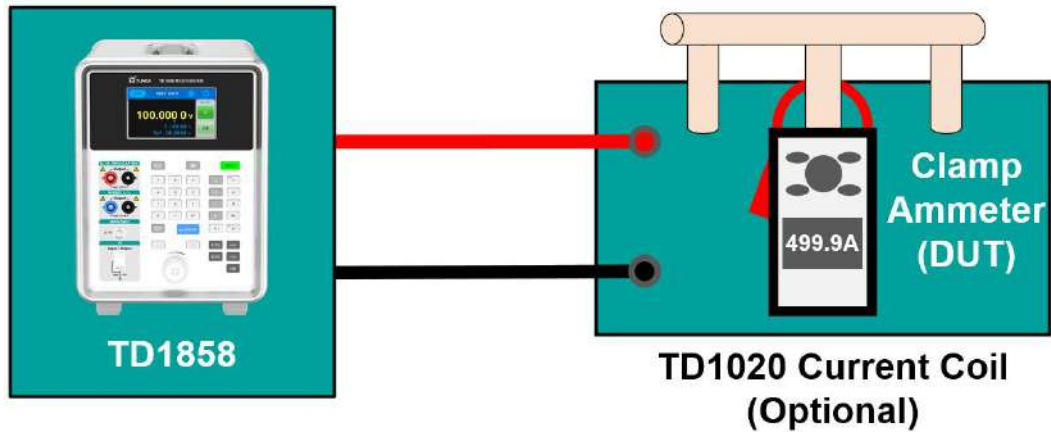


☆ Calibrate AC/DC Electrical Measuring Instruments



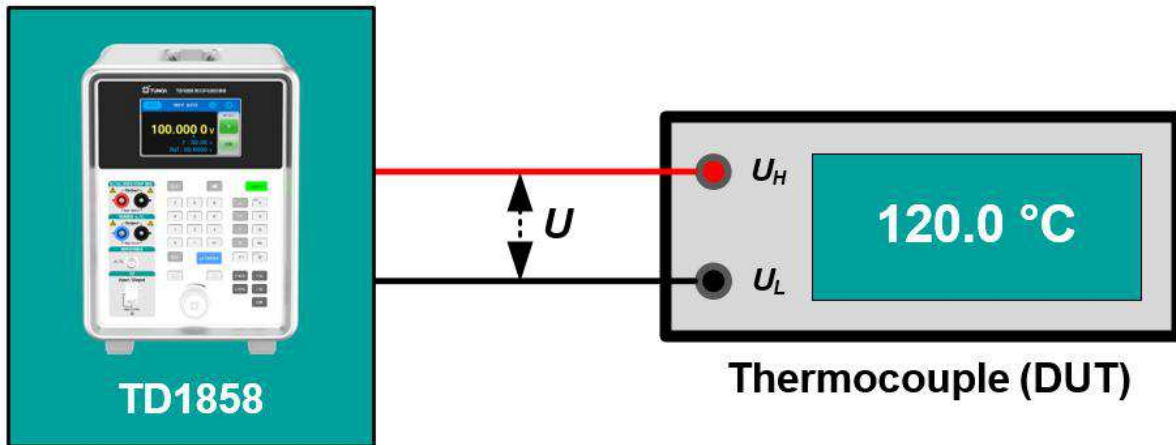
- **DCV output:** +(10 mV ~ 1020 V), -(10 mV ~ 10.4 V)
- **DCI output:** ±(10 μA ~ 10.2 A)
- **ACV output:** 10 mV ~ 1020V, 10 Hz ~ 20 kHz
- **ACI output:** 10 μA ~ 10.4 A, 10 Hz ~ 2 kHz
- **RES output:** 1 Ω ~ 220 MΩ
- **Frequency output:** 1 Hz ~ 2 MHz
- Calibrate digital multimeter, AC/DC voltmeter, AC/DC ammeter, DC ohmmeter, frequency meter.

☆ Calibrate Clamp Ammeter (optional)



- Equivalent to 1000AT current through input 20A current to the 50T Coil, which is suitable for calibrating DC clamp meters.

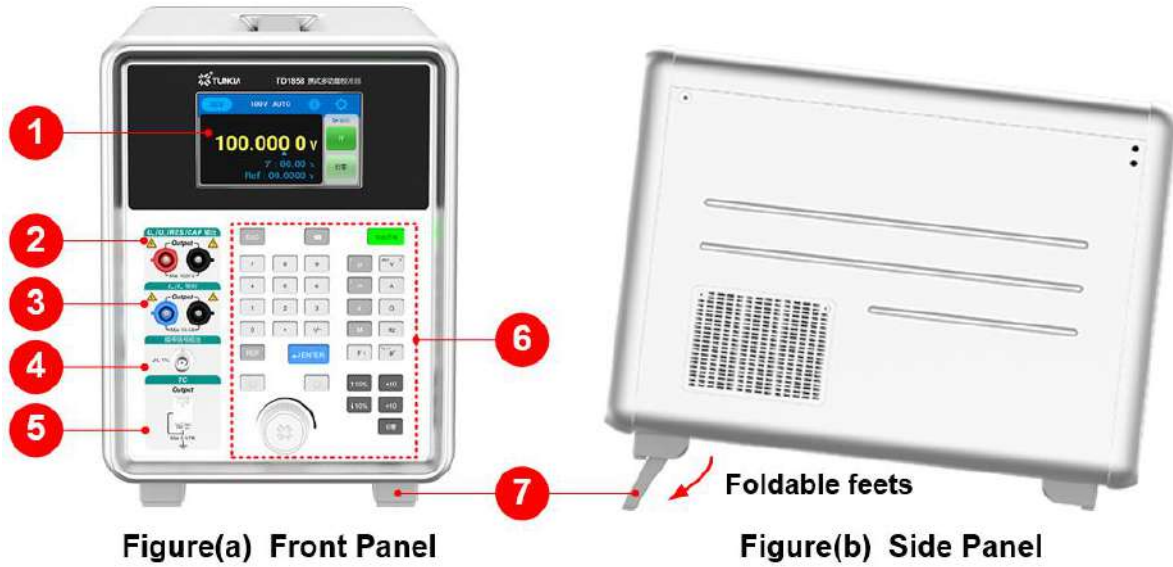
☆ Calibrate Thermocouple (optional)



- Type of Thermocouple (TC) Output: J, K, T, R, S, B, N, E, L, U, C.

4. Panel Features

☆ Front\Side Panel

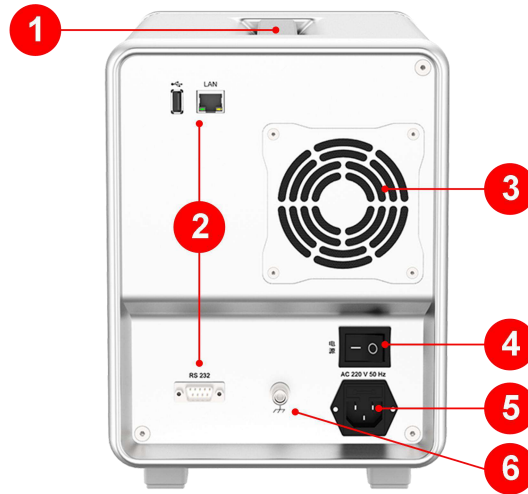


Figure(a) Front Panel

Figure(b) Side Panel

Item	Description
1	LCD touch screen.
2	AC/DC voltage and Simulated DC resistance output terminals.
3	AC/DC current output terminals.
4	Pulse frequency output terminals.
5	Thermocouple output/measurement terminals.
6	Operation panel.
7	Foldable feet.








☆ Rear Panel



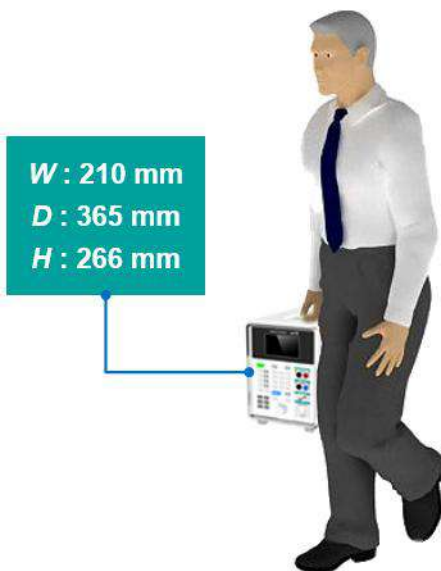
Item	Description
1	Embedded handle.
2	USB、LAN、RS232 interface.
3	Cooling vents.
4	Power switch.
5	AC 220V power interface.
6	Chassis ground binding post.

5. Characteristics

☆ Wide Output Range

	1 μ	1m	1	1k	1M	1G
DCV	10 mV  1020 V					
DCI	10 μ A  10.2 A					
RES	1 Ω  220 M Ω					
ACV	10 mV  1020 V					
ACI	10 μ A  10.4 A					
F _~	10 Hz  20 kHz					
F _~	1 Hz  2 MHz					

☆ Excellent Portability



Figure(a) Small Size



Figure(b) Light Weight

- The overall weight is less than 10 kg.

☆ Multiple Output\Adjustment Methods

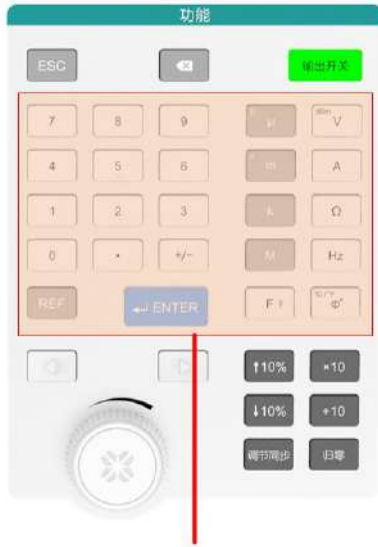


Figure (a) Keypad



Figure (b) Touch Screen Output

- **“Direct Output”** mode: the value output can be set directly by physical key or touch screen.

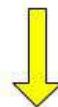
☆ Multiple Output\Adjustment Methods



Rotary Knob



U : 100.0000 V

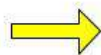


U : 100.1000 V

- “Rotary Knob” mode, User can setting in clockwise direction or anticlockwise direction.



% Setting



Output

U_H 100.0000 V
U_L

U_H 110.0000 V
U_L

↑10% Output

U_H 90.0000 V
U_L

↓10% Output

U_H 1000.000 V
U_L

×10 Output

U_H 10.00000 V
U_L

÷10% Output

- Use the key $\uparrow 10\%$ 、 $\downarrow 10\%$ 、 $\times 10$ 、 $\div 10$ on the front panel, can realize the adjustment of the quantity value, and can also be used to perform the relevant test of linearity.

6. Specifications

6.1 DC Voltage Output

Range	Resolution	Accuracy $\pm(\text{ppm} \cdot \text{RD} + \mu\text{V})^{[1]}$			Max Burden (mA)	Ripple Factor (%)
		24 hours (23±1)°C	90 days (23±5)°C	1 year (23±5)°C		
100mV	1 μV	40 + 10	64 + 10	80 + 10	100	<0.1
1 V	10 μV	40 + 30	64 + 30	80 + 30	100	<0.1
10 V	100 μV	40 + 300	64 + 300	80 + 300	100	<0.1
100 V	1 mV	40 + 3000	64 + 3000	80 + 3000	25	<0.1
1000 V	10 mV	40 + 30000	64 + 30000	80 + 30000	12	<0.1

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

- Output range: +(10 mV ~ 1020 V)、-(10 mV ~ 10.4 V)
- 6 digits display
- Short-circuit and overload protection

6.2 DC Current Output

Range	Resolution	Accuracy $\pm(\% \cdot \text{RD} + \mu\text{A})$			Compliance Voltage (V)	Ripple Factor (%)
		24 hours (23±1)°C	90 days (23±5)°C	1 year (23±5)°C		
100 μA	1 nA	0.01+0.03	0.016+0.03	0.02+0.03	8	<0.5
1 mA	10 nA	0.01+0.1	0.016+0.1	0.02+0.1	8	<0.2
10 mA	100 nA	0.01+ 1	0.016+ 1	0.02+ 1	8	<0.1
100 mA	1 μA	0.01+ 10	0.016+ 10	0.02+ 10	8	<0.1
1 A	10 μA	0.01+ 100	0.016+ 100	0.02+ 100	4.2	<0.1
10 A	100μA	0.015+ 2000	0.024+ 2000	0.03+ 2000	3.9	<0.1

- Output range: ±(10 μA ~ 10.2 A)
- 6 digits display
- Open-circuit and overload protection

6.3 AC Voltage Output

Range	Resolution	Frequency (Hz)	Accuracy $\pm(\%*RD + mV)$			Max Burden (mA)	Harmonic (%)
			24 hours (23±1)°C	90 days (23±5)°C	1 year (23±5)°C		
100 mV	1 μV	10 ~ 2k	0.02 + 0.03	0.032 + 0.03	0.04 + 0.03	100	<0.5
		2k ~ 20k	0.03 + 0.05	0.048 + 0.05	0.06 + 0.05		
1 V	10 μV	10 ~ 2k	0.015 + 0.2	0.024 + 0.2	0.03 + 0.2	100	<0.5
		2k ~ 20k	0.025 + 0.5	0.040 + 0.5	0.05 + 0.5		
10 V	100 μV	10 ~ 2k	0.015 + 2	0.024 + 2	0.03 + 2	100	<0.5
		2k ~ 20k	0.025 + 5	0.040 + 5	0.05 + 5		
100 V	1 mV	40 ~ 1k	0.03 + 30	0.048 + 30	0.06 + 30	20	<0.5
1000 V	10 mV	40 ~ 1k	0.03 + 300	0.048 + 300	0.06 + 300	12	<0.5

- Output range: 10 mV ~ 11 V @ 10 Hz ~ 20 kHz, 10 V~1020V @ 40 Hz~1 kHz
- 6 digits display
- Short-circuit and overload protection

6.4 AC Current Output

Range	Resolution	Frequency (Hz)	Accuracy $\pm(\%*RD+\mu A)$			Compliance Voltage (V)	Harmonic (%)
			24 hours (23±1)°C	90 days (23±5)°C	1 year (23±5)°C		
100 μA	1 nA	10 ~ 2k	0.03+0.24	0.048+0.24	0.06+0.24	6	<0.5
1 mA	10 nA	10 ~ 2k	0.025+0.5	0.04+0.5	0.05+0.5	6	<0.5
10 mA	100 nA	10 ~ 2k	0.025+5	0.04+5	0.05+ 5	6	<0.5
100 mA	1 μA	10 ~ 2k	0.025+50	0.04+50	0.05+50	6	<0.5
1 A	10 μA	10 ~ 2k	0.025+600	0.04+600	0.05+600	4	<0.5
10 A	100 μA	10 ~ 2k	0.03+9000	0.048+9000	0.06+9000	3.6	<0.5

- Output range: 10 μA ~ 10.4 A @ 10 Hz ~ 2 kHz
- 6 digits display
- Open-circuit and overload protection

6.5 Simulated DC Resistance

Range	Resolution	Accuracy, $\pm(\%RD+\Omega)$			Allowable Current
		24 hours (23±1)°C	90 days (23±5)°C	1 year (23±5)°C	
10 Ω	100 $\mu\Omega$	0.025 + 0.05	0.03+0.05	0.05+0.05	1mA~150 mA
100 Ω	1 m Ω	0.015+0.02	0.024+0.02	0.03+0.02	1mA~80 mA
1 k Ω	10 m Ω	0.015+0.2	0.024+0.2	0.03+0.2	0.1mA~8 mA
10 k Ω	100 m Ω	0.015+2	0.024+2	0.03+ 2	10 μ A~800 μ A
100 k Ω	1 Ω	0.015+2	0.024+2	0.03+ 20	10 μ A~200 μ A
1 M Ω	10 Ω	0.015+20	0.024+20	0.03+ 200	1 μ A~20 μ A
10 M Ω	100 Ω	0.03 + 4000	0.048 + 4000	0.06+ 4000	0.25 μ A~20 μ A
100 M Ω	1 k Ω	0.15 + 200k	0.24 + 200k	0.3+200k	25nA~200nA
200 M Ω	1 k Ω	0.18 + 500k	0.28 + 500k	0.35+500k	15nA~100nA

- Output range: 10 Ω ~ 220 M Ω
- 6 digits display
- Over-current and reverse connection protection

6.6 Sinusoidal Wave Frequency Output

Range ^[2]	Resolution	Accuracy
10.0000 Hz ≤ F ≤ 99.9999 Hz	0.1 mHz	±0.01%
100.000 Hz ≤ F ≤ 999.999 Hz	1 mHz	±0.01%
1.000 00kHz ≤ F ≤ 9.999 99kHz	10 mHz	±0.01%
10.000 0 kHz ≤ F ≤ 20.000 0 kHz	0.1 Hz	±0.01%

Note [2]: The output mode is AC voltage or AC current.

6.7 Pulse Frequency Output

Range ^[3]	Resolution	Accuracy	Shake
1.000 00 Hz ≤ F ≤ 9.999 99 Hz	10 μHz	±(20 ppm*RD + 20 μHz)	<20 ns
10.000 0 Hz ≤ F ≤ 99.999 9 Hz	0.1 mHz		
100.000 Hz ≤ F ≤ 999.999 Hz	1 mHz		
1.000 00 kHz ≤ F ≤ 9.999 99 kHz	10 mHz		
10.000 0 kHz ≤ F ≤ 99.999 9 kHz	0.1 Hz		
100.000 kHz ≤ F ≤ 999.999 kHz	1 Hz		
1.000 00 MHz ≤ F ≤ 2.000 00 MHz	10 Hz		
Note [3]: The output type is TTL level.			

6.8 Thermocouple Output (optional)

Type	Range ^{[4] [5]} °C		Accuracy (°C) @ (23±5)°C ^[6]	
	min	max	90 days	1 year
J	-210	-100	0.32	0.40
	-100	760	0.16	0.20
	760	1200	0.28	0.35
K	-200	-100	0.40	0.50
	-100	120	0.20	0.25
	120	1370	0.36	0.45
T	-200	-150	0.80	1.00
	-150	400	0.16	0.20
R	-50	250	1.20	1.50
	250	1760	0.72	0.90
S	-50	250	1.20	1.50
	250	1760	0.72	0.90
B	410	1820	1.12	1.40
N	-200	-100	0.64	0.80

	-100	410	0.28	0.35
	410	1300	0.36	0.45
E	-250	-100	0.64	0.80
	-100	650	0.16	0.20
	650	1000	0.20	0.25
L	-200	900	0.48	0.60
U	-200	900	0.60	0.75
C	0	1000	0.40	0.50
	1000	2310	1.04	1.30


Note [4]: temperature display resolution: 0.01 ° C;

Note [5]: Internal resistance of output source: 10 Ω;

Note [6]: thermocouple error is not included.

Note [7]: Use external compensation, J, K, T, R, S, B, N, E conform to ITS-90 international temperature standard, L, U conform to DIN 43710-1985 standard, C conform to ASTM standard.

7. Ordering Information

TD1858 - 

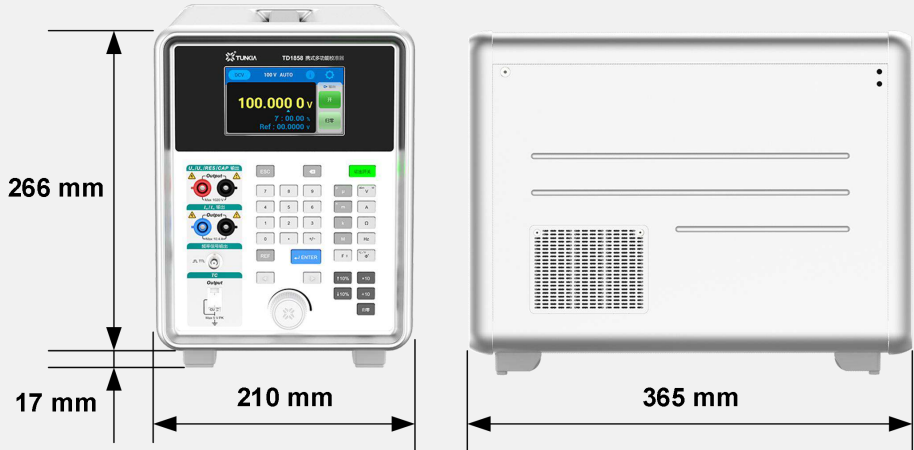
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●

Thermocouple Output	
Code	Note
Empty	/
TC	✓

E.g. : *TD1858-TC* notes for the instrument have the function of thermocouple output.

8. General Specifications

Power Supply	AC (220±22) V, (50±2) Hz
Maximum Power Consumption	500 VA
Warm Up Time	Twice the time since last warmed up, to a maximum of 30 minutes.
Temperature Performance	Operating temperature: 0°C~40°C Calibration temperature: 18°C~28°C Storage temperature: -20°C~70°C
Humidity Performance	Operating humidity: <80% @ 30°C, <70% @ 40°C Storage humidity: (20%~80%) R·H, No condensation
Communication Interface	RS232×1、LAN×1、USB×1
Dimensions	210 mm(W)× 365 mm (D) × 266 mm (H), excluding handles and feet.
	
Weight	About 9.5 kg