Rogowski Coil

RC150 or RC190
Flexible Rogowski Coil

Main features
Suitable to measure currents from mA to hundreds of kA
High linearity
Wide dynamic range
Very useful with large size or awkward shaped conductors or in places with limited access
No danger from open-circuited secondary
Not damaged by large overloads
Non-intrusive, no power drawn from the main
Thanks to its light weight, it can be changed on the measured conductor
Totally shielded
RC150 versions from Ø8 mm, output 100mV/1KA @ 50 Hz (yellow)
RC190 versions from Ø12 mm, output 333mV/1KA @ 50 Hz (red)

Benefits

- Due to its structure, flexible Rogowski coils allows to embrace conductors or grouped cables, which are large and difficult to reach, without any hazard.
- The coil output gives a low voltage signal, therefore there is no danger from open-circuited secondary. This makes Rogowski transducers extremely suitable for temporary measurements, for example in combination with portable analysers.
- Unlike traditional current transformer with magnetic core, the Rogowski coil is a non-intrusive transducer. Since it has no hard core, it draws no power from the main circuit carrying the current to be measured.
- The absence of magnetic core grants a wide frequency response. This make RC150 and RC190 particularly suitable for measurement of harmonic content and transients.

Applications

- Measuring devices, lab instrumentation
- Power monitoring & control systems
- DC ripple measurement
- Harmonics and transients monitoring
- Very high current monitoring

General description

RC150 and RC190 are flexible current transducers based on Rogowski principle, particularly suitable for measurement in combination with portable devices. RC150 and RC190 coils are available in different sizes and can be supplied according to customer's design, therefore they can be used in all those applications, in which traditional transducers are not fitting due to its size and/or weight.

Due to its specific features, flexible Rogowski coil is an extremely confortable solution for current measurement and can be used in a number of cases where traditional current transducer is not the adequate solution.

RC150 and RC190 coils are provided with a shield against the influence of external magnetic fields, therefore it grants a stable measurement from low currents to hundreds of kA. The Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization. Our portable and panel meters can interface Rogowski coils directly without the need of the external integrators. This is an advantage because there is no external boxes or any power supply with consequent ease of use. The particular features of the Rogowski coils combined with the extremely flexible input programming of our portable meters, allow to carry out measurement by all applications.

SENECA

What is a Rogowski coil?

Rogowski coils have been used for the detection and measurement of electric currents for decades. They are based on a simple principle: an "air-cored" coil is placed around the conductor in a toroidal fashion and the magnetic field produced by the current induces a voltage in the coil. The voltage output is proportional to the rate of change of current. This voltage is integrated, thus producing an output proportional to the current.

By using precision winding techniques, especially developed for the purpose, the coils are manufactured so that their output is not influenced by the position of the conductor within the toroid, and to reject interference from external magnetic fields caused, for example, from nearby conductors. Basically, a Rogowski coil current measuring system consists of a combination of a coil and conditioning electronics. Rogowski coil current transducers are used for the AC measurement.

GENERAL SPECIFICATIONS

GENERAL DATA

Coil length	from 25 to 180 cm (RC150)
	from 30 to 180 cm (RC190)
Coil diameter	from 8 ±0.2 mm to 57 mm (RC150)
	from 12 ±0.2 mm to 57 mm (RC190)
Fastening	a bayonet holder
Weight	from 150 to 500 g
Material	thermoplastic UL94-V0
Protection degree	IP67
Operating temperature	-30°C..+80°C

ELECTRICAL SPECIFICATIONS

Output level (RMS)	100 mV / 1 kA @50Hz (standard) (RC150)
	333 mV / 1 kA @50Hz (standard) (RC190)
Coil resistance	from 70 to 900 Ω (RC150)
	from 300 to 2000 Ω (RC190)
Accuracy	better than ±1% of reading (with 15 mm diameter cable)
Frequency range	approx 40 Hz a 20 kHz
Working voltage	1000 VRMS CAT III, 600 VRMS CAT IV, pollution degree 2
Test voltage	7400 VRMS / 1 min

STANDARDS

APPROVALS	CE
NORMS	EN61010-1, EN61010-031, EN61010-2-031, EN61010-2-032

ORDER CODES

Codes	Description
Models	**RC150 versions** (color yellow)
RC150-025-100-300	Rogowski coil with coil lenght 25cm and 100mV/1kA output - 300cm cable lenght
RC150-035-100-300	Rogowski coil with coil lenght 35cm and 100mV/1kA output - 300cm cable lenght
RC150-040-100-300	Rogowski coil with coil lenght 40cm and 100mV/1kA output - 300cm cable lenght
RC150-060-100-300	Rogowski coil with coil lenght 60cm and 100mV/1kA output - 300cm cable lenght
RC150-090-100-300	Rogowski coil with coil lenght 90cm and 100mV/1kA output - 300cm cable lenght
RC150-120-100-300	Rogowski coil with coil lenght 120cm and 100mV/1kA output - 300cm cable lenght
RC150-180-100-300	Rogowski coil with coil lenght 180cm and 100mV/1kA output - 300cm cable lenght
	RC190 versions (color red)
RC190-030-333-300	Rogowski coil with coil lenght 30cm and 333mV/1kA output - 300cm cable lenght
RC190-035-333-300	Rogowski coil with coil lenght 45cm and 333mV/1kA output - 300cm cable lenght
RC190-060-333-300	Rogowski coil with coil lenght 60cm and 333mV/1kA output - 300cm cable lenght
RC190-090-333-300	Rogowski coil with coil lenght 90cm and 333mV/1kA output - 300cm cable lenght
RC190-120-333-300	Rogowski coil with coil lenght 120cm and 333mV/1kA output - 300cm cable lenght
RC190-180-333-300	Rogowski coil with coil lenght 180cm and 333mV/1kA output - 300cm cable lenght