iskraemeco
BY ELSEWEDY ELECTRIC

IE.7

with External Rogowski Coils

LV retrofit grid monitoring solution

The IE.7 RC meter, equipped with external Rogowski coils, provides advanced consumption measurement and power quality monitoring, optimized for installations where traditional power quality analyzers are challenging or impractical to install.

Non-intrusive measurement: Eliminate the need to cut into existing electrical lines. Rogowski coils simply clamp around the cable, enabling safe and easy installation.

Retrofit solution for LV transformers: IE.7 RC provides a simple and cost-effective way to add monitoring capabilities to existing low-voltage (LV) transformer installations without service interruptions.

Broad application: Ideal for monitoring transformers, PV installations, and other critical equipment across the grid.

Upgraded with eIoT EDGE compute module. The IE.7 RC smart meters incorporate an advanced EDGE compute module, enhancing data processing capabilities and allowing seamless integration with external systems and partners.

- **Improved data processing:** Powered by machine learning and artificial intelligence, the EDGE module supports complex data processing, scalability, and flexibility, enabling execution of multiple applications.
- **Rapid deployment:** Streamlined development through a DevOps approach ensures adaptability to dynamic customer requirements.
- **Upgraded security features:** Key security measures include data protection via VPN, role-based access control, an audit logging system, proactive threat detection, and a security module for secure key storage across application instances.

With a holistic offering of interoperable software Symbiot you can access a comprehensive and user-friendly visualization of collected data and measurements:

- Phasor diagrams with voltages/currents angles
- Harmonics and THD
- Transformer locations (future plans)
- Four-quadrant power measurement and energy registration.
- Vector or arithmetical energy registration methods.
- Instantaneous values: current, voltage, power, power factor, frequency.

Main features

- **Rogowski coil based current measurement (non-intrusive measurement).**
- **Modular hardware design (field exchangeable communication modules) supports future upgrades for new applications.**
- **Multiple customer interfaces available: ETHERNET, P1, RS485 and I/Os.**
- **Load control relays for load management applications (up to 6 relays).**

Functionalities

- Measuring
  - Four-quadrant power measurement and energy registration.
  - Vector or Arithmetical energy registration methods.
  - Instantaneous values: current, voltage, power, power factor, frequency.
- Grid Monitoring
  - Power quality indicator according to EN 50160 (voltage sags and swells, power failures, magnitude of supply voltage, voltage and current harmonic analysis up to 15th harmonic, THD).
  - Additional features (beyond EN 50160) – real-time monitoring and analysis of: over/undercurrent, over/underpower (active/reactive, consumption/generation), power factor, THD.
- Various demand registrations: Cumulative, Maximum, Average.
- RTC backup
- Load profiling
- Load management (Disconnector and relay control)

Benefits

IE.7 with external Rogowski coils enables efficient new functionalities that efficiently address modern electricity distribution challenges:

- Improved visibility: Gaining insights into network conditions and valuable insights into power consumption and quality, allowing for more data-driven decision-making.
- Optimize installation costs: Eliminate the need for expensive rewiring or downtime associated with traditional power quality analysers installation.

Meters can be upgraded with the eIoT EDGE compute module, which enables the meter to act as a data source for various applications and go beyond AMI, thereby accelerating the development and implementation of various energy services and applications.

Technical data

Operation voltage (three phase connection)	3x230 V/400 V AC ± 15%
Electrostatic discharges (IEC 61000-4-2)	contact 8 kV, air 15 kV
Electromagnetic RF fields (IEC 61000-4-3)	10 V/m active, 30 V/m passive
Fast transient burst (IEC 61000-4-4)	4 kV
Overvoltage category (IEC 60664-1)	OVC III
Surge (IEC 61000-4-5)	4 kV
Immunity to conductive disturbances (IEC 61000-4-5)	10 V
Impulse voltage 1.2/50µs (EN50470-1)	6 kV
Insulation strength contact to contact	1 kVrms, 1 min
Rated frequency	50..60 Hz 50/60
Ambient Temperature range – Operation	-40 °C ... +70 °C
Temperature range – Storage	-40 °C ... +80 °C
Humidity	< 95%
Ingress protection	IP 54 (IEC 60529)
Pollution degree	2
Mechanical conditions	Shock test according to IEC 60068-2-27 Vibration test according to IEC 60068-2-6
Mechanical environment	M2
ROHS	Directive 2015/863 – Restriction of Hazardous Substances

Dimensions

Width	177 mm
Height (with terminal cover)	244 mm
Height (without terminal cover)	182 mm
Depth	79 mm
Weight	1.3 Kg
Mounting type	Three-screw triangle fixing

Terminal connection

Terminal number	Description
1	Phase 1 voltage (L1 - in)
3	Phase 1 current output to supply luminaries (out)
4	Phase 2 voltage (L2 - in)
6	Phase 2 current output to supply luminaries (out)
7	Phase 3 voltage (L3 - in)
9	Phase 3 current output to supply luminaries (out)
10	Neutral (N - in)
12	Neutral (N - out)
A	Digital input 1
B	Voltage reference (+5V DC – out)
C	Digital input 2
D	Relay 1 contact output
E	Relay 1 and 2 contact input
F	Relay 2 contact output

EL EN/2410/224/1