HELIOS
POWER SOLUTIONS

rEvolution R8
Power factor controller

The new rEvolution is an innovative Power Factor Controller providing advanced functions, a wide range of measurements and various data communication solutions, all concentrated in a compact 96x96mm design. These characteristics make it ideal for PFC solutions in every type of environment and application.
The various R8 models are equipped with all most common connectivity options (Bluetooth, USB, wireless radio, NFC, Ethernet, RS485), for local data exchange (setup, maintenance) and for the remote monitoring of the status / performance of the PFC unit.
A clear on-screen user guide, translated into 9 languages, makes rEvolution R8 easy to use both during commissioning and during normal operation of the PFC system, with helpful tips for solving problems related to the controller's input connections, the setting of configuration parameters and in general to the voltage and current quality events detected by R8 .
The large, high contrast LCD display of 128x128 pixel with white backlight has graphical capabilities in order to show data, waveforms, histograms and icons.
The advanced detection algorithms can sense on which phase the CT is installed and in which direction, automatically setting the relevant parameters to avoid common installation errors.
Thanks to a powerful microprocessor, R8 calculates the real power factor from the voltage-current displacement of the fundamental harmonic at the nominal voltage, and in addition it measures the total harmonic distortion of voltage (THDV%) and current (THDI%) with a global spectrum up to 60th harmonic order.

Smart communications

Every rEvolution R8 model, even the basic version, is equipped with following standard communication and data management features:
- NFC connection, for the download/upload of the configuration files, event logs and status via the DUCATI Smart Energy Smartphone App, "DUCAT Smart Energy"
- Integrated memory with up to 1 year storage of historical data RTC battery powered sensor
- Radio Wireless communication interface at 868 MHz for connection to the ENERGY BRIDGE Gateway

Optional models "485" feature an opto-isolated RS485 interface with integrated termination resistor. RS485 interface supports Modbus-RTU communication protocol for easy connection to the DUCATI Energia ENERGY GEAR Datalogger and Gateway or other devices such as PCs or SCADA systems.Optional models "ETH" have an integrated Ethernet card and opto-isolated RJ45 connector with auto-crossover MDI/MDX function; they feature both an integrated Webserver (for quick data visualization via any browser) and Modbus-TCP protocol support for remote connection.
The "USB" models feature a USB Host interface for downloading data from the integrated memory and / or upload firmware updates and configuration files. They are also equipped with 3 additional relay outputs.Optional models "BT" are characterized by Bluetooth interface for configuration and management control from the App Smartphone dedicated and 3 additional relay outputs.Firmware upgrades can be applied locally with a USB memory stick or via Bluetooth through the DUCATI Smart Energy Smartphone App, or remotely for the models with remote communication interfaces (wireless-radio, Ethernet, RS485).

Technical features

Power supply:
- Rated voltage: 400 or 230 or 110 VAC
- Frequency range: DC or 45 ÷ 66 Hz
- Power consumption: 2.5 W
- Max power consumption 10 W (for the "USB ETH" model)

Voltage input:
- Measuring range: 50 ÷ 525 VAC
- Accuracy: 1% ± 0.5 digit

Current input:
- Current rating: 5 A (1 A programmable)
- Input consumption: <1,8 VA
- Accuracy: 1% ± 0,5 digit

Relays outputs:
- Number of outputs: 8 (11 for "USB" and "BT" models)
- Maximum operating voltage NO contacts: 440 VAC
- Nominal contact rating NO/NC: AC1 6A – 250 V~, AC15 1,5A - 440 V~

Contact type for "USB" and "BT" models:
- 6 NO (common C1)
- 1 NO (common C2)
- 1 NO/NC (common C3)
- 2 NO (common C4)
- 1 NO (common C5)

Alarms:
- Over-Voltage and Over-Current
- Low Voltage and Low Current
- THD_V and THD_I threshold
- Max Temperature with double threshold (optional): forced ventilation / Temperature Alarm & Standby
- Insufficient power factor correction (low cosφ)

Environment conditions:
- Operating temperature: -20 ÷ 70 °C
- Storage temperature: -30 ÷ 80 °C
- Relative humidity: < 80%
- Condensation: not allowed

Enclosure:
- Format: 96x96 recessed
- Protection degree: IP51 on the front – IP20 rear / terminals
- Weight: 350 g.

radio interface:
- Carrier frequency: 868 MHz
- Protocol: Modbus-RTU

NFC interface:
- Data exchange with smartphone app via antenna (behind display)

RS485 interface:
- Protocols: Modbus-RTU, Ascii-Ducbus

Ethernet interface:
- Opto-isolated RJ45 connector with auto MDI/MDX crossover function
- Integrated Webserver
- Modbus-TCP protocol

USB interface:
- USB 2.0 Host-type

Bluetooth interface:
- Bloetooth Low Energy (BLE)

Compliance with standards:
- IEC/EN 61010-1
- IEC/EN 61000-6-2
- IEC/ EN 61000-6-4