

EM210 energy analyzer current sensor (20-4000 A)



Description

Current sensor based on the Rogowski principle, to be used in combination with the EM210 analyzer (versions EM210 72D MV5 and EM210 72D MV6) to measure current in single-phase, two-phase and three-phase systems.

Compact, flexible and lightweight, it is suited to all applications and can be installed in all types of switchboards.

Supplied in a kit made up of three different colored pieces to make phase identification easy, it comes with coils with three different diameters and lengths and measures a wide current interval (from 20 to 4000 A).

Benefits

- **Adaptability and flexibility.** Effective for a wide range of currents and available in three different lengths, it can be installed in existent applications and/or with reduced space, on single cables, on cable bundles or high capacity busbars.
- **Accuracy.** The lack of a ferromagnetic core improves measurement accuracy in a wide range of currents and eliminates possible interferences.
- **Simplified system.** The current calculation integrator is included in the EM210 analyzer, thus neither additional wiring nor space are required; the sensor is directly connected to the analyzer.
- **Fast installation.** The opening/closing mechanism makes installation fast even in existent applications. The analyzer only requires two cables to be connected per sensor and the installation is made easy by the color (black, orange, blue) on the connection cable.

Operating principle

The Rogowski sensor is an alternating current measurement device.

Unlike current sensors with ferromagnetic core, the linearity of the Rogowski sensor makes it specifically indicated to measure high currents.

Its operating principle is very simple: a voltage signal dependent on the primary current trend, which can be reconstructed using an integration process, is generated at the ends of the coil positioned around a conductor.

Unlike traditional Rogowski sensors, ROG4K does not require an external integrator with additional power supply since measurement is entirely controlled by the analyzer.

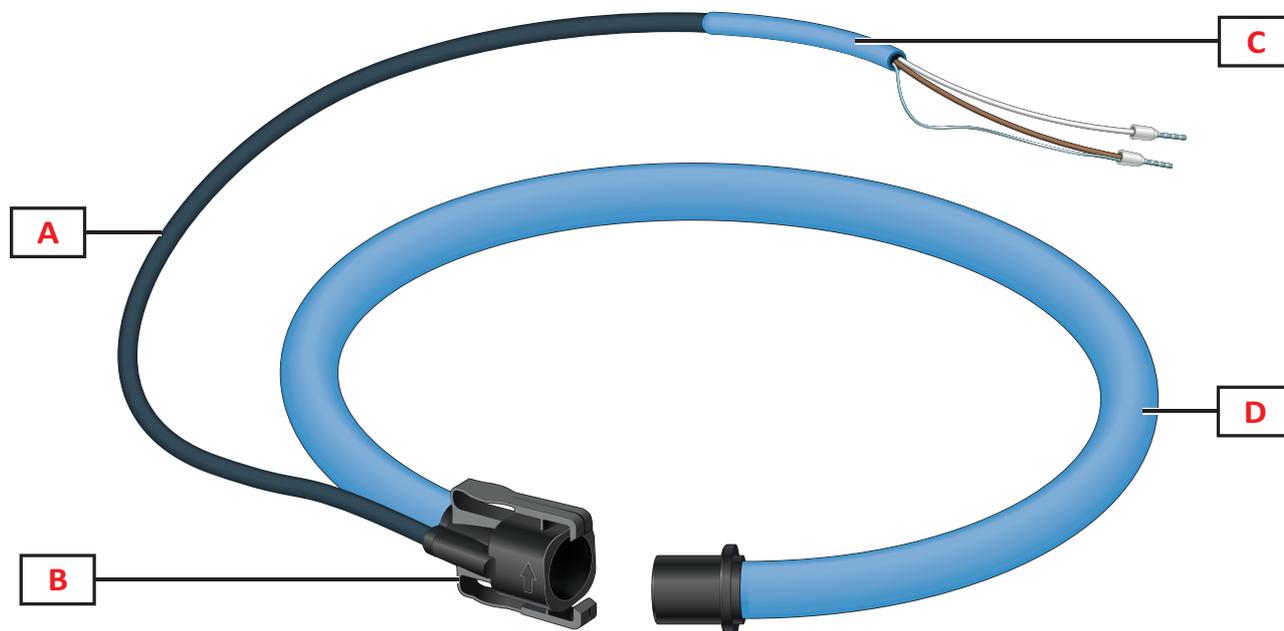
Applications

Indicated for retail and industrial solutions, especially for retrofitting and/or contexts with reduced available space where installing a current sensor with ferromagnetic core is difficult.

It is especially indicated to measure:

- industrial or building system load
- single machine load with high current absorption

Structure



Area	Description
A	Analyzer connection cable
B	Coil opening/closing mechanism
C	Colored sensor identification
D	Coil



Features

General

Material	Coil and EM210 connection cable: thermoplastic rubber, self-extinguishing degree V-0 (UL 94) Opening/closing mechanism: PA6, self-extinguishing V-0 (UL 94)
Protection degree	IP52
EM210 connection cable	Type: 1000 V (UL Style 20940) External diameter: 5 mm Cables: 2, section 0.1288 mm ² (26 AWG) Length: 2 m (customizable up to 50 m, upon request subject to minimum quantities)
Overvoltage category	Cat. III1000 V @50/60 Hz Cat. IV600 V @50/60 Hz
Pollution degree	2
Insulation	double electrical insulation
Mounting	Cable Busbar

Dimensions (mm) and weight					
Code key	Coil length (mm)	Coil thickness (mm)	External coil diameter (mm)	Maximum conductor diameter (mm)	Weight (g)
ROG4K1002M4003X	400	12	139	115	130
ROG4K1002M6003X	600	12	203	179	160
ROG4K1002M9003X	900	12	299	275	200

Environmental specifications

Operating temperature	From -20 to +70 °C/from -4 to +158 °F
Storage temperature	From -20 to +70 °C/from -4 to +158 °F
Maximum altitude	2000 m

NOTE: R.H. < 85 % non-condensing.

Conformity

Directives	2014/35/EU (LVT - Low Voltage)
Standards	EN61010-1
Approvals	

Electrical specifications

Primary current	From 20 to 4000 A
Output signal	100 mV/kA @50 Hz
Operating frequency	From 45 to 65 Hz
Accuracy	±1%
Linearity	±0.2%
Position sensitivity	±2% (primary conductor near the opening/closing mechanism)
External field influence	±0.5% maximum
Temperature drift	±0.07% per °C
Internal resistance	30 Ω/400 mm
Dielectric strength	7.4 kV ac for 1 minute (connection cable wires and coil)

Connection Diagrams

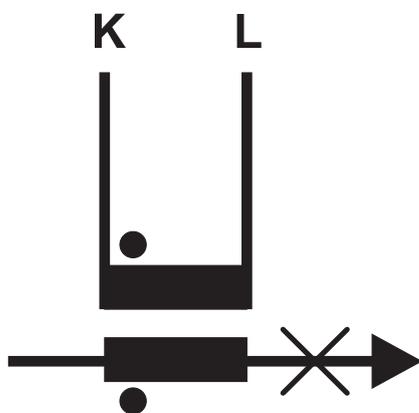


Fig. 1 Current connection

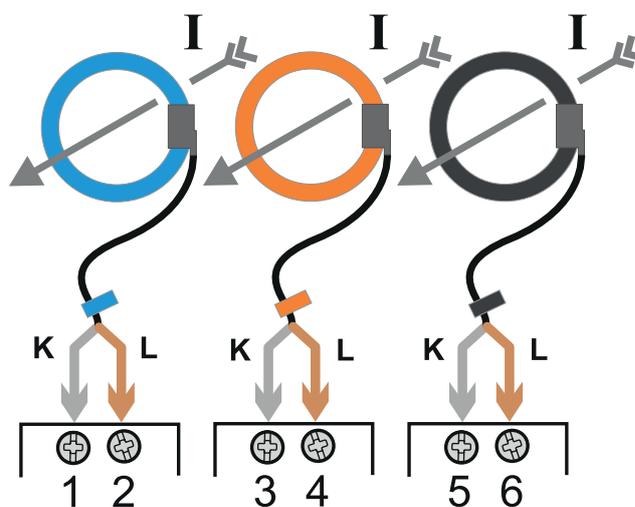


Fig. 2 Connection with EM210, K=white, L=brown

References

Order code



ROG4K 100 2M 3X

Enter the code, replacing the symbol with the coil length (3 digits). Lengths available: 400, 600, 900 mm.
Note: different cable lengths and kits with single coil available upon request (subject to minimum order quantities).

Further reading

Information	Document	Where to find it
Instruction manual	Instruction manual - ROG4K	www.productselection.net
Analyzer Datasheet	EM210 Datasheet	www.productselection.net
Analyzer installation and use instructions	EM210 installation and use instructions	www.productselection.net

CARLO GAVAZZI compatible components

Purpose	Component name/code key	Notes
Measure and view connected load consumption (230 V L-N, 400 V L-L ca)	EM21072DMV53XOXX	1 pulse output, see relevant datasheet
	EM21072DMV53XOSX	1 pulse output, 1 RS485 port, see relevant datasheet
Measure and view connected load consumption (120 V L-N, 230 V L-L ca)	EM21072DMV63XOXX	1 pulse output, see relevant datasheet
	EM21072DMV63XOSX	1 pulse output, 1 RS485 port, see relevant datasheet



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