

Active Power Rail Probe

RP6060 (60V/1GHz)



产品说明书

Product User Manual

Introduction

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.



- Please be careful to the danger of electric shock and pay attention to highest input voltage.
- Do not operate in wet or combustible conditions.
- Make sure the circuit under test is turned off before access it to the probe.
- Turn off the circuit after the measurement, and then remove the probe.
- When BNC lines are connected to the oscilloscope or other devices, ensure the BNC terminal is well grounded.

1. Summary

The **RP6060 probe** provides a low noise, large offset range solution for measuring ripple and noise on DC power rails. DC power rail offset range is -60 to $+60$ VDC and AC voltage range is $200\ \mu\text{V}_{\text{p-p}} \sim 800\ \text{mV}_{\text{p-p}}$. This probe is mainly used to measure the low source impedance of the power rail, so it is not recommended to use this probe if the source impedance is greater than $1\ \Omega$, as this may cause waveform distortion.

The increasing functions, higher density, and faster switching speeds of modern electronic products drive the need for lower supply voltages. Designers need to zoom-in on power rails to look for high-frequency ripple and noise, measure and analyze coupling effects with limited tolerances. Oscilloscopes often do not have enough offset range to get the noise and ripple from DC rails to the center of the screen to execute desirable measurements.

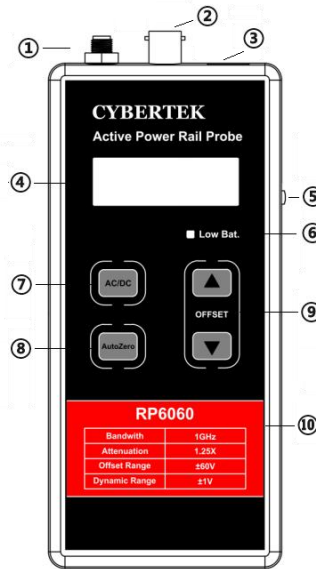
The RP6060 probe provides a low noise measurement solution (oscilloscope and probe), which is crucial in distinguishing the noise of the oscilloscope and probe from the noise and ripple of the measured DC power supply. The higher input impedance in the probe can minimize the influence of oscilloscope load on the DC track ($50\ \text{k}\Omega$). The wider the bandwidth provided by the probe, the more content (harmonics, faster ripple, etc.) that may be affected by data signals, clocks, and other signals on the DC track can be observed.

Product features:

- Bandwidth over 1GHz
- Maximum input offset voltage $\pm 60\text{VDC}$
- Automatic and manual power supply voltage bias zero set function
- Two coupling modes of AC/DC
- The first power ripple probe with an additional 4-digit high-accuracy digital voltmeter function in the field.
- Unique USB and battery dual power supply in the field

2. Product and Accessories

■ Probe



- ① Input connector: SMA female connector.
- ② Output connector: BNC female connector, connecting to oscilloscope with standard BNC cable.
- ③ USB 5V power supply connector
- ④ LCB display screen: display the DC voltage of signal measured.
- ⑤ Power supply switch
- ⑥ Battery low voltage indicator light: the indicator will be lighted if the battery is low power and need to be replaced soon.
- ⑦ AC/DC button: switching the DC/AC operating mode of the output connector. In DC mode, the output signal includes DC, and the AC mode will remove the DC and low frequency signal.
- ⑧ Auto DC offset zero button: The probe will remove the DC offset of input signal.
- ⑨ Offset adjustment button: manually adjusting the offset when the output signal is not in zero position.

■ Accessories



1.3 m cable, SMA male to MMCX male, 50Ω



1.3 m cable, SMA male to SMA male, 50Ω



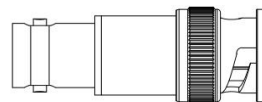
Y-shaped cable adapter
MMCX female to 0.8mm socket



Welding type cable adapter
MMCX female head to welded coaxial cable end



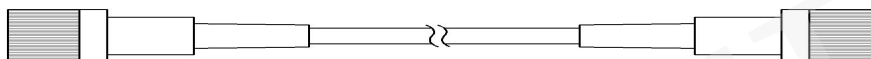
Cable adapter
MMCX female head to U FL female head, 50 Ω



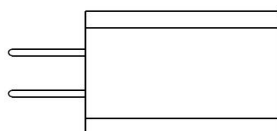
Through type 50 Ω load (CK-50B)



USB cable (AM-BM, 1.5m)



Coaxial output cable (1m)



Power adapter (USB output: DC5V/2.4A)



AA battery (alkaline dry battery, 4xAA 1.5V)

3. Electronics specifications

Bandwidth (-3dB)	1GHz
rise time	$\leq 350\text{ps}$
Typical output noise	<300uVpp (20MHz bandwidth) <3mVpp (1GHz bandwidth)
Dynamic Range	$\pm 1\text{Vpp}$
Precision	$\leq \pm 1\%$
Attenuation ratio	1.25X
Input impedance	50k Ω (DC to 10kHz)
	50 Ω (AC > 100kHz)
AC coupling mode LF bandwidth(-3dB)	17kHz
Battery life	Around 12 hours
Delay time	Probe 490ps
	BNC(1m) 5ns
	SMA male to MMCX male connector 6.31ns
	SMA male to SMA male connector 6.31ns
	Y-shaped cable adapter 350ps
	Welding type cable adapter 750ps
	Cable adapter, MMCX female to U FL female head 750ps
Terminal load requirements	50 Ω

4. Mechanical Specifications

Model	Parameter
Probe dimensions	162mm*70mm26mm
Probe weight	165g
USB power supply cable AM-BM (CK-315B)	1.5m
BNC output cable (CK-310)	1m
SMA male to MMCX male connector cable (CK-317B)	1.3m
SMA male to SMA male connector cable (CK-317A)	1.3m
Y-shaped cable adapter (CK-317D)	50mm
Welding type cable adapter (CK-317E)	150mm
Cable adapter (CK-317C)	150mm

5. Environmental specifications

Model		Parameter
Operating temperature	Control box	0°C~50°C
	Accessories	-40°C~125°C
Storage temperature		-30°C~70°C
Operating temperature		≤85%RH
Storage humidity		≤90%RH
Operating altitude		3000m
Storage altitude		12000m

6. Operating steps

- Connect the probe output to the oscilloscope, and set the input impedance of the oscilloscope to 50 Ω.
- Select proper accessories according to your need and connect to the spot under test, and power up the probe.
- Power up the equipment under test for measurement, using auto zero function to zero set the offset.
- After the measurement, turn off the equipment under test, disconnect the probe, and put the probe back to storage.

7. Maintenance

- Keep the probe clean and dry.
- If you need to clean the probe, a soft dry cloth can be used for wiping. Do not use chemical agents for cleaning.
- When not in use, please place the probe in the accompanying packaging and put it in a cool, clean, and dry place.
- When transporting the probe, we recommend you to place it in the packaging provided by our company to provide shock resistance.
- Do not forcefully pull the input and output cables.

8. Warranty

Please refer to the warranty card instructions.

9. Packing list

Name	Amount
Probe	1
USB 5V/2.4A adapter (CK-605A)	1
USB power supply cable (CK-315B)	1
BNC output cable (CK-310)	1
SMA male to MMCX male connector cable (CK-317B)	1
SMA male to SMA male connector cable (CK-317A)	1
Y-shaped cable adapter (CK-317D)	1
Welding type cable adapter (CK-317E)	2
Cable adapter (CK-317C)	2
50Ω through load (CK-50B)	1
AA alkaline dry battery	4
Instruction manual	1
Warranty card	1
Calibration certificate	1

CYBERTEK

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