

SN190 ROGOWSKI COIL

Ø12 MM FLEXIBLE ROGOWSKI COIL

INTRODUCTION

SN190 is a flexible current transducer based on Rogowski principle, particularly suitable for measurement in combination with portable devices. SN190 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 convenient solution for current measurement and can be used in a number of cases where traditional current transducer is not the adequate solution.

SN190 coil is provided with a shield against the influence of external magnetic fields, therefore it grants a stable measurement from low currents to several kA. The Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization.

The particular features of the Rogowski coils combined with the extremely flexible input programming of portable meters, allow to carry out measurement by all applications.

FEATURES

- High sensitivity
- Suitable to measure currents from mA to several kA
- High output value
- 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 overloads
- Non-intrusive, no power drawn from the main
- Thanks to its light weight, it can be changed on the measured conductor
- Totally shielded

STRONG POINTS

- Delivered already calibrated
- Bayonet connector including possibility to regulate calibration
- Measurement uniformity at any position of the conductor inside the coil
- Excellent degree of rejection to the external current conductor



APPLICATIONS

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

APPROVALS

- Approval under multiple listing process

BENEFITS

- Due to its structure, flexible Rogowski coil 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 a 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 makes SN190 particularly suitable for measurement of harmonic content and transients.

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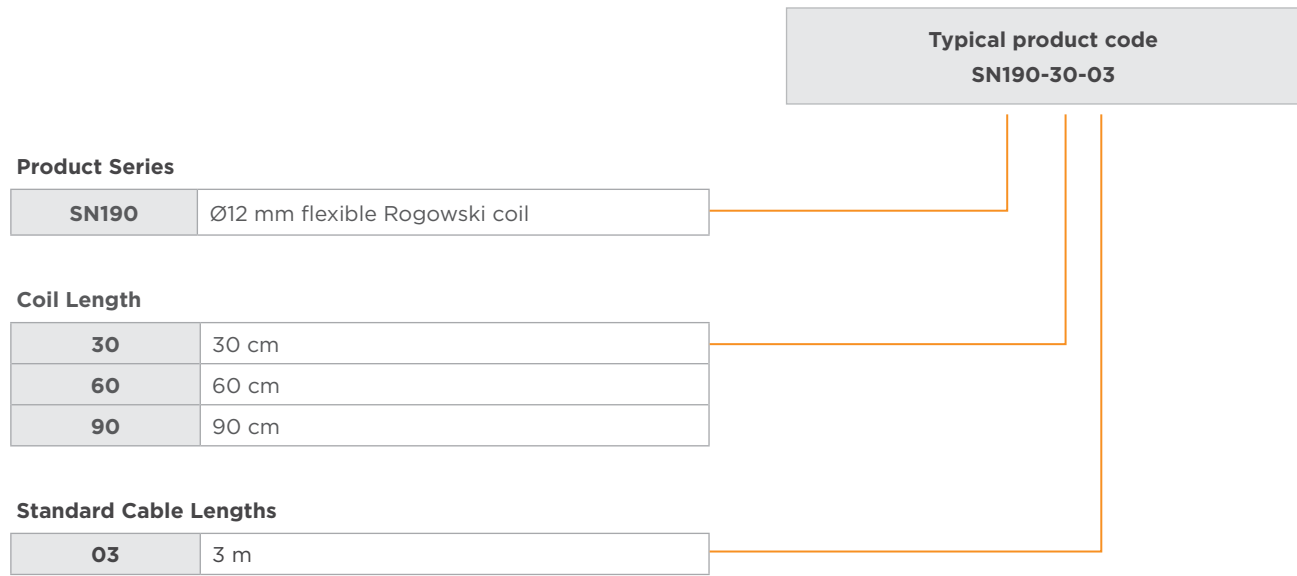
SPECIFICATIONS

Coil	
Coil length	30 ... 90 cm
Sensor internal diameter	6.0 .. 26 cm
Cord diameter	12.4 ±0.2 mm
Jacket material	Thermoplastic polyurethane UL94-V0
Fastening	Bayonet holder
Weight	150 ... 500 g
Electrical Characteristics	
Nominal output rate	333mV/1kA @ 50Hz
Max measurable current	65 kA
Coil resistance	415 ... 980 Ω
Accuracy	Class 0,5-A1 according to IEC 61869-10
Frequency	50/60 Hz
Overvoltage category	1000 V CAT III, 600 V CAT IV
Pollution degree	2
Insulation test voltage	7400 V _{RMS} / 5 s
Connection Cable	
Type	3 x 22 AWG shielded
Length	3 m
Environmental Conditions	
Protection degree	IP67 or IP68 according to the model (not evaluated by UL)
Altitude	Up to 2000 m over sea-level
Operating temperature	-30 ... +80°C
Storage temperature	-40 ... +80°C
Relative humidity	0 ... 95%
Installation and use	Indoor

ORDER CODE

Product Description	Coil detail		Cable Detail	Colour	Calibrated
	Length [cm]	Internal diameter [cm]	3 m	Red	Yes
SN190 (333mV/1kA @ 50Hz Output Value)					
SN190-30-03	30	-6	•	•	•
SN190-60-03	60	-17	•	•	•
SN190-90-03	90	-26	•	•	•

PRODUCT CODE STRUCTURE



PRODUCT INFORMATION

Product Description	Output Value (mV)	Coil Length (cm)	Standard Color	Part Number
SN190-30-03	333mV/1kA @ 50Hz	30	Red	2548335-1
SN190-60-03	333mV/1kA @ 50Hz	60	Red	2548336-1
SN190-90-03	333mV/1kA @ 50Hz	90	Red	2548338-1

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.

They can be used in similar circumstances to current transformers but for many applications they have considerable advantages:

- Wide dynamic range. The same coil can be used to measure currents from mA to several kA, it is enough to change the RC value in the integrator.
- High linearity. According to the manufacturing (size, inductance value, ...) the maximum measurable frequency can range up to hundreds of kHz and in some special models also MHz.
- Very useful with large size or awkward shaped conductors or in places with limited access. Thanks to the structure without hard core, the coil can be easily manufactured according to the application or to the available space.
- Unlike traditional current transducers, there is no danger from open-circuited secondaries.
- They cannot be damaged by large overloads.
- They are non-intrusive. They draw no power from the main circuit carrying the current to be measured.
- They are also light weighted and in some applications are light enough to be suspended on the conductor being measured.

The transducer does not measure direct currents but, unlike a current transformer, it can carry out accurate measurements of AC component even if there is a large superimposed DC component, since there is no iron core causing saturation. This feature is particularly useful for measuring ripple currents for example in battery charging systems.

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