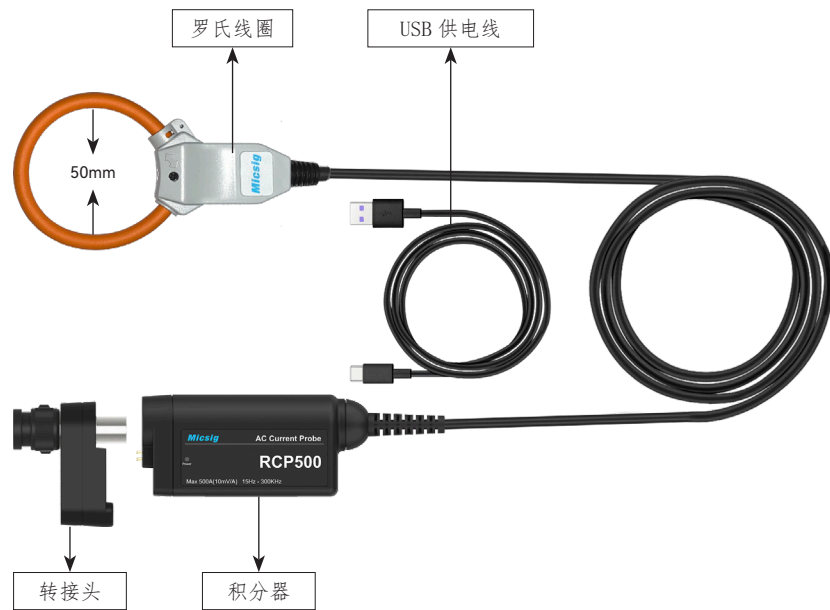


RCP500 柔性交流电流探头

用户手册



产品介绍

RCP500 柔性交流电流探头，其带宽为 15-300KHz，其最大测量电流为 500Apk，最小测量电流为 200mApk，测量精度可达 1%，噪声低于 2mV。

该型号采用罗氏线圈电流测量系统，在量程范围内，系统的输出信号与待测电流信号一直是线性的，使得其精度不会随电流大小而发生变化；线圈不含磁饱和元件，无磁芯饱和现象，没有发热的烦恼；由于罗氏线圈不含铁磁性材料，无磁滞效应，系统的输出信号与被测电流波形相位差极低，可小于 0.8°；在整体设计上体积小、外观精致，适配 Micsig UPI 多功能探头接口，与 Micsig 最新示波器配套使用时，无需考虑供电问题，像普通无源探针一样即插即用。也可搭配 Micsig 专用转接头 PA05，与任何厂家的示波器适配使用。

交流电流探头可测量波形复杂的电流信号，如功率器件的瞬态冲击电流，三相供电系统的正弦电流、测量电流的谐波构成、IGBT、MOSFET 管电流测量等。

安全注意事项

- ※ 可测量电路应为 CAT III 1000V / CAT IV 600V 或以下
- ※ 确保 BNC 端子可靠接地
- ※ 被测电路接入探头环之前，确保先关闭被测电路

- ※ 罗氏线圈或线缆外皮有破损或金属露出时请勿使用
- ※ 请勿在潮湿的环境中使用
- ※ 请勿使用湿手接触仪器或者被测物体
- ※ 使用后请务必切断电源
- ※ 请在终端允许的范围内使用本产品

规格参数

型号	RCP500
带宽	15-300KHz (-3dB)
测量范围	200mApk-500Apk
输出连接器	可供电 BNC / 外接 BNC
输出灵敏度	10mV/A
典型精度	1%
相位精度	≤ 0.8° (45Hz-66Hz)
温度系数	使用温度范围内加上 0.55× 精度规格 /°C (23°C ±5°C 以外)
导体位置的影响	±1% 以内 (与中心部分的偏差)
外部磁场的影响	1.5% f. s. 以下 (400A/m, 50Hz/60Hz)
偏置电压	±1mV 以下
耐压	AC 10kV RMS (1 分钟), (50Hz/60Hz), (仅罗氏线圈部分)
输出阻抗	高阻
输出噪音	< 2mV rms
可测量导体直径	≤ Φ50mm
供电	Micsig UPI 多功能探头接口供电; 转接口: USB 供电
导线长 (积分器到罗氏线圈)	2 米 (可定制)
积分器尺寸	37*22*82mm
罗氏线圈内直径	50mm (可定制)
罗氏线圈截面直径	约 Φ6mm
环境	
使用温度	-20-70°C
储存温度	-30°C -70°C
使用湿度	最大 80%, 无凝结
使用高度	海拔高度 ≤ 2000m
使用场所	室内使用, 污染度 2

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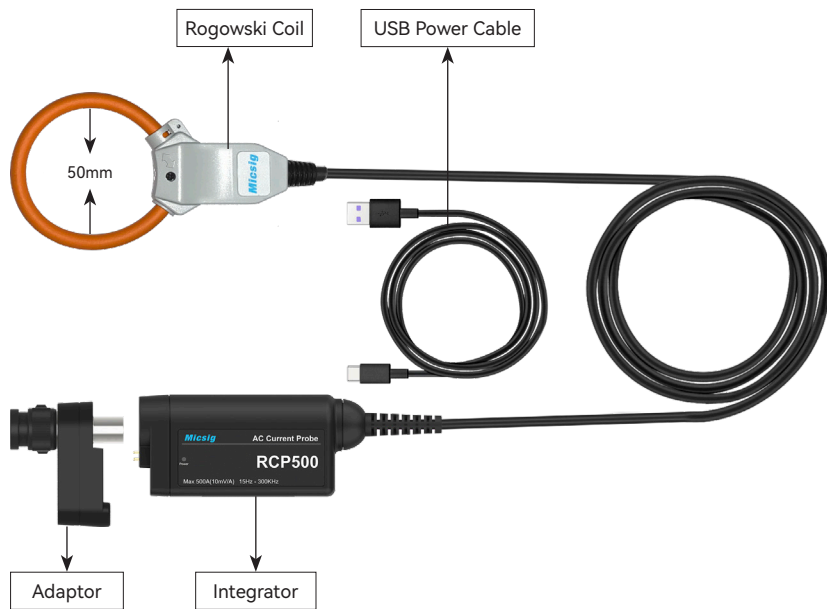
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RCP500 Rogowski AC Current Probe

User Guide



Introduction

The RCP500 Rogowski AC Current Probe measures AC current up to 500A pk, minimum to 200mA pk, with bandwidth ranging from 15Hz to 300KHz, 1% accuracy, and has less than 2mV noise.

It adopts the Rogowski coil current measurement system: within the range, the output signal of the system and the current signal to be measured are always linear, so the accuracy will not change with the current; the coil does not contain magnetic saturation components and no magnetic core and saturation phenomenon, no trouble of heating; the Rogowski coil does not contain ferromagnetic materials and so has no hysteresis effect, the phase difference between the output signal and the current waveform is extremely low, which can be less than 0.8° .

The RCP500 is compactly designed with exquisite appearance, suitable for Micsig UPI multi-function probe interface, when used with some Micsig new oscilloscope, no need extra battery or power supply. It can also be used with Micsig PA05 adapter to adapt to any other manufacturer's oscilloscope.

The AC current probes can measure current signals with complex waveforms, such as transient inrush currents of power devices, sinusoidal currents of three-phase power supply systems, harmonic components of measured currents, current measurement of IGBTs and MOSFETs, etc.

Safety Precautions

※ Measurable circuits should be CAT III 1000V / CAT IV 600V or below

- ※ Make sure the BNC terminal is grounded reliably
- ※ Make sure turn off the circuit under test, before connecting to the probe ring
- ※ Do not use if Rogowski coil or cable sheath is damaged or exposed metal
- ※ Do not use in wet environment
- ※ Do not touch the instrument or the measured object with wet hands
- ※ Please cut off the power after user

Specifications

Model Name	RCP500
Bandwidth	15Hz - 300KHz (-3dB)
Current Range	200mA (pk) - 500A (pk)
Output Connector	Powered BNC / External BNC
Output Sensitivity	10mV/A
Typical Accuracy	1%
Phase Accuracy	$\leq 0.8^\circ$ (45Hz-66Hz)
Temperature Coefficient	Operating temp. range + $0.05 \times$ Accuracy Specification $^\circ\text{C}$ ($23^\circ\text{C} \pm 5^\circ\text{C}$)
Conductor Positional Accuracy	Within $\pm 1\%$ (Deviation from the Center)
Influence of External Magnetic Fields	1.5% f.s. or below (400A/m, 50Hz/60Hz)
Offset Voltage	$\pm 1\text{mV}$ or below
Max Voltage	AC 10kV RMS (1 minute), (50Hz/60Hz) (Rogowski coil part only)
Output Impedance	High resistance
Output Noise	$< 2\text{mV rms}$
Conductor Under Test Diameter	$\leq \Phi 50\text{mm}$
Power Supply	Micsig UPI Multi-function probe interface; Adapter (USB power)
Coil to Integrator Cable Length	2m (customizable)
Integrator Dimensions	37*22*82mm
Rogowski Coil Inner Diameter	50mm (customizable)
Rogowski Coil Thickness	Approx. $\phi 6\text{mm}$
Environmental Characteristics	
Operating Temperature	$-20\text{--}70^\circ\text{C}$
Storage Temperature	$-30^\circ\text{C} \text{--} 70^\circ\text{C}$
Operating Humidity	Max 80%, no condensation
Operating Altitude	$\leq 2000\text{m}$
Operating Place	Indoor use, Pollution Degree 2.

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