

ETCR 100F/200F/300F Flexible coil current sensor

Manual



Note:

Thanks for your purchase of ETCR 100F/200F/300F Flexible coil current sensor of our company. For better use of the product, please make sure:

---to read this user manual in details.

---to abide by the safety regulations and precautions strictly.

- ◆ Under any circumstance, it shall pay special attention on safety in use of this sensor.
- ◆ Pay attention to words and symbols stick on the panel.
- ◆ Keep the sensor clean, maintenance regularly.
- ◆ Stop using the sensor when there is a rupture or break.
- ◆ Please don't keep or store the sensor in the spot with high-temperature and moisture, or condensation, and under direct daylight radiation for a long time.
- ◆ This sensor is only to be used, disassembled, and repaired by qualified personnel with authorization.
- ◆ When it may cause hazard by continuous use for the reason of the sensor itself, it shall immediately stop using it and deposit it at once, leaving it for disposal by authorized agency.
- ◆ For risk of danger icon in manual “⚠”, users must perform safety operations strictly in compliance with the manual content.

I. Brief

ETCR 100F/200F/300F Flexible coil current sensor (Rogowski Coil), use of advanced Rogowski coil technology, is a toroidal coil wound on a non-uniform ferromagnetic material, no hysteresis effect ,phase error is almost zero, and no magnetic saturation, high linearity. The output signal is current on the time differential, the output voltage signal by integrating the input current can be true to, the measurement current range from milliamps to tens of thousands of ampere. Mainly used for measure AC leakage current, AC big current, high harmonic currents (Up to 400 times), complex Waveforms current, inrush transient current,

Phase, electric energy, power, power factor. With an integrator, ease of integration to other devices, such as the phase detection analyzer, industrial control devices, data loggers, oscilloscopes, harmonic analyzer, power quality analyzers, high-precision digital multimeter, transients recorder, distributed measurement systems, protection systems.

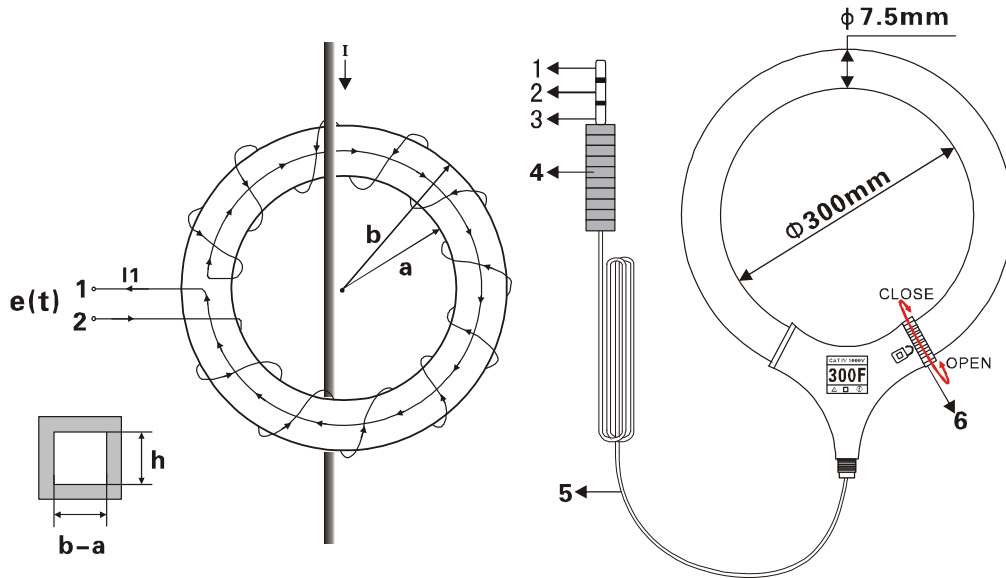
ETCR 100F/200F/300F No exposed metal conductor, non-contact measurement, safe and reliable; Small size, light weight, soft and flexible, suitable for cramped environment and cable-intensive sites, And measure the size of a large or irregularly shaped conductor current; Wide measurement range, high accuracy, reliability, response, bandwidth (0.1Hz-1MHz); Coil length can be customized according to user requirements, Particularly suitable for relay protection, silicon controlled rectifier, frequency control , semiconductor switches, Power electronics conversion equipment, arc welding and other industrial environments serious signal distortion.

II. Technical Specification

Function	measure AC leakage current, AC big current, high harmonic currents, complex Waveforms current, inrush transient current, Phase, electric energy, power, power factor.
testing method	Flexible CT: The output signal is current on the time differential, the output voltage signal by integrating the input current can be true to
Coil length	315mm /650mm/1000mm (Can be customized)
Inner diameter	Φ100mm/Φ200mm/Φ300mm (Can be customized)
Diameter	φ7.5mm
Range	10mA~10000A~more
Resolution	5mA
Accuracy	±0.3%FS (50Hz/60Hz; 23°C±2°C, Below 70%RH, cable in the center of the coil)
Phase Error	≤0.1°(50Hz/60Hz; 23°C±2°C)
Output Interface	3.5mm audio plug
Output Cable Length	2m
Electric field interference	No hysteresis effect, No electric interfering field
Wire Position	Being tested wire at the center of the coil, position error influence ≤ ± 0.3% FS
Current Frequency response frequency	45Hz~70Hz(The measured current frequency) 0.1Hz~1MHz
Line Voltage	Below AC 1000V
Weight	115g/130g/150g
Working Temperature and Humidity	-20°C~50°C; below 80%rh
Storage Temperature and Humidity	-10°C~60°C; below 70%rh
Insulation strength	AC 2000V/rms
Safety Specifications	IEC1010-1, IEC1010-2-032, class of pollution2, CAT IV 1000V
Accessories	Sensor: 1pcs

III. The principle and structure

Rogowski coil to measure current theory is "Faraday's law of electromagnetic induction" and "Ampere's law." When the measured current I Rogowski coil along the axis through the center, resulting in a corresponding change in the magnetic field in the toroidal winding enclosed volume, intensity H , the Ampere's law: $\oint H \cdot dl = I(t)$, the coil rate of change of the induced voltage is proportional to H , therefore, is proportional to the rate of change of electric potential of all induction coils and the current. That is: $e(t) = di / dt$, the output voltage $e(t)$ quadrature, available I , therefore, Rogowski coil integrator generally supporting the use.



1. Coil tap
2. Coil tap
3. Lead shield
4. Audio plug
5. Output wire
6. Lock catch

	Clamp live wire or null line separately to measure the current of this line. (Note: single wire)
	Clamp live wire and null line together to measure leakage current of single phase. (Note: 2 wires)
	Clamp earth wire to measure grounding line leakage current of electrical equipment. (Note: single wire)
	Clamp three wires together to measure the leakage current of three phase three wires. (Note: 3 wires)
	Clamp four wires together to measure the leakage current of three phase four wires. (Note: 4 wires)

 **Manufactured by**

ETCR Electronic Technology Company

Address: F-3F, No.4 Pengshang Zhifu Road, Jiahe, Baiyun District, Guangzhou, Guangdong, China

Post Code: 510440

Tel: (86-20)62199556

Fax: (86-20)62199550

E-mail: info@etcrc.com

Website: www.etcrc.com