

Low Frequency Flexible Current Probe

CP9000LF Series



Shenzhen Zhiyong Electronic 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.

To the safely use the machine, you must abide by the following safety precautions strictly. The violation against the manual is likely to damage the protective function of the machine. In addition, the company is not responsible for any safety problem caused by the violation of matters needing attention in operation.



- ❖ **Make sure the BNC terminal is well grounded when BNC output cables connect to oscilloscope or other devices**
- ❖ **Make sure the circuit under test is turned off before it is accessed by the probe.**
- ❖ **Please check the probe skin before use. If there is any breakage, stop using it right away**
- ❖ **The sharp edge of the circuit could damage the probe loop, please check carefully before access it.**
- ❖ **The operating voltage requirement has been marked on the loop; please make sure the probe is operating within safety range.**
- ❖ **Select the standard adapter power supply of our product.**

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1. Summary

CP9000LF series flexible current probe applies low frequency flexible probe with double ranges design, and was able to realize wide measurable current range, from 60A to 60kA. Guaranteed accuracy in the loop is 1%, and the typical accuracy is 2%, bandwidth up to 600 kHz (700mm loop perimeter) or 1MHz (300mm loop perimeter). The outer diameter typical value is 8mm, withstand voltage 10kVpk. CP9000LF is very good at the testing of low frequency large current and large power.

The advantages of CP9000LF includes: the loop that are flexible and easy plug-in can reach many places where the hard probe can't and thus connect to subject under test; the insertion loss is almost zero, and thus has little interference on subject under test.

Standard BNC output interface, easy to connect with oscilloscope, data collector and digital voltmeter to observe the current waveform. The probe can be powered by 9V battery or external 12V DC power supply, very convenient to be used.

CP9000LF has overload alert system, and the length of the probe loop and connection cable can be customized freely to fulfill testing requirement in different situation.

2. Applications

- Observe the current waveform of low frequency sine wave
- Distributed current monitoring
- Current bus monitoring
- Monitoring harmonic wave, power and power quality
- Large motor, pump and draught fan testing

3. Specification

3.1 Electrical Parameter

Testing Condition: 23°C, 60%RH, cable under test pass through the center of probe loop center

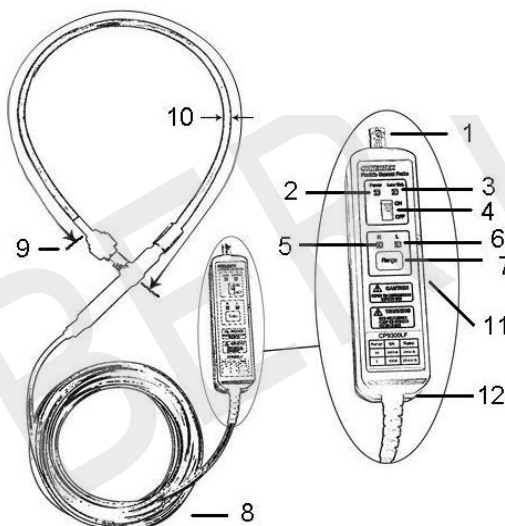
Type	Sensitivity (mV/A)		Peak Current(A)		Max noise (mVrms)		Low frequency bandwidth-3dB(Hz)	Phase shift (50Hz)	Peak di/dt(kA/us)		High Frequency bandwidth-3dB	
	X10	X1	X10	X1	X10	X1			X10	X1	300mm	700mm
CP9060LF	100	10	60	600	3	1	0.45	<0.85 °	0.015	0.25	1MHz	600kHz
CP9120LF	50	5	120	1200	3	1	0.23	<0.5 °	0.03	0.5		
CP9300LF	20	2	300	3000	2	1	0.15	<0.35 °	0.1	1.2		
CP9600LF	10	1	600	6000	2	1	0.1	<0.25 °	0.2	2.5		
CP9121LF	5	0.5	1.2k	12k	2	1	0.08	<0.2 °	0.4	5		
CP9301LF	2	0.2	3k	30k	1	0.5	0.07	<0.18 °	0.9	6		
CP9601LF	1	0.1	6k	60k	1	0.5	0.07	<0.18 °	1.8	6		

3.2 Other Parameter

Typical accuracy	±1%
Max output voltage	±6V _{pk}
Probe loop withstand voltage value	10kV _{pk}
Terminal load requirement	≥100kΩ
Power method	9V battery or external DC 12 V power supply (standard adaptor)
Safety compliance	EN61010-1: 2010
EMC compliance	EN61326-1:2013 EN61000-3-2:2014 EN61000-3-3:2013

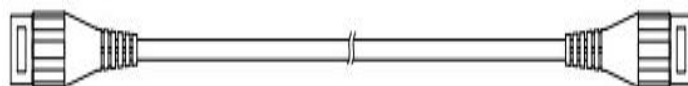
4. Product and Accessories

4.1 Product

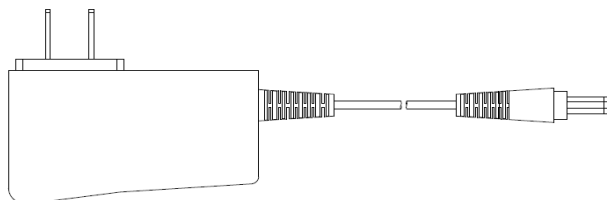


- ❖ Signal Output Interface: BNC standard interface, can connect to the oscilloscope of any brand through standard BNC connecting cable.
- ❖ Power Indicator LED: The green LED will be lighted if powered up.
- ❖ Low power alert indicator LED: The red LED will be lighted if battery voltage goes low, reminding users to exchange battery.
- ❖ Power Switch: Controlling the on and off of the power supply.
- ❖ H gear indicator: Large Current Gear indicator LED.
- ❖ L gear indicator: Small Current Gear indicator LED.
- ❖ Range Selection button: Switch between H and L range.
- ❖ Connection cable: Connecting the probe and control box; length is customizable.
- ❖ Flexible probe perimeter: Typical value 700mm; length is customizable
- ❖ Probe loop diameter: Typical value 8mm

4.2 Accessories



Coaxial Output Cable (CK-310: 1m)



Power Adapter (CK-612): DC12V/1.2A

5. Specification

Type	CP9000LF
Flexible probe perimeter Typical value(Customizable)	700mm
Loop diameter Typical value (Customizable)	8mm
Loop connection cable length	4m(Customizable)
BNC connection Cable length	1m or 2m, 1m is standard version
Front probe size	About 137*33*35mm
Probe weight	338g

6. Environmental Characteristics

Operating temperature	Probe loop	-20°C~70°C
	Main system	-10°C~55°C
Storage temperature	-30°C~70°C	
Operating humidity	≤85%RH	
Storage humidity	≤90%RH	

7. Operating Method

- ☞ When the probe is connecting to oscilloscope or other testing device, the reference ground is needed and the input impedance should be $1M\Omega$ (or $\geq 100k\Omega$) for these devices; Proper gear should be chosen according to the current under test;
- ☞ Powering up by battery or external DC 12V battery, switch on and the green power indicator LED will be lighted

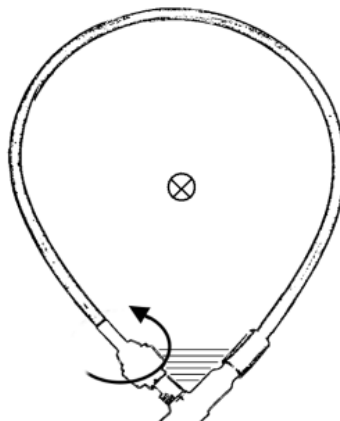
- ☞ Insert the cable of current under test, make sure the probe loop is inserted to the bottom, and lock the probe with the rotary knob when necessary. Please make sure the cable under test pass through the center of probe loop, or the measurement accuracy will be influenced.
- ☞ Power up the circuit under test
- ☞ After the testing, turn off the circuit first, and take down the probe loop then.
- ☞ Disconnect the probe power supply and save the probe

8. Tips

Note

- ☞ To guarantee the testing accuracy, the cable under test should pass through the center of the loop during measurement.
- ☞ The cross section of the probe loop shown in the shadowed area of the picture below is not quite accurate, has the largest testing error, it's not a good idea to put the cable under test through this area.
- ☞ Please make sure the probe loop is inserted well (until its bottom), or the testing accuracy will be influenced.
- ☞ During the measurement of the signal under test, please be as far away from strong magnetic field interference source (like the magnetic emission source made of multiple loops), or there will be errors.
- ☞ During the measurement of the signal under test, please be as far away from fast alternating high voltage interference source (like signal over 100V/us) or those which have frequency over MHz, or there will be errors.
- ☞ To determine if there's strong interference source nearby, you could put the probe loop close to the cable under test to determine the strength of interference signal around.
- ☞ The Arrow direction below shows the rotate direction of the rotary button. Rotate to lock the probe and reverse to unlock.

PS: The shadow area shown below has maximum error. Cable under test should avoid this area.



9. Maintenance

- ✧ Keep the probe dry and clean
- ✧ Please use soft and dry cloth to clean the device if necessary. Do not use chemical potion.
- ✧ Please put the probe back to the package when not using it and place it in somewhere clean, dry and shady.
- ✧ Please put the probe into our shockproof package during transportation.
- ✧ Do not drag or pull the cable to avoid distortion, twisting and tie off.

10. Guarantee

Please reference to Guarantee Instruction

11. Packing List

Packing List	
Current probe	1
9V battery	1
DC12V/1A adapter (CK-612)	1
BNC output cable(CK-310)	1
High level tool box	1
Instruction book	1
Warranty card	1
Test report	1

CYBERTEK

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