

The Protocol

As multiple aspects of the protocol are patented, Partnership with the Current OS foundation offers license rights to manufacture compatible products.

3 major facts :

The Current OS protocol is a new system approach of electrical distribution.

- The electricity needs are increasing due to rapid growth of electrical vehicles (EV), digital and communications (IT), heating with heat pumps. In the same time more affordable local electrical resources such as photovoltaic (PV) and battery storage systems (BESS), combined here and there with public grids limitations, leads more and more to microgrid applications in buildings, infrastructure and industry.
- The Direct Current (DC) electrical distribution seems more and more accurate to link DC sources (PV, BESS) with DC loads (EV, IT,...). DC also brings intrinsic benefits in long distance applications or in motor breaking energy harvesting.
- The power electronics components are more and more affordable, opening the door to solid state protection devices.

building microgrids simpler, safer, cheaper

The Current OS protocol is a system approach that make the most of Direct Current and power electronics:

- The Current OS protocol solves the usual objections raised against Direct Current electrical distribution and makes the best use of DC intrinsic features to offer a very high safety to people and assets.
- The Current OS protocol defines energy management rules to make microgrids easy to control. It also enable a very opportunistic behavior of the microgrid to make the most of available electrical resources and power the loads according to their priority.
- The Current OS defines the communication model to open the door to software interaction with the electrical system. However the intrinsic structure of Current OS microgrids makes fully resilient to communication losses and cyber-attacks.

Safety

reaching unseen levels with Current OS protocol.

- Current OS protocol defines EMC requirements for all connected devices.
- It specifies the current profiles at circuit connection, precharge and disconnection in order to allow black start and avoid nuisance tripping.
- It specifies the tripping criteria for detection of short circuit fault, earth leakage faults, serial arc fault, while ensuring bi-directional selectivity.
- It specifies the safety wire function that safely de-energize microgrid sections for maintenance purposes.

Resilience and opportunistic behavior

Energy Management is distributed at the circuit level to reach the highest resiliency and the most opportunistic behavior.

- Current OS protocol defines operating voltages and limits.
- It specifies the circuits voltage response and voltage dependent prioritization service with either on/off thresholds or linear adjustment of the power use/supply of the circuit.
- It specifies how to calibrate the devices, how to compensate line losses and voltage drops.
- It explains how to influence the loads and sources behavior beyond initial settings.

Communication

Communication making use proprietary software is enabled, with a description of the data model in use through modbus communication.