

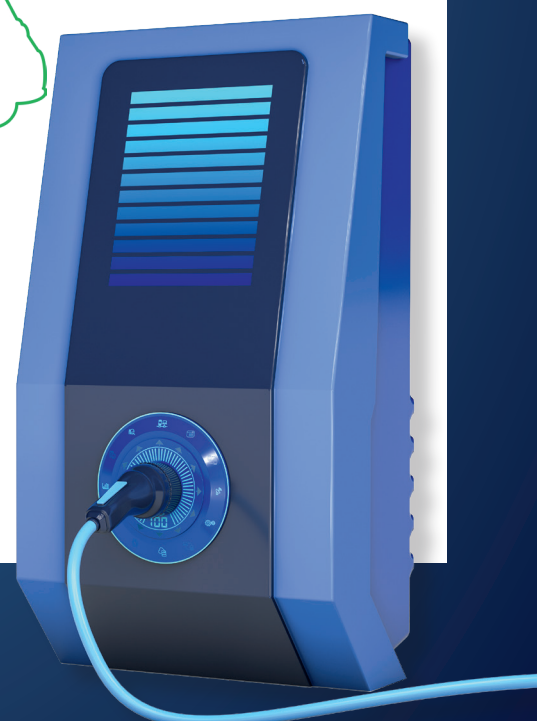
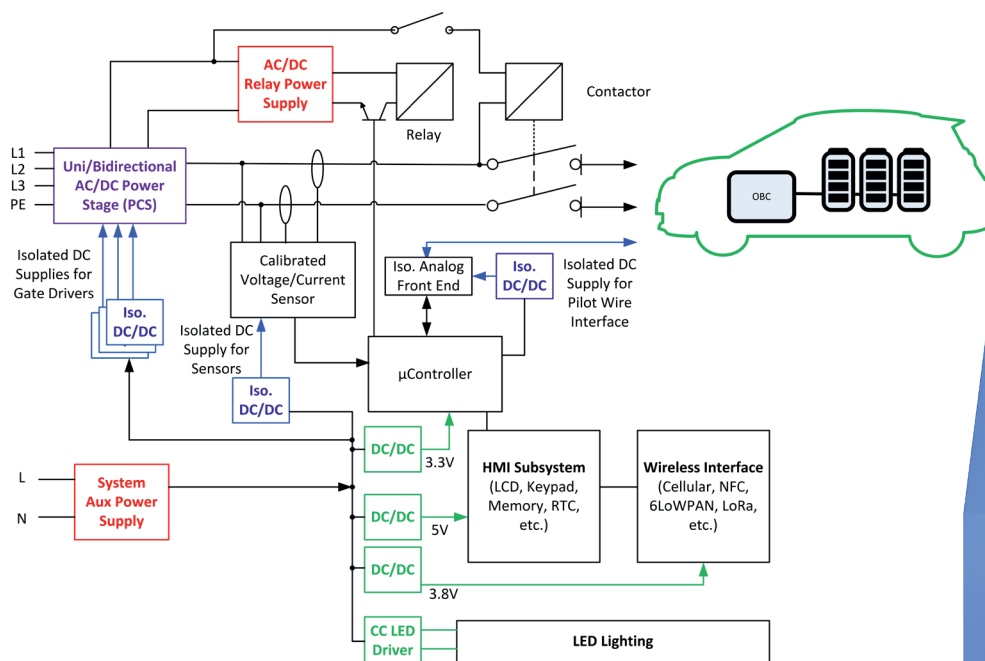


**RECOM**  
 WE POWER YOUR PRODUCTS  
[recom-power.com/ev-charging](http://recom-power.com/ev-charging)

## Power Supplies for electric vehicle charging

Electric vehicles and e-mobility, in general, are the future of transportation in a world that needs to reduce its carbon footprint. To make battery-powered vehicles cost-effective, electric vehicle chargers must be as efficient and economical as possible. While power conversion stages at the multi kW level are improving with the latest topologies and semiconductor technologies, AC/DC auxiliary supplies must also match the EV charger requirements in terms of efficiency and value. Charging wall boxes and charging stations are often installed in overvoltage category three (OVC III) environments with the potential for significant voltage dips, surges and transients from lightning strikes, which the on-board power supplies must also withstand. Additionally, temperature variations can be extreme, and the AC supply voltage available may be single-phase 100 to 277VAC or three-phase of 400 or 480VAC, so auxiliary AC/DC modules must operate reliably in this environment. Besides the auxiliary AC/DC, there is a need for switching regulators and DC/DC converters that provide internal voltage conversion and isolation.

RECOM provides a range of low-power AC/DC modules, DC/DC converters and switching regulators that match the battery charging application requirements for auxiliary supplies or are sources for direct low-power battery charging in portable products. RECOM's sister company, Power Control Systems (PCS), can supply high-reliability custom battery chargers, conditioners and bidirectional inverters based on proven platform designs from three-phase AC supplies with power ratings of up to 30kW or even higher with paralleled units.



For more details please visit: [www.rutronik.com](http://www.rutronik.com)  
 Contact: [andreas.muenzer@rutronik.com](mailto:andreas.muenzer@rutronik.com)

**RUTRONIK**  
 ELECTRONICS WORLDWIDE

## AC/DC Power Supplies

A range of AC/DC modules suitable for auxiliary supplies in EV charging systems with a range of AC supply voltages in harsh mechanical and electrical environments.

### Main features:

- Enhanced immunity and isolation Pri ↔ Sec
- Operating temperature -40°C to +85°C (90°C)
- High efficiency for reliable and compact units
- 100/230/400VAC input (incl. Phase to Phase)
- Reduced EMI Emissions with grounded output



### AC/DC-Modules from 3 to 60W

- RAC03E-K/277 (OVC III)
- RAC05-K/480 (OVC III, PD3, 6kV isolation)
- RAC10-K/277 (OVC III, Peak load 14W)
- RAC20-K/OVG (OVC III, HF 30V/m)
- RACM40-K (OVC III)
- RAC15-K/480 (OVC III, 400VAC)

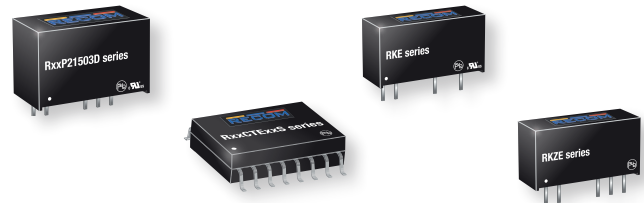


## DC/DC Power Supplies

For isolated gate drivers, auxiliary rails and isolated communication interfaces.

### Main features:

- High isolation e.g. the 4:1 input [RKZE series](#), useful for control signal isolation
- Lowest cost isolated DC/DC converters such as the [RKE series](#), useful for interface isolation
- High isolation asymmetrical outputs [RxxP21503D](#) for high and low side isolated gate drivers



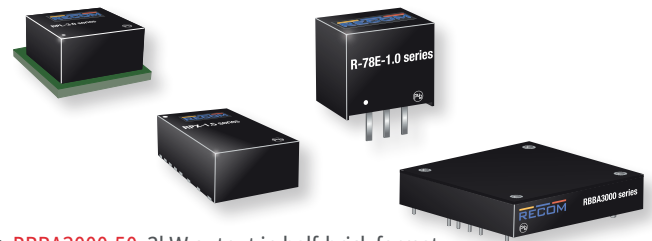
- Low profile, high isolation and high operating temperature SMD packages e.g. [RxxCTE series](#)
- All DC/DC converters are 100% tested and carry comprehensive safety certifications

## Switching Regulators

Non-isolated switching regulators provide high-efficiency replacements for linear regulators in battery charging systems.

### Main features:

- High efficiency e.g. [R-78E-1.0 series](#) peaks at 97%, 3.3V, 5V or 12V output/1A, up to 28V input, output power up to 12W
- The [RPX series](#) are complete 3A power supplies in a sub-miniature 3 x 3 x 1.45mm package with input up to 36VDC
- The [RPL series](#) offer 1A to 4A outputs in a tiny QFN pinout, with up to 20W output with input up to 17VDC
- The [RPZ series](#) offers 0.6 to 3A in a QFN Pinout with input up to 6.5VDC



- [RBBA3000-50](#) 3kW output in half-brick format  
Buck-boost converter, 9-60V input, 0-60V output. Applications include 48V to 24V, or 12V to 24V battery power conversion in EVs, and battery voltage stabilizers in charging stations for UAVs and drones

## Custom Solutions

Unidirectional and bidirectional converters and inverters up to 10kW and higher in a range of platform designs. EV applications include intelligent battery charging and vehicle to grid power conversion with efficient designs giving cost and space savings.

Design topologies available include the latest CLLC type, ideal for power conversion between rectified and power-factor corrected 1ph and 3ph AC, and typical 400V EV batteries.

