

AC/DC Low Frequency Current Probe

CPL2000

(2000A/10kHz)



Shenzhen Zhiyong Electronics Co., Ltd

Preface

First of all, thank you for purchasing our products, this instruction manual is the description about the function, usage, operation attention points, etc. Before use, please read the instructions carefully and use correctly.

Manual annotation will use the following symbols to distinguish.



This symbol means it is harmful to the machine and human body; you must strictly follow the instruction manual to operate.

Warning

In the case of wrong operation, the user risk injury. The content under this mark records the relevant matters needing attention to avoid such dangers.

Notice

The user may suffer minor injuries and material damage with the wrong operation. To avoid such situation, the matters under this mark need attention.

Note

This symbolizes important note about how to use the machine.



Warning

- To prevent shortage and accident, the circuit under test should be below 600VAC.
- Do not test the naked conductor.
- Do not touch the conductor under test and the sensor head during testing.
- When the oscilloscope is connected with other test terminal, please pay attention to the following points:
 - ◇ Please use the basic insulation device with proper voltage and pollution range when connecting the test terminals between CPL2000 and devices.
 - ◇ Do not input voltage surpassing the safety range if the basic insulation of the test terminal does not meet the requirement.
 - ◇ Please refer to the matters need attention about electronic safety.
- Electric shock could occur if the machine or the user' hand is wet during testing.



Notice

- The sensor head is consisted of precision devices including magnetic core, hall component. The drastic change of temperature or the external impact could damage the sensor so please avoid

vibration or strike during operation.

- CPL2000 is neither waterproof nor dustproof. Please do not use it in dusty or wet environment.
- The upper and lower touching surface of the sensor head is created by accurate grinding process. Please try not to damage it or the function will be badly affected.

Note

- The current probe has an inner square shape 9V battery. CPL2000 is highly power-consuming so please use the alkaline battery that can last long.
- Comparatively large test error could occur when the power supply is low. When the battery voltage is lower than 6.5V, the machine will notify the users by a low voltage alarm. Please change the battery ASAP to ensure the accuracy of testing.

CPL2000 Brief description

Type	Max Current (rms)	Peak Value Current	Bandwidth (-3dB)	Range Selection	Current Transfer Ratio
CPL2000	2000A	3000A _{pk}	10kHz	2000A	1mV/A
				200A	10mV/A

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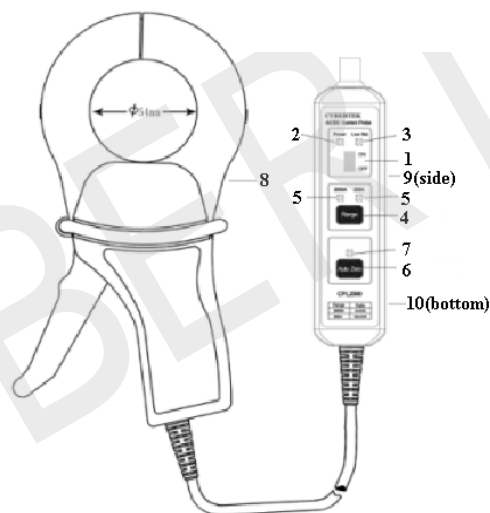
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1.Summary

CPL2000 is a type of current probe that can test AC and DC simultaneously. The current under test can reach maximum value 2000Arms, peak value 3000Apk, bandwidth 10 kHz (-3dB). With two range selection (200A and 2000A optional), users can choose the proper range according to the current value; with auto zero function, users can make use of CPL2000 easily, and the power and battery low voltage alarm indication light and overload alarm buzzer equipped can notify the users fast. Also, CPL2000 can be powered by battery or external power supply. Its standard BNC output port allows it to connect with oscilloscope and other devices, including multi-meter by BNC to Double Banana plug. CPL2000 is usually used in fields including power frequency measurement, motor drive and power supply.

2.Probe Parts Description

- **Probe**



- ◇ **Power Switch**

OFF: Probe is turned off and power supply is off.

ON: Probe is turned on and power supply is on

- ◇ **Power Indication Light:** Lighted green when power supply switch is ON.

- ◇ **Low Power Indication Light:** Lighted red when battery voltage is lower than 6.5V, please change battery ASAP.

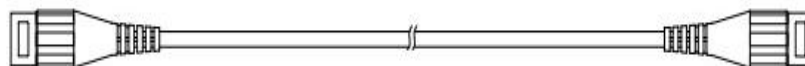
- ◇ **Range Button:** Range switching button

- ◇ **Range Indication light:** Indicating the current range selection. 2000A and 200A optional.

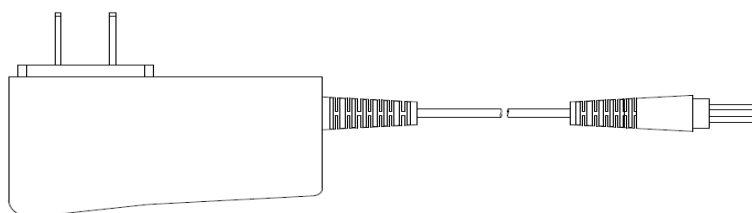
- ◇ **Auto zero button:** To test accurately, zero set the probe to prevent the environmental factors such as earth magnetic field or temperature drift from affecting the result.

- ✧ **Auto zero indication light: lighted during zero setting.**
- ✧ **Clamp:** the current testing clamp, diameter around 54mm.
- ✧ **External power supply port:** external DC power supply.
- ✧ **Battery Box:** 9V alkaline battery within. Please disconnect from the conductor and oscilloscope, turn off the probe when user changes the battery.

● **Accessories**



Output Cable (CK-310): 1m



Power Supply Adapter (CK-612): DC12V/1A

3. Electronics Characteristics

Test Condition: 23°C, 60RH, no nearby current, cable under test through the center during testing, load impedance 1MΩ

Range	200A	2000A
Max testing current	200Arms	2000Arms
Peak value current	300Apk	3000Apk
Range Sensitivity	10mV/A	1mV/A
Typical Accuracy (DC, 45Hz~66Hz)	±2%rdg. ±5mV	±2%rdg. ±1mV
Bandwidth (-3dB)	DC~10kHz	
Operating voltage	CATII 600V	
Typical battery type and service life	9V alkaline cascade battery/ 15 hour	
Low power indication light	Lighted red when battery voltage is lower than 6.5 V	
Overload indication	Buzzer will be activated when current under test surpass the range	

4. Operating Methods

- ✧ Set the CM of the oscilloscope to DC, oscilloscope input impedance to 1MΩ. To make number reading easier, user can change the display unit of the oscilloscope from voltage to current. Set the corresponding attenuation according to the situation, for example, for probe set 2000A (1mV/A), oscilloscope should be 1000X, for probe set 200A (10mV/A), oscilloscope should be 100X. User can

connect the BNC output port of the probe and input terminal of the oscilloscope using the standard BNC cable.

- ✧ Turn on the voltage switch, the indication light should be lighted green.
- ✧ Press the button to select the proper range according to the value of the current under test.
Attention: Different range corresponds to different attenuation ratio
- ✧ Press the auto zero button to realize zero set. The buzzer will buzz shortly for twice if auto zero set successfully, or it will buzz for once, meaning auto zero set fails. One thing need attention is that, the external magnetic field could have slight effect on the AC zero position of the probe, so user better not move the probe after zero set complete.

- ✧ Open the clamp of the current probe and fix the conductor under test

Attention: there's direction indication on the clamp, the same current direction will generate positive output, and otherwise it will generate negative output.

- ✧ Properly set the vertical sensitivity of the oscilloscope to generate stable wave form. When oscilloscope is set DC CM, user can observe both DC and AC component, but if there's only AC CM, only AC component will be seen.

5.Mechanic Specification

Size of current clamp	216*115*45mm
Size of output box	137*33*35mm
Operating altitude	0~2000m
Max size of conductor under test	diameter 54mm
Length of the connecting cable between clamp and box	1m
Length of double-terminal BNC cable	1m
Weight	620g (Battery Excluded)

6.Environmental Specification

Operating temperature	0°C~+50°C
Storing temperature	-20°C~+80°C
Operating relative humidity	0°C~+40°C, Humidity 95%RH; +40°C~+50°C, Humidity 45%RH
Pollution level	Level 3

7.Maintenance

In the product warranty period, if the product is used normally, the malfunction is caused by the quality problem and is not dismantled, our company will provide free repairing service.

- ✧ Clamp: the clamp should be clean and dry. If there's a need of cleaning up, please use soft cloth together with alcohol to erase the dirt. Do not put the clamp in wet environment.
- ✧ Hand shank: Please clean up the hand shank using clean cloth or sponge. Do not use water to

clean the equipment, use alcohol instead and dry it after the treatment.

✧ To guarantee the performance, user can proceed check or calibration once a year.

8.Treatment when irregular occurs

Problem	Possible Reason	Treatment
Unable to test DC, or amplitude too low	Power supply is off	Turn on the power supply
	Oscilloscope is set AC CM	Please set to DC CM
	Clamp is not completely closed	Close the clamp completely
Power Indication Light is not lighted after device is turned on	Battery voltage lower than 6.5V	Change the battery
Amplitude low in all frequency range	The input resistance of other testing device is 50Ω	Please set the input resistance over 1MΩ

9.Packing List

PACKING LIST	
Name	Number
Current probe	1
9V battery	1
DC12V/1A adapter (CK-612)	1
BNC output cable (CK-310)	1
High class tool kit	1
Instruction manual	1
Warranty card	1
Test report	1

CYBERTEK

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