RFSZ 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

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

Model	RFSZ-80-85	RFSZ-105-85	RFSZ-150-85	RFSZ-180-85	RFSZ-240-85	RFSZ-300-85
Coil length	293mm	363mm	493mm	593mm	723mm	943mm
Window diameter	80mm	105mm	150mm	180mm	240mm	300mm
Weight	124(±5)g	130(±5)g	150(±5)g	155(±5)g	165(±5)g	176(±5)g
Coil internal resistance	210(±10)Ω	250(±10)Ω	330(±10)Ω	390(±10)Ω	470(±10)Ω	550(±10)Ω
Rated current	≤500KA					
Accuracy	＜0.5% 25℃					
Position error	±1%					
Output voltage	85mV/KA@50Hz 102mV/KA@60Hz					
Frequency range	10Hz~20KHz					
Linearity	±0.2% （10%~100%r 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					

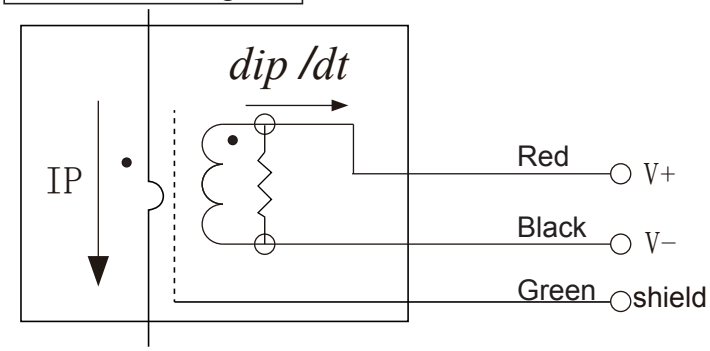
Features

- 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

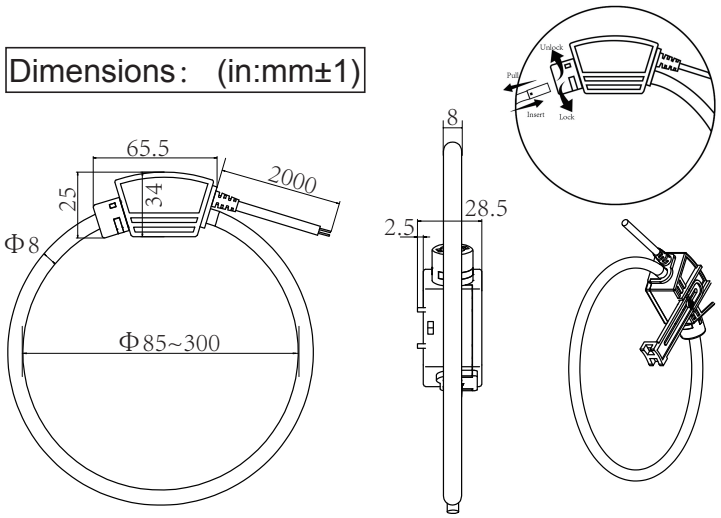
Application

- Measuring instrument, laboratory instrument
- Power monitoring system
- DC ripple measurement
- Harmonic and transient monitoring
- Power meter
- Power analyzer sensor

Connection diagram



Dimensions: (in:mm±1)



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 1.7.

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.