RFSY Flexible Rogowski coil

Introduction to Rogowski coil

The Rogowski coil also called a differential current sensor, is an "empty core" toroidal coil arranged around a conductor, so that the alternating magnetic field generated by the current induces a voltage in the coil. The coil is actually a current transformer coupled to the conductor under test, and the voltage output directly from the coil is proportional to the rate of change of the current.

For example:@50Hz/1kA Vout=85mV, @60Hz/1kA Vout=85*60/50=102mV.

If you want to obtain the current waveform or frequency independent current value, you need to add an integral circuit to achieve 90° phase shift compensation and frequency equalization.

RF series is a current sensor based on the principle of Rogowski coil. Its light weight and low price are available in different sizes, can also be ordered according to the customer's design requirements. No magnetic saturation and with a shielding layer, it resists the inf--luence of external magnetic fields, so stable measurements can be achieved from low currents to hundreds of kA. Provides accurate measurements in smart meters, industrial motor control and power monitoring applications.

Systems using an ADC chip (ADS131M04) that supports the Rogowski coil principle or a power metering chip (ADE7753) are more advantageous.

We offer integrators such as 4-20mA, 0-5V, 0-1A, 333mV for more use cases.

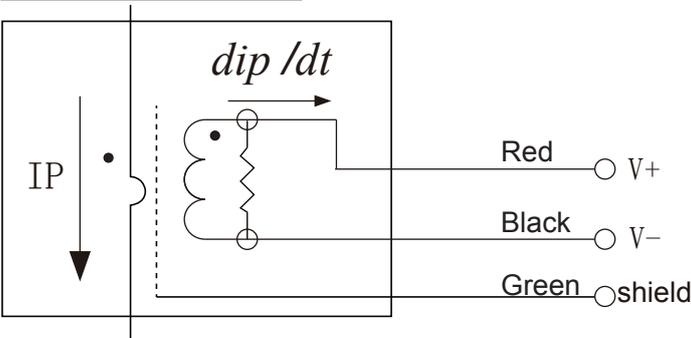Product picture print for reference only, subject to the actual product

Features

Light weight and flexible installation

Wide bandwidth range

No lag, no saturation

No danger of second open-circuit
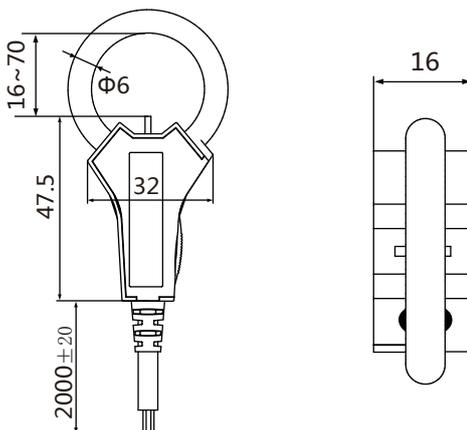
Good linearity

Multiple sizes can be customized

Application

Measuring instrument, laboratory instrument

Power monitoring system

DC ripple measurement

Harmonic and transient monitoring

Power meter

Power analyzer sensor

Electrical parameters: (The following parameters are typical values and actual values will be subject to product testing)

Model	RFSY-16-50	RFSY-24-50	RFSY-36-50	RFSY-50-50	RFSY-70-50
Coil length	82mm	104mm	138mm	184mm	235mm
Window diameter	16mm	24mm	36mm	50mm	70mm
Weight	80~90g				
Coil internal resistance	50（±5）Ω	60（±5）Ω	70（±5）Ω	90（±5）Ω	110（±5）Ω
Rated current	≤500KA				
Accuracy	＜0.5% 25℃				
Position error	±1%				
Output voltage	50mV/KA@50Hz 60mV/KA@60Hz				
Frequency range	10Hz~20KHz				
Linearity	±0.2% （10%~100% of rated value）				
Phase shift	≤0.5°				
Spec. of signal line	LIYCY (TP) shielded twisted-pair cable 2 x 0.25mm²				
Length of signal line	2m （default）				
Working temperature	-30℃~+80℃				
Storage temperature	-40℃~+80℃				
Working voltage	1000VRMS CATIII/600VRMS CAT IV				
Dielectric strength	7400VRMS/1min				
Material	TPR UL97-V0				
Waterproof grade	IP67				

Connection diagram

dip/dt

IP

Red —○ V+

Black —○ V−

Green ○ shield

Dimensions： (in:mm±1)

16~70

Φ6

47.5

32

16

2000±20

Notice：

1. According to the rogowski coil principle, output voltage is proportional to the derivative of the input current (di/dt).

2. The output voltage is a constant rated frequency sinusoidal waveform in Hz, measured by the RMS value.

3.Vout (RMS)=Amps(RMS)×Hertz×K×10^{-6}

the K depends on the manufacturer, for 50mV model the K value is 1.

Warning：

Do not apply pressure to the coil by any form of mechanical force (e.g., twisting, piercing, excessive pressure, excessive bending, etc.), which will reduces the accuracy of the device greatly.