

Rogowski coil also called differential current sensor, it is a "hollow" circular coil, arranged around the conductor, so that an alternating magnetic field generated by the current induces a voltage in the coil. The coil is actually a transformer coupled to the conductor under test, and the voltage directly output from the coil is proportional to the rate of change of current, e.g. @50Hz/1kA  $V_{out}=1000mV$ , @60Hz/1kA  $V_{out}=1000*60/50=1200mV$ . If you want to obtain the current waveform or current value that doesn't matter to frequency also need to add the integral circuit to achieve 90° phase shift compensation and frequency equalization.

The RHS series is a rogowski coil-based current sensor with different sizes available for light weight and low price, or can be ordered specifically according to the customer's design requirements. Non-magnetic saturation and shielding protect against external magnetic fields, resulting in stable measurements from low currents to hundreds of kA. Accurate measurements are available in smart meters, industrial motor control and power monitoring applications. Systems that use an ADC chips([ADS131M04](#)) or a power metering ICs([ADE7753](#)) that support the Rogowski coil principle are even more advantageous.

We provide 4-20mA, 0-5V, 0-1A, 333mV and other integrators suitable for more usage scenarios.

## Features

- High dynamic range, 1A-100kA
- No danger of opening
- Excellent linearity
- No load consumption for the conductor under test
- High bandwidth output characteristics
- Very low temperature coefficient
- Strong DC anti-interference ability

## Application

- Smart grid applications
- A new generation of sensors for solid-state energy meters
- High-precision power meters
- AC component fault detector for DC current
- Electric vehicles (cars) and solar applications
- Harmonic measurement sensor



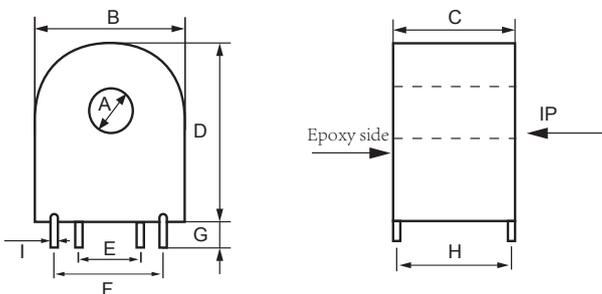
## Specification

Model	RHSP-12-1000
Window Diameter Size	12.8mm
Weight	22g
Coil resistance	240Ω
Rated current	≤500kA
Accuracy	<0.5% 25 °C
Positioning error	±1%
Output Voltage	1000mV/kA@50Hz 1200mV/kA@60Hz
Frequency Range	10Hz to 20kHz
Linearity	±0.2% maximum (10% to 100% of range)
Phase Shift	≤0.5°
Connection cable Type	PCB pin
Connection cable Length	non
Operating temperature	from -30°C to +80°C
Storage temperature	from -40°C to +80°C
Working voltage	1000 VRMS CAT III 600 VRMS CAT IV
Test voltage	7400 VRMS / 1 min
Material	ABS
Protection degree	IP67

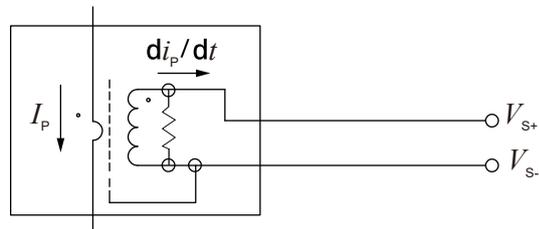
## NOTES:

1. According to the Rogowski coil principle, the output voltage is directly related to the conductor ( $di / dt$ ) of the input current.
2. The output voltages are sine waveforms of a constant rated frequency in Hz and are measured at RMS values.
3.  $V_{out} (RMS) = Amps (RMS) \times Hertz \times K \times 10^{-6}$ , where K depends on the manufacturer, 1000mV model K value is 20.

## Drawing



## Connection



## Dimensions

(unit:mm)

Model No	A	B	C	D	E	F	H	I	G
FHSP-12-1000	13	38	15	39	26	33	14	1	4