

## MRC series

### Ø6 Mini flexible Rogowski coil

The MRC series is a new generation of flexible Rogowski coil (Rogowski® coil) current sensors, which are especially suitable for measuring in combination with portable devices. MRC coils have different sizes to cope with different conductors. The new generation of MRC coil strengthens the shielding layer and greatly reduces the influence of external magnetic fields; it can be directly connected to our rail-mounted and panel-type meters without the need for external integrators. MRC series coils have IP67 protection grade.

#### Advantage

- Excellent linearity
- Wide dynamic range
- Not damaged by large overloads
- Excellent degree of rejection to the external current conductor
- No danger from open-circuited secondary
- Zero power consumption
- Small position error
- Soft and light, easy to install
- Long-term stability
- Wide dynamic range
- IP67 protection level

#### Applications

- Smart meter
- Rectifier current measurement
- Power quality analysis
- Motor overload/short circuit protection
- Current monitoring of power frequency and intermediate frequency welding machine
- Medium and high voltage switchgear protection system
- Remote Terminal Unit (RTU)
- Synchronous Phasor Measurement Unit (PMU)
- Current measurement on the secondary side of the electric furnace



## Specification

At 25°C, RL = 100 kΩ

|   |  |  |
|---|--|--|
| Reference Rated current   |  | 100A,600A,3000A,6000A...(Unlimited)      |
| Ratio<br>@50Hz  | Calibrated<br>(Manufacturing tolerance<0.5%) | ...<br>22.5mV/kA<br>50mV/kA<br>...       |
|   | Uncalibrated<br>(Manufacturing tolerance<5%) | ...<br>56mV/kA                           |
| Sensitivity temperature drift coefficient                           |  | Uncalibrated, < 50ppm/°C                 |
|   |  | Calibrated, < 100ppm/°C                  |
| Internal resistance temperature drift coefficient <sup>1)</sup>     |  | Uncalibrated, < 3800ppm/°C               |
| Read Accuracy   |  | 0.5%class (Vertically centered position) |
| Internal resistance   |  | 50~250 Ω                                 |
| Position Error <sup>2)</sup>  |  | < 1%                                     |
| Output on 0A<br>(zero drift)  |  | <0.05mV                                  |
| Phase error   |  | <0.5° (45Hz~65Hz)                        |
| Linearity   |  | ±0.1% (1%~100%)                          |
| Bandwidth(3dB)  |  | 1Hz~20kHz                                |
| Operating temperature   |  | -40°C~85°C                               |
| Coil Section  |  | 6mm                                      |
| Lead length(default)  |  | 2 meter                                  |
| <b>For other requirements, please contact us for customization.</b> |  |  |

### Remark:

- 1) The internal resistance temperature drift characteristic diagram of the coil with calibration, please contact customer service to obtain;
- 2) The position error of the metering type A-MRC series is less than 0.5%.

## Materials

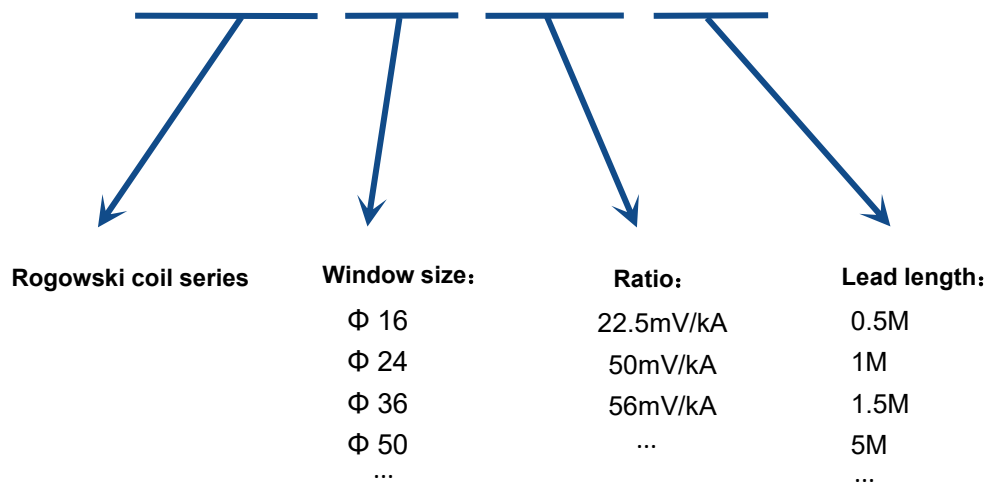
|              |  |
|--------------|--|
| Coil & cable | Thermoplastic rubber<br>flame retardant <b>UL 94 V-0</b> rated |
| Couplings    | <b>PC, ABS, UL 94 V-0</b> rated                                |
| Color(coil)  | Orange, Yellow, Red, Green, Blue, Grey                         |

## Insulation coordination

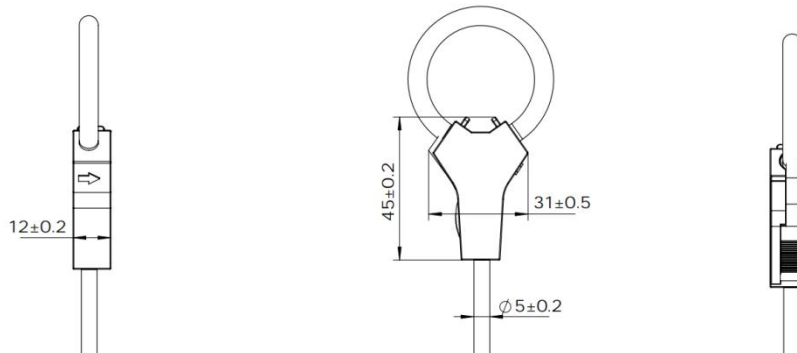
|                          |                            |
|--------------------------|----------------------------|
| Applicable voltage range | 1000V CATIII, 600V CATIV   |
| Dielectric strength      | 7400Vac @ 50/60Hz 1 minute |
| Certifications           | CE, IP67, Rohs 2.0         |

## Model rules

# MRC-16-22.5-3M



## Dimensions



## 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 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.
- High linearity.
- 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.

## Typical Applications

- Smart meter
- Arc fault current
- Power quality analysis
- Motor overload/short circuit protection
- Grid harmonic monitoring, active filter
- Large complex conductor ground fault monitoring
- Power failure indicator, transmission line fault diagnostic device, line distance measurement
- Current monitoring of power frequency and intermediate frequency welding machine
- Medium and high voltage switchgear protection system
- Capacitor discharge, lightning current detection
- Remote Terminal Unit (RTU)
- Synchronous Phasor Measurement Unit (PMU)



## Safety and warning notes

Rogowski coils can only be used within the proper parameters to ensure safety. Please read the following instructions carefully.

You can download the latest product manual from our company's website [www.rogowski.cn](http://www.rogowski.cn).

### **WARN!**

Ignoring the warnings can lead to serious injury and/or cause damage!

The electric measuring transducer may only be installed and put into operation by qualified personnel that have received an appropriate training. The corresponding national regulations shall be observed during installation and operation of the transducer and any electrical conductor. The transducer shall be used in electric/electronic equipment the respect to applicable standards and safety requirements and in accordance with all the related systems and components manufacturers' operating instructions.

### **ELECTRIC SHOCK WARNING!**

When operating the transducer, certain parts of the module may carry hazardous live voltage (e.g., Primary conductor). The user shall ensure to take all measures necessary to protect against electrical shock. The transducer is a build-in device containing conducting parts that shall not be accessible after installation. A protective enclosure or additional insulation barrier may be necessary. Installation and maintenance shall be done with the main power supply disconnected except if there are no hazardous live parts in or in close proximity to the system and if the applicable national regulations are fully observed.

### **NOTICE!**

Safe and trouble-free operation of this transducer can only be guaranteed if transport, storage and installation are carried out correctly and operation and maintenance are carried out with care.

Do not stress the coil by applying any kind of mechanical force (transport, storage pressure, tight bending.) which will dramatically degrade the device' s accuracy.

