RFIZ 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.
The RFIZ series is a flexible current transformer based on the Rogowski coil principle, which is a flexible rod-like hollow core coil that can be connected around the wire when it is "live". They are easier to install and measure than traditional open and closed CT. Due to its flexible design and light weight, it is ideal for use in busbars and irregular shaped multi-core bundles. Rogowski coil technology has low phase shift error, inductance and good linearity, but is basically unaffected by electromagnetic interference and pulsed DC current, so it has high accuracy.
The RFIZ-DC series coils can be used in SCADA systems and PLC applications. The built-in voltage integrator can simplify the wiring installation, can output 0~2V DC voltage, rated input can be selected between 30A~10kA.

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	RFIZ-80-001DC	RFIZ-105-001DC	RFIZ-150-001DC	RFIZ-180-001DC	RFIZ-240-001DC	RFIZ-300-001DC
Coil length	293mm	363mm	493mm	593mm	723mm	943mm
Window diameter	80mm	105mm	150mm	180mm	240mm	300mm
Rated current	30A~6KA					
Accuracy	±0.5% (Typical value5%~120% of rated current at 25℃)					
Position error	±1%					
Output voltage	1V DC					
Supply voltage	+12V DC / +24V DC					
Frequency range	10Hz~2KHz					
Linearity	±0.2%					
Response time	≤100mS					
Phase shift	≤0.5°					
Spec. of signal line	4×0.2mm²					
Length of signal line	190cm（acquiesce）					
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					

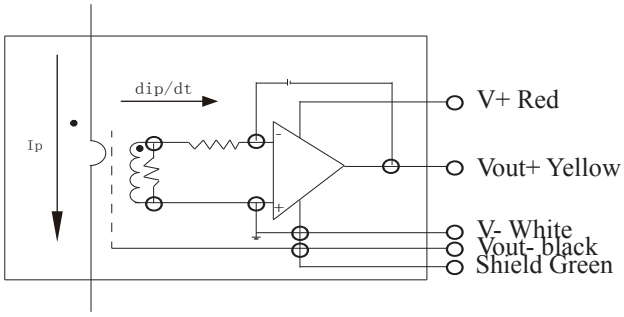
Features

- 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

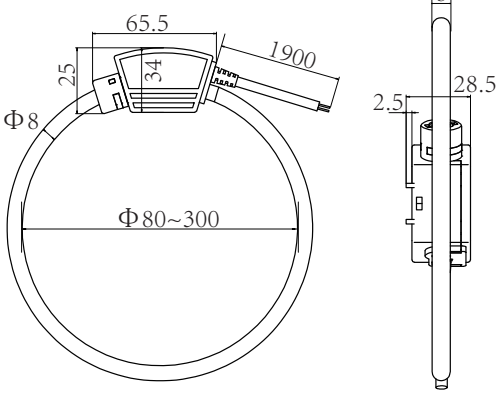
Application

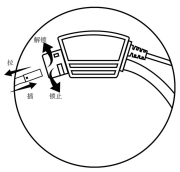
- Power monitoring and analysis
- Harmonics and transient monitoring
- Welding machine control
- High current measurement
- PLC control

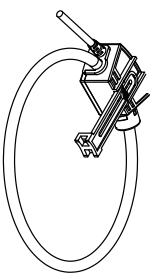
Connection diagram



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.

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.