

KП5100 Precision Process Calibrator



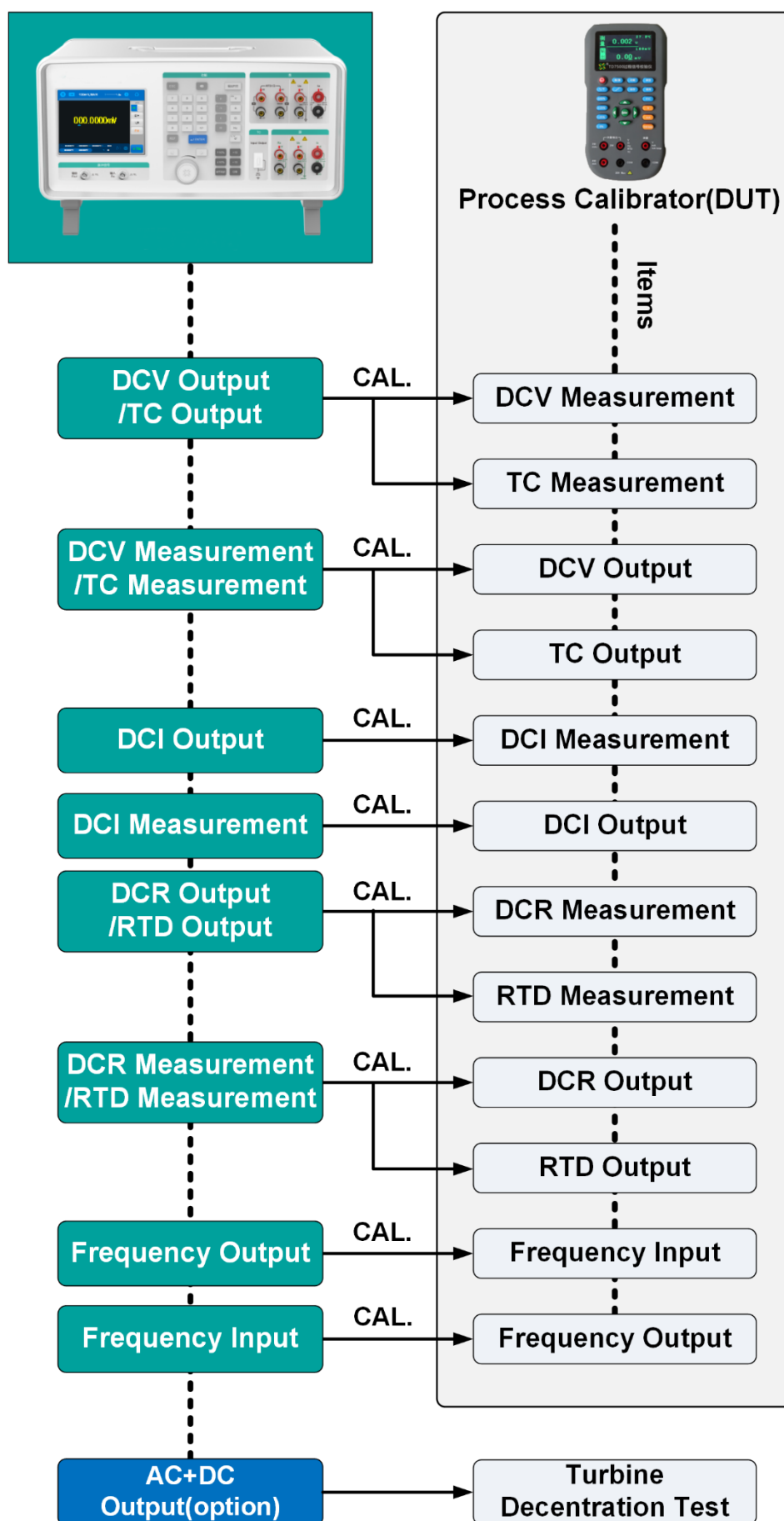
1. Summary

KП5100 is a high-precision thermal meter and process signal meter calibrator. Applied to calibrate process signal calibrators, industrial sensors, transmitters etc. The accuracy of KП5100 can reach Class 0.003 and can calibrate the process signal calibrator of Class 0.01 or below.

2. Features

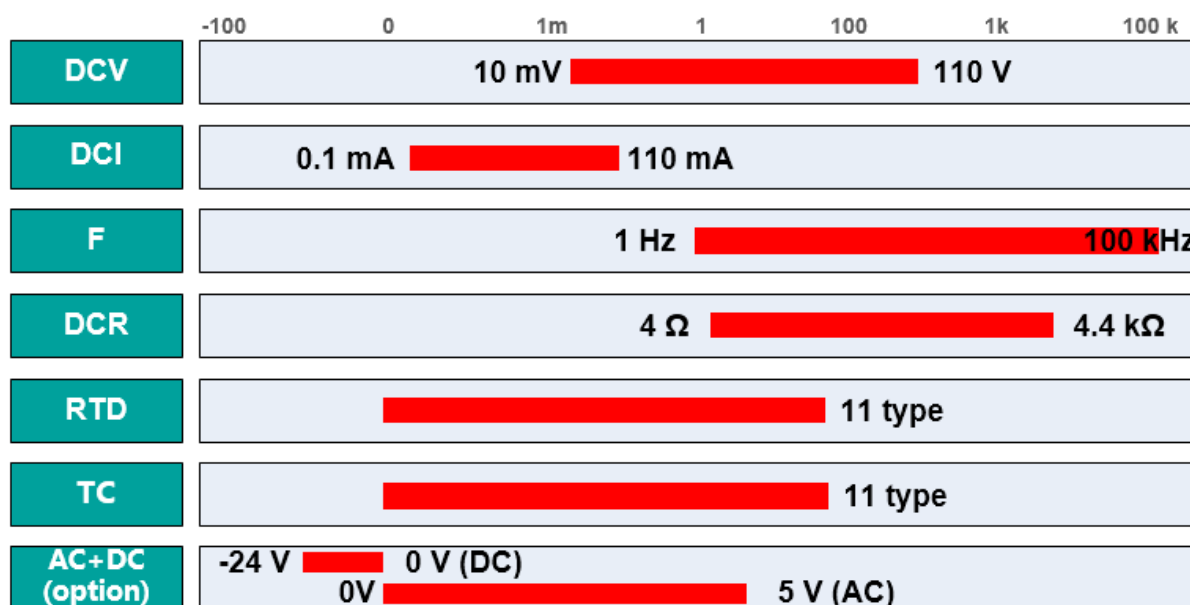
- DC voltage output/measurement: 10 mV ~ 110 V;
- DC current output/measurement: 0.1 mA ~ 110 mA
- DC resistance simulation/measurement: 4 Ω ~ 4.4 k Ω ;
- Simulation and measurement of 11 types RTD and 12 types TC
- Voltage/current accuracy class: 0.003
- Auxiliary power supply: 24 V Loop mode power supply.
- Each power channel has good electrical isolation without mutual influence.
- Electrical protection.
- AC/DC analog output function (option)

3. Applications



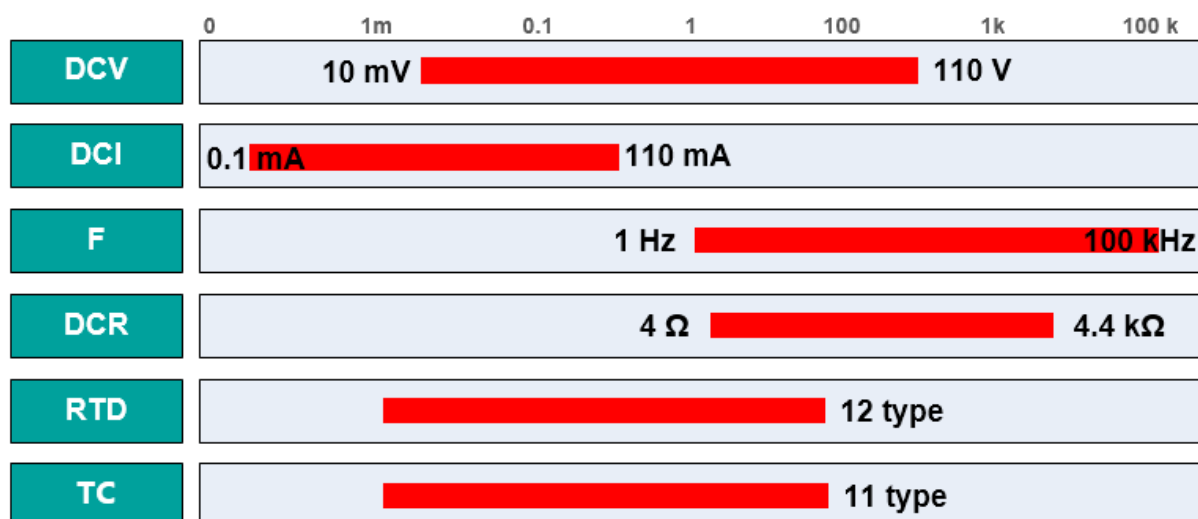
4. Characteristics

☆ Wide output



- The capability of wide range output can cover most process calibrator.

☆ Wide Input



- The capability of wide range input can cover most process calibrator.

☆ Multiple output modes



Keypad

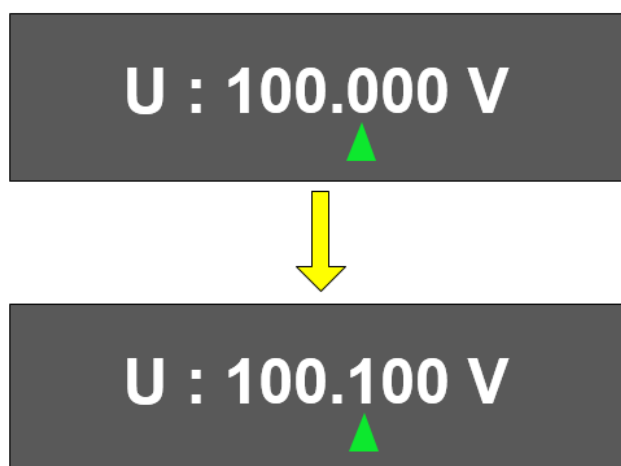


Touch Screen Output

- “**Direct output**” mode, User can set output value by physical key or touch screen.

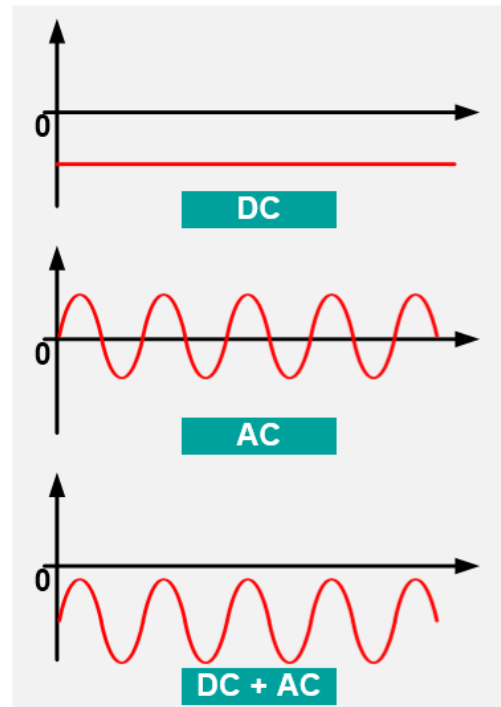
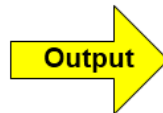


Rotary Knob



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

☆ AC/DC fitting output (option)



- Supports DC+AC output mode, and the max AC output frequency is 5 kHz. Applied to calibrate turbine deflection.

5. Specifications

5.1 DC Voltage / Current

Range	Resolution	Output		Measurement	
		Accuracy $\pm(\text{ppm} \cdot \text{RD} + \mu\text{V})$	Max Burden	Accuracy $\pm(\text{ppm} \cdot \text{RD} + \mu\text{V})$	Input Resistance
100 mV	0.1 μV	25 + 2	10 mA	30 + 3	10 M Ω
1 V	1 μV	25 + 10	10 mA	30 + 10	10 M Ω
10 V	10 μV	25 + 100	10 mA	30 + 100	10 M Ω
100 V	0.1 mV	25 + 1000	5 mA	30 + 1000	10 M Ω

Range	Resolution	Output		Measurement	
		Accuracy $\pm(\text{ppm} \cdot \text{RD} + \mu\text{A})$	Max Burden	Accuracy $\pm(\text{ppm} \cdot \text{RD} + \mu\text{A})$	Input Resistance
1 mA	10 nA	30 + 0.02	12 V	30 + 0.02	50 Ω
5 mA	10 nA	30 + 0.1	12 V	30 + 0.1	50 Ω
20 mA	10 nA	30 + 0.4	12 V	30 + 0.4	50 Ω
100 mA	100 nA	30 + 2	12 V	30 + 2	10 Ω

- Voltage output/measurement: 10 mV~110 V, current output/measurement: 0.1 mA~110 mA
- Ripple coefficient:<0.1%

5.2 DC Resistance

Range	Resolution	Output		Measurement	
		Accuracy $\pm(\text{ppm} \cdot \text{RD} + \text{m}\Omega)$	Input current	Accuracy $\pm(\text{ppm} \cdot \text{RD} + \text{m}\Omega)$	Excitation Current
400 Ω	0.1 m Ω	20 + 7	1 mA~10 mA	20 + 4	1 mA
4000 Ω	1 m Ω	20 + 50	100 μA ~1.2 mA	20 + 40	0.1 mA

- Resistance output: 4 Ω ~440 Ω @ 400 Ω range; 5 Ω ~4.4 k Ω @ 4 k Ω measuring range
- Measurement range of two-wire or four wire resistance: 4 Ω ~ 4.4 k Ω

5.3 Pulse Signal

Output/Measuring range	Resolution	Accuracy
1 Hz~1000 Hz	0.01 Hz	±0.005%
1 kHz~100 kHz	0.001 kHz	±0.005%

- Pulse signal output type: 0.3 V~12 V_{P-P} level

5.4 RTD Output

Type	Temperature Range (°C)	Accuracy (°C)	
		90 day(23 ± 5) °C	1 year(3 ± 5) °C
Pt385, 25 Ω	-200~850	±0.20	±0.25
Pt385, 100 Ω	-200~850	±0.04	±0.05
Pt3926, 100 Ω	-200~630	±0.04	±0.05
Pt3916, 100 Ω	-200~630	±0.04	±0.05
Pt385, 200 Ω	-200~320	±0.30	±0.35
	320~850	±0.35	±0.40
Pt385, 500 Ω	-200~-30	±0.04	±0.05
	-30~850	±0.13	±0.15
Pt385, 1000 Ω	-200~850	±0.07	±0.09
Cu427, 10 Ω	-50~150	±0.28	±0.38
Cu50 Ω	-50~150	±0.07	±0.09
Cu100 Ω	-50~150	±0.04	±0.05
Ni120 Ω	-80~260	±0.018	±0.02

5.5 RTD Measurement

Type	Temperature Range (°C)	Accuracy (°C)	
		90 day(23 ± 5) °C	1 year(3 ± 5) °C
Pt385, 25 Ω	-200~850	±0.25	±0.30
Pt385, 100 Ω	-200~80	±0.012	±0.013
	80~200	±0.021	±0.022
	200~400	±0.024	±0.025

	400~850	±0.035	±0.038
Pt3916, 100 Ω	-200~80	±0.012	±0.013
	80~200	±0.021	±0.022
	200~400	±0.022	±0.025
	400~630	±0.024	±0.032
Pt3926, 100 Ω	-200~80	±0.012	±0.013
	80~200	±0.020	±0.021
	200~400	±0.022	±0.025
	400~630	±0.030	±0.031
Pt385, 200 Ω	-200~100	±0.015	±0.02
	100~320	±0.025	±0.03
	320~600	±0.05	±0.08
	600~850	±0.07	±0.09
Pt385, 500 Ω	-200~-40	±0.01	±0.01
	-40~100	±0.024	±0.026
	100~320	±0.030	±0.033
	320~600	±0.040	±0.043
	600~850	±0.07	±0.076
Pt385, 1000 Ω	-200~-140	±0.013	±0.014
	-140~300	±0.020	±0.022
	300~600	±0.024	±0.026
	600~850	±0.031	±0.033
Cu427, 10 Ω	-50~150	±0.09	±0.10
Cu50 Ω	-50~150	±0.04	±0.06
Cu100 Ω	-50~150	±0.028	±0.03
Ni120 Ω	-80~260	±0.008	±0.009

- Remarks: Above accuracy for four wire measurement

5.6 TC Output / Measurement

Type	Temperature Range (°C)	Accuracy (°C)	
		90 day(23 ± 5) °C	1 year(3 ± 5) °C
B	410~600	±0.33	±0.35
	600~900	±0.26	±0.28
	900~1800	±0.20	±0.22
E	-200~0	±0.09	±0.10
	0~600	±0.06	±0.08
	600~1000	±0.08	±0.10
J	-200~-100	±0.12	±0.13
	-100~750	±0.07	±0.08
	750~1200	±0.08	±0.10
K	-200~-100	±0.15	±0.16
	-100~1000	±0.08	±0.10
	1000~1370	±0.10	±0.12
N	-200~-100	±0.21	±0.22
	-100~400	±0.07	±0.09
	400~1300	±0.09	±0.11
R	-50~50	±0.36	±0.38
	50~300	±0.25	±0.27
	300~1000	±0.18	±0.20
	1000~1750	±0.18	±0.20
S	-50~50	±0.36	±0.38
	50~300	±0.25	±0.27
	300~1000	±0.18	±0.20
	1000~1750	±0.21	±0.23
T	-200~-100	±0.13	±0.15
	-100~0	±0.08	±0.11
	0~400	±0.06	±0.08
G	0~200	±1.8	±2.0

	200~500	±0.28	±0.30
	500~2300	±0.23	±0.25
C	0~800	±0.13	±0.14
	800~2000	±0.22	±0.23
	2000~2300	±0.30	±0.31
D	0~200	±0.28	±0.30
	200~500	±0.18	±0.20
	500~1900	±0.23	±0.25
	1900~2300	±0.33	±0.35

- Output/measurement: -10 mV~80 mV
- Accuracy: (25 ppm+2 μ V)
- Display digits: 7-digit decimal display
- Ripple coefficient:<0.5%
- Remarks: with external compensation, S, R, B, K, N, E, J, T type accord to ITS-90 international temperature standard, G type accord to ASTM standard, C, D type accord to ZBN05003-88

6. General Specifications

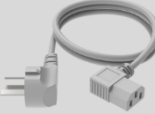
Temperature Performance	Working temperature: 0°C~45°C; Storage temperature: -20°C~70°C
Humidity Performance	Working humidity: < 80% @ 30°C, < 70% @ 40°C, < 40% @ 50°C Storage humidity: (20%~80%) R·H, non-condensing
Interface	RS232

7. Ordering Information

KP5100 – 	AC+DC Output	
	Code	Note
	Empty	-
	A	√

e.g. : **KP5100** note for with AC+DC output function.

8. Accessory List

S/N	Pic	Name	Specification	Qty	Remark
1		Short-circuit Wire	0.18m/1.6mm ² / Φ 4 Banana Plug	Red 2 Black 2	Standard accessory
2		Test Lead	1.5m/2.1mm ² / Φ 4 Banana Plug → Φ 4 Banana Plug	Red 2 Black 2	Standard accessory
3		Power Cable	AC 220V, 10A	1	Standard accessory
4		Thermocouple Shorting Plate	—	1	Standard accessory
5		Alligator Clips	Full sheath / Φ4 jack	Red 2 Black 2	Standard accessory
6		Signal Lead	BNC -- Alligator Clip	2	Standard accessory
7		Thermocouple Compensation Wire	B/E/J/K/S type	1	Standard accessory
8		Low Thermal Potential Test Lead	1.5m/ Φ 6 → Φ 6	2	Standard accessory
9		Low Thermal Potential Test Lead	1m/ Φ 6 → Φ 6 (2-wire to 4-wire)	1	Standard accessory
10		Universal Serial Cable	USB to RS232	1	Standard accessory
11		Glass Fuse	F2A, 250V	3	Standard accessory