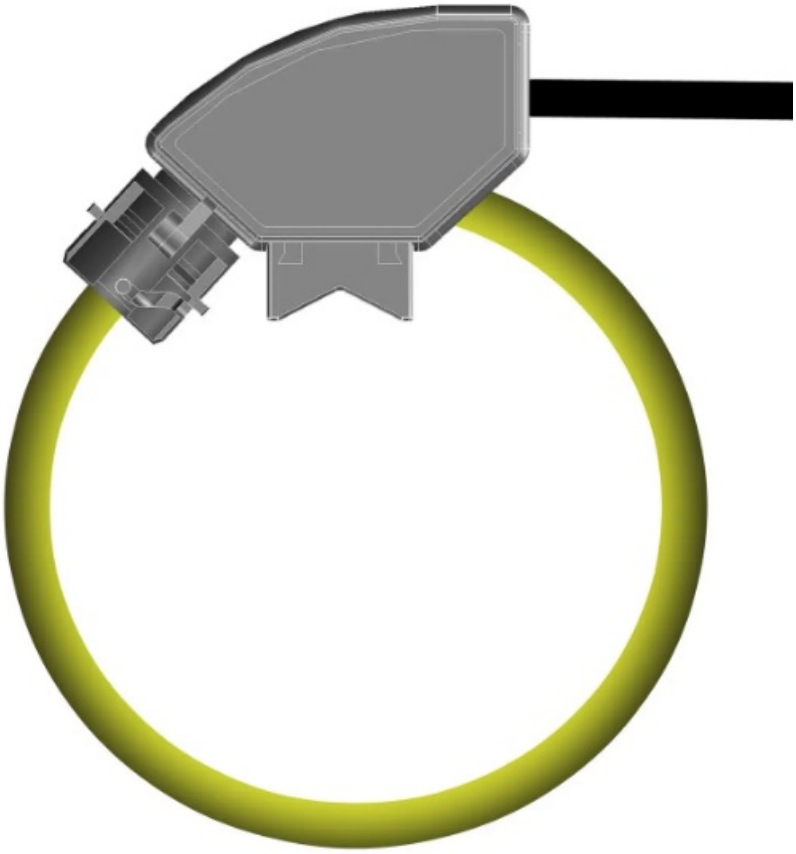

# algodue ELETTRONICA MFC140 Rogowski Coil Current Sensor User Manual



Contents



**algodue ELETTRONICA MFC140 Rogowski Coil Current Sensor**



## INTRODUCTION

The manual is intended only for qualified, professional and skilled technicians, authorised to act by the safety standards provided for the electrical installations. This person must have
appropriate training and wear suitable Personal Protective Equipment.
**WARNING!** It is strictly forbidden for anyone who does not have the above-mentioned requirements to install or use the coil. It is forbidden to use the coil for purposes other than intended ones, specified in this manual. The symbols on the product are the following:
**Attention!** Refer to the user manual. Protected throughout by DOUBLE INSULATION.

**REINFORCED INSULATION.**
Do not apply around or remove from HAZARDOUS LIVE conductors without additional protective means. Complies with the relevant European standards.

## AVAILABLE MODELS

| MODEL | Built-in INTEGRATOR | OUTDOOR use |
|---|---|---|
| MFC140 | | ● |
| MFC140/F | ● | ● |

**SAFETY INSTRUCTIONS**
The Rogowski coil must be installed in an environment that is according to the maximum operation conditions of the coil itself.
**WARNING!** The connection and installation of the Rogowski coil must be carried out only by qualified technicians aware of the risks involved in the presence of voltage and current.

**Before carrying out an operation, check if**

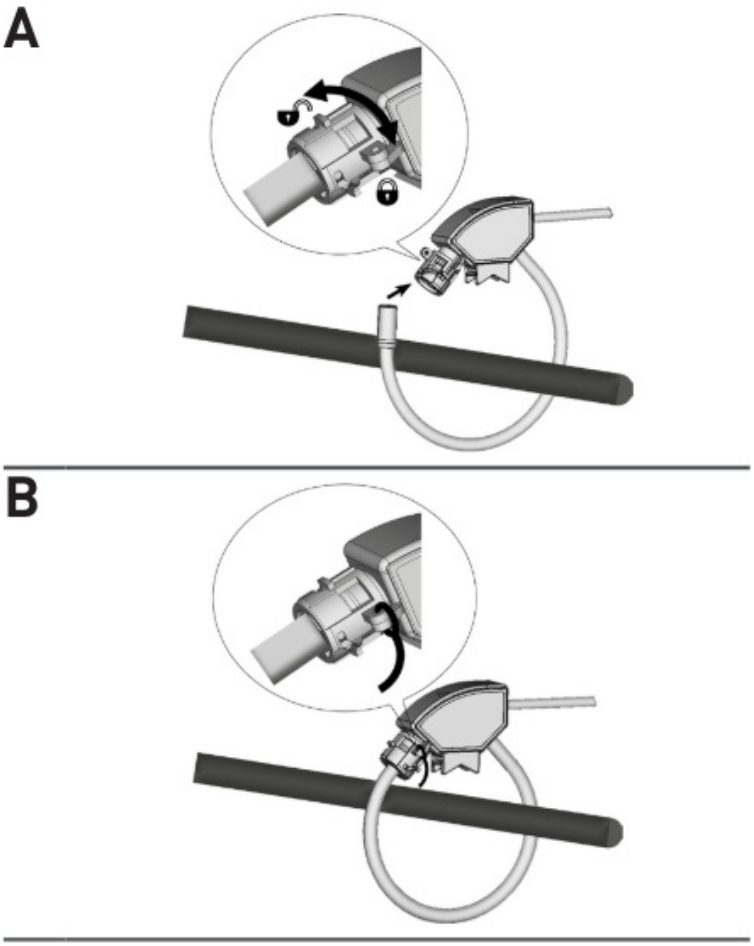
1. bare conductor wires are not powered
2. there are no neighbour bare powered conductors

   **NOTE**: The Rogowski coil complies with IEC 61010-1 and IEC 61010-
3. 032 standards and following amendments. The installation must be carried out according to the standards in force, the instructions of this user manual and the coil insulation value to avoid any danger to people.
4. The Rogowski coil is a sensor for accurate measurement so it must be handled with care. Before use, read the following instructions carefully.
   - Do not use the product if damaged.
   - Always wear protective clothing and gloves when required.
   - Avoid strongly twisting, blowing and pulling load on the product, the measurement accuracy may be impaired.
   - Do not paint the product.
   - Do not put metallic labels or other objects on the product: the insulation may be impaired.
   - It is forbidden any use a product different from the manufacturer's specifications.

## MOUNTING

**WARNING!** Before installing the coil around a conductor not insulated, check that it is not powered otherwise switch the circuit OFF.
**WARNING!** Check if the coil is properly installed: a bad locking can affect measurement accuracy and the coil will become sensitive to adjacent conductors or other sources of electromagnetic fields.
**NOTE:** The coil must not fit tightly around the conductor, therefore its internal diameter must exceed that of the conductor.
To carry out the installation, proceed as follows:

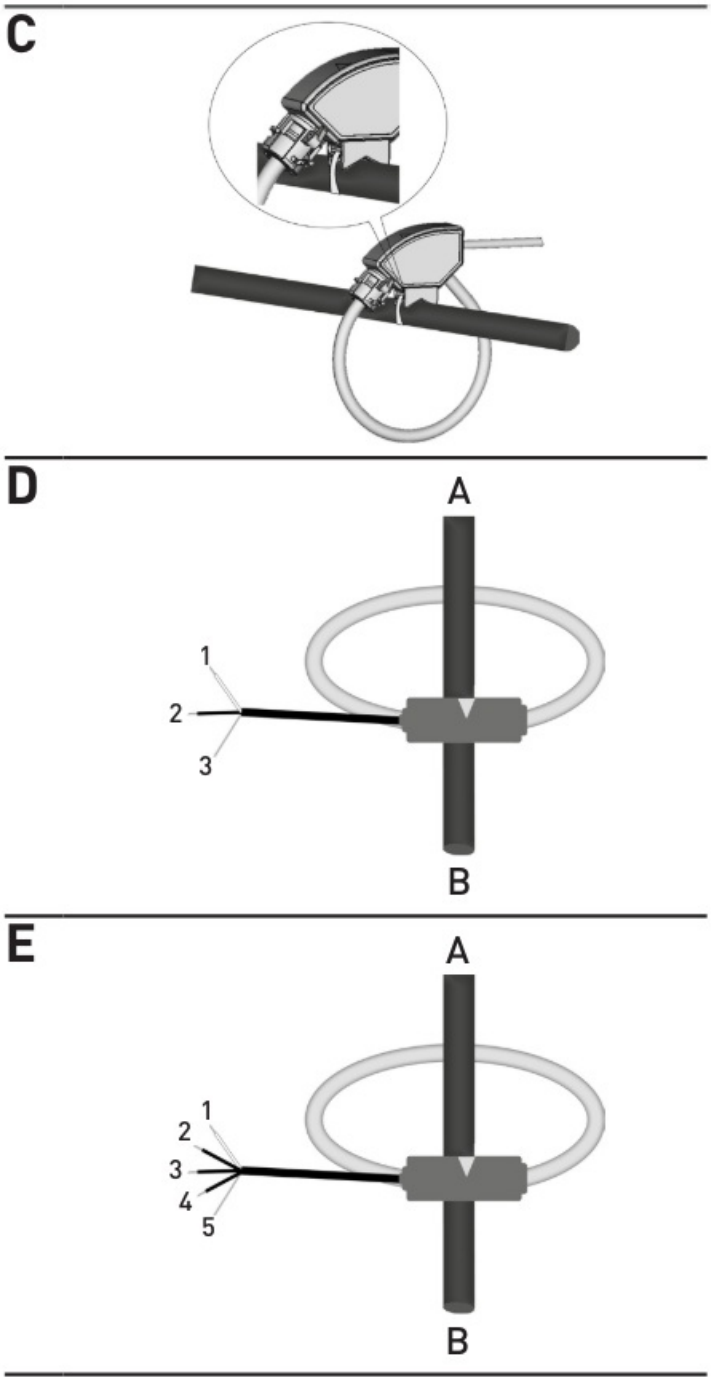
1. Fit the coil around the conductor, bringing the coil ends together.
2. Lock the coil by turning the ring until the two hooks are overlapped (see picture A).




3. Seal the locking if requested (see picture B).
4. Fix the coil on the conductor if requested (see picture C).

**CONNECTIONS**

The coil has an arrow indicating the load side.
In the case of the model WITHOUT integrator refer to picture D:




A = SOURCE
B = LOAD

1. WHITE wire, OUT+
2. BLACK wire, OUT3. SHIELD, connect to GND or OUTIf the cable is provided with crimp pins:
    - YELLOW crimp pin, OUT+
    - WHITE crimp pin, OUTIn case of model WITH integrator refer to picture E:

A = SOURCE
B = LOAD

1. WHITE wire, OUT+
2. BLACK wire, OUT3. RED wire, positive power, 4…26 VDC
3. BLUE wire, negative power, GND
4. SHIELD, connect to GND

5. The coil is protected against the reverse polarity of the power supply.

## MAINTENANCE

- Refer to the following instructions carefully for product maintenance.
- Keep the product clean and free of surface contamination.
- Clean the product with a soft cloth damp with water and neutral soap.
- Avoid to use of corrosive chemical products, solvents or aggressive detergents.
- Make sure the product is dry before further use.
- Do not use or leave the product in particularly dirty or dusty environments.

### TECHNICAL FEATURES

**NOTE:** For any doubt about the installation procedure or product application, please contact our technical services or our local distributor.

### COIL

- Coil length 150 … 500 mm
- Sensor internal diameter 40 … 150 mm
- Cord diameter 7.2 ±0.2 mm
- Jacket material Polyphenylene and thermoplastic elastomer
  Fastening Bayonet holder
- Weight 150 … 500 g

### ELECTRICAL CHARACTERISTICS FOR MODEL WITHOUT INTEGRATOR

- Nominal output rate 100 mV / kA @ 50 Hz (RMS values)
- Refer to the value indicated on the product label
- Max measurable current
- 600 A with 150 … 280 mm coil length
- 2500 A with 290 … 410 mm coil length
- 5000 A with 420 … 500 mm coil length
- Coil resistance 170 … 690 Ω
- Accuracy Class 1-A1 according to IEC 61869-10
- Frequency 50/60 Hz
- Overvoltage category 1000 V CAT III, 600 V CAT IV
- Pollution degree 3
- Insulation test voltage 7400 VRMS / 5 s

### ELECTRICAL CHARACTERISTICS FOR MODEL WITH INTEGRATOR

- Power voltage 4 … 26 VDC
- Max consumption 5 ADC
- Nominal output rate
- 333 mV / FS (RMS values)

- FS changes according to the model: 200, 250, 600, 1000 A
- Refer to the value indicated on the product label
- Positioning error Better than ±1% of reading
- Frequency 50/60 Hz
- Overvoltage category 1000 V CAT III, 600 V CAT IV
- Pollution degree 3
- Insulation test voltage 7400 VRMS / 5 s

**CONNECTION CABLE FOR MODEL WITHOUT INTEGRATOR**

- Type 3 x 24 AWG shielded
- Length 3 m. Other lengths on request: 5, 7, 10, 15 m

**CONNECTION CABLE FOR MODEL WITH INTEGRATOR**

- Type 5 x 24 AWG shielded
- Length 3 m. Other lengths on request: 5, 7, 10, 15 m

**ENVIRONMENTAL CONDITIONS**

- Protection degree IP68
- Altitude Up to 2000 m over sea level
- Operating temperature -40 … +75°C up to 2500 A with 150 … 410 mm coil length
- -40 … +60°C up to 5000 A with 420 … 500 mm coil length
- Storage temperature -40 … +90°C
- Relative humidity 0 … 95%
- Installation and use of Outdoor

**STANDARD COMPLIANCE**
IEC standards IEC 61010-1, IEC 61010-2-032, IEC 60529

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## Documents / Resources

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|  | algodue ELETTRONICA MFC140 Rogowski Coil Current Sensor [pdf] User Manual<br>MFC140, MFC140 Rogowski Coil Current Sensor, Rogowski Coil Current Sensor, Coil Current Sensor, Current Sensor, Sensor |

## References

- User Manual