

MFC150/F series

Ø8 mm flexible Rogowski coil with built-in integrator



- All-in-one solution: built-in integrator for maximum space-saving and simplified setup
- Suitable for measuring currents up to several kA
- High linearity
- 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
- Optional UL Recognized Component Mark UL 61010-1



- Built-in integrator: standard 333mV/ FS output
- Delivered already calibrated
- Very thin coil diameter: down to 8 mm
- 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

» General description

MFC150/F is a flexible current transducer based on Rogowski principle, particularly suitable for measurement in combination with portable devices. MFC150/F 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.

The MFC150/F is offered as an all-in-one solution with a built-in integrator. This eliminates the need for any external conditioning equipment, simplifying installation and delivering significant space and cost savings. Users benefit from a compact, single-unit system that provides the required 90° phase compensation and frequency equalization.

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

MFC150/F 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.

» Benefits

- The built-in integrator delivers the conditioned output signal directly, eliminating the need for an external integration box. This makes the MFC150/F an optimal solution for maximizing space and cutting costs.
- The flexible coil can easily wrap around large, hard-to-reach conductors and grouped cables. The low-voltage output ensures there is no hazard from an open secondary winding.
- Unlike traditional CTs, the coreless Rogowski coil is a non-intrusive transducer, drawing no power from the main circuit being measured
- The absence of a magnetic core grants an exceptionally wide frequency response, making the MFC150/F highly suitable for accurate measurement of harmonics and transients..

» Applications

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

» Available models

MODEL	Built-in INTEGRATOR
MFC150	
MFC150/F	●

» 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:

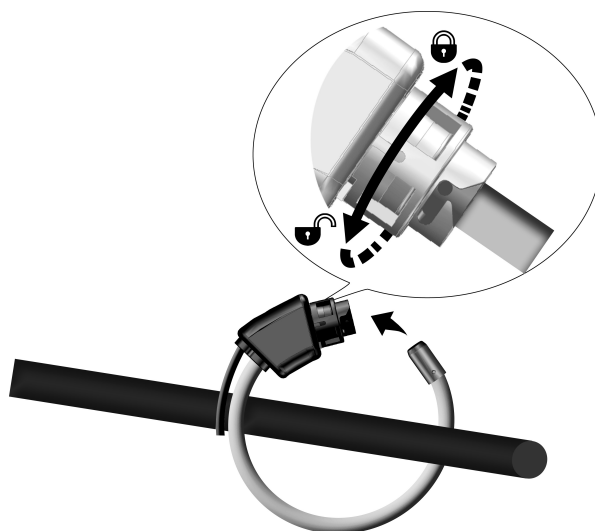
- Wide dynamic range. The same coil can be used to measure currents up to several kA, it is enough to change the RC value in the integrator.
- High linearity. According to the manufacturing (size, inductance value, ...) the maximum measurable frequency can range up to hundreds of kHz and in some special 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.

» Specifications

COIL	
Coil length:	25 ... 300 cm
Sensor internal diameter:	5 ... 94 cm
Cord diameter:	8.3 ±0.2 mm
Jacket material:	Thermoplastic polyurethane UL94-V0
Fastening:	Bayonet holder
Weight:	150 ... 500 g
ELECTRICAL CHARACTERISTICS	
Power voltage:	4 ... 26 VDC
Max consumption:	5 mADC
Nominal output rate:	333 mV / FS (RMS values) FS changes according to the model: 1, 2, 5 kA
Positioning error:	Better than ±1% of reading
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 FOR MODEL	
Type:	5 x 22 AWG shielded
Length:	3 m. Other lengths on request: 5, 7, 10, 15 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
STANDARD COMPLIANCE	
IEC, UL standards:	UL 61010-1 Ed3, UL 61010-2-032, CAN/CSA-C22.2 No. 61010-1, IEC 60529

» Mounting



ORDER CODE	COIL DETAIL		CABLE DETAIL		COLOUR	CALIBRATED
	Length [cm]	Internal diameter [cm]	3 m	Edges	Yellow	Yes
MFC150/F with BUILT-IN INTEGRATOR - (333mV/1kA OUTPUT VALUE)						
3118.0001.0001	40	~11	●		●	●
MFC150/F with BUILT-IN INTEGRATOR - (333mV/2kA OUTPUT VALUE)						
3118.0002.0001	60	~17.5	●		●	●
MFC150/F with BUILT-IN INTEGRATOR - (333mV/5kA OUTPUT VALUE)						
3118.0003.0001	90	~27	●		●	●
				ALL MODELS	ONLY MODEL WITHOUT INTEGRATOR	
OPTIONS AVAILABLE ONLY ON REQUEST (SUBJECT TO MOQ)						
UL Recognized Component Mark UL 61010-1			●			
Different output value: 40mV/1kA@50Hz or 85mV/1kA@50Hz					●	
Other coil length than those listed above, up to 300cm			●			
Cable length different from standard (3m): 5, 7, 10, 15 m			●			
Calibrated for customer device (input impedance value of device to be specified)					●	
FRB connector			●			
Different coil colour			●			
IP68 protection degree			●			

To be indicated together with the selected order code from the list above.

NOTE: Subject to change without notice

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