CompactIQ Meter

Compact Smart Meter with RS485 Modbus Gateway

Product Overview

The CompactIQ meter combines both metrology and gateway functionality in a compact form factor and is positioned as a space-efficient alternative to a traditional smart meter.

The meter is primarily developed for energy measurement in uninhabited locations, such as public EV charging poles and roadside infrastructure. In addition, it can be used for energy monitoring, grid monitoring, and sub-metering in environments where a conventional smart meter cannot be installed due to physical space constraints.

CompactIQ is a 3-phase energy meter in a 4-DIN unit housing, supporting 3-phase 4-wire, and single-phase configurations. Optionally 3-phase 3-wire can be supported. Single-phase operation is achieved by connecting only one phase, enabling flexible deployment across different installation scenarios.

The meter features an integrated LTE-M modem with eSIM, enabling secure remote communication with head-end systems used by grid operators and installers, comparable to traditional smart metering solutions.

For interfacing and user interaction, CompactIQ is equipped with an RS485 interface, a P0 port, and a P3 port for WAN connectivity. The device does not include P1 or P2 interfaces. Local interaction is supported via an integrated display, metrological LEDs, and one front-facing control push button.

To support efficient installation, the meter uses screw clamping terminals for grid connection. It is suitable for installations in enclosures that may affect radio performance; where required, an external antenna can be connected to ensure reliable communication.

Typical use cases

- Public street cabinets and roadside infrastructure
- Public EV charging stations and charging hubs
- EMS basic optimization of connected assets
- Street lighting and smart lighting cabinets
- Grid monitoring and local grid management
- Remote energy monitoring (e.g. PV, submetering)
- Fleet and shared mobility charging infrastructure
- Commercial and municipal sub-metering
- Energy communities and local energy hubs
- Supply split, secondary allocation and MLOEA

Technology (subject to modification)

General

- 100 Amp 1-phase & 3-Phase 4U DIN meter
- 4-wire and optionally 3-wire net compatible
- MID certified
- ESMR Smart Meter functionality
- RS485 Modbus functionality
- LTE-M communication
- Last gasp functionality
- Firmware updatable
- Fraud detection

Electrical

- Ref. standards: EN 50470-1/3, IEC 62052-11
- Active and reactive measurement
- Accuracy:
  - Active: Class B
  - Reactive: Class 2
- Voltage: 3x230V(400V)
- Current: 0,25-5(100)A
- Max. conductor diameter: 35 mm²

AMR

- DLMS protocol compatible with ESMR 5
- Security: AES-128
- Real-time clock + calendar
- Actual meter reads: index registers in kWh
- Periodic meter reads stored in memory:
  - 15-min intervals for 10 days
  - 40 daily reads / 13 monthly reads
- Definable load profile: 960 entries
- Tariff control (day/night switching)

Interface – Data ports

- LTE-M with eSIM for WAN connectivity
  - Supported freq. bands: 3, 8, 20
  - 450MHz support: bands: 31, 72
- Internal antenna
- MCX connector for external antenna
- Dot matrix LCD display and 1 push button
- Optical port for local configuration
- RS485 port for Modbus RTU Master support

Technical specification

- Power consumption: < 4 Watt
- Operating temperature range: -25°C. - 70°C
- IP rating: IP51
- Dimensions (HxWxD in mm): 159.4x72x81