

# Case Studies

Nidec



## Powering Nidec’s Revolutionary DC Fast Chargers

### Scaling Beyond Limits: Nidec’s Vision

When Nidec Conversion set out to design their next-generation DC fast charger, the goal was clear: a scalable, future-proof system capable of supporting charging rates up to **480 kW+**. Their innovative **DC Split architecture** separated power units from dispensers to create a distributed system that was both cost-efficient and effortlessly scalable.

What Nidec needed was a software backbone that could keep pace with this hardware innovation — flexible enough to enable a distributed setup, and robust enough to remain compliant with current and emerging industry standards.

### The Perfect Match: EVerest Foundation with Stabilized Modules

Pionix supported Nidec with a software stack based on **EVerest (LF Energy)**, enhanced with stabilizations formerly developed in **BaseCamp**. This combination delivered:

- Support for a distributed charging architecture with multiple dispensers
- Integration of advanced communication protocols including **OCPP 2.0.1** and **ISO 15118**
- Built-in, security-first design with TPM integration and X.509 PKI updates
- Faster time-to-market through comprehensive developer tooling

Most importantly, the **modular architecture** aligned perfectly with Nidec’s **DC Split** concept, enabling independent scaling of power and dispenser units — a key differentiator in their market approach.

### Engineering the Split: From Vision to Rollout

Close collaboration between Pionix and Nidec engineers made it possible to turn vision into reality. Together we:

- Customized module configurations for the distributed architecture
- Optimized **power management algorithms** across multiple charging points
- Implemented **enhanced security protocols** from day one
- Built **simulation environments** to accelerate testing and validation

*“This solution delivered the scalability and flexibility we demanded. It allows us to meet both current and future market demands while upholding the highest standards of security and performance.”*

— **Gilbert Khawam, EVCI Business Leader at Nidec Conversion**

### Business Value: Scaling Fast, Staying Flexible

For Nidec Conversion, the collaboration went far beyond technical success:

- **Market Differentiation** – pairing Nidec’s hardware innovation with a flexible open-source-based software layer created a unique offering in the crowded DC fast charging market.
- **Accelerated Development** – the Pionix toolset and engineering support enabled faster rollout than initially planned.
- **Future-Ready Architecture** – as new standards emerge, updates can be implemented without large redevelopment efforts, protecting both investment and customers.

### Looking Ahead

The successful launch of Nidec’s DC Split architecture marks the start of a shared journey toward smarter, scalable EV infrastructure. Together, Pionix and Nidec are already exploring:

- Advanced **energy management systems**
- **Bidirectional charging** based on ISO 15118-20
- Expanded **analytics and remote diagnostics** for optimized uptime
- Tailored solutions for **heavy-duty vehicles** and complex logistics hubs

### The Pionix Advantage

The Nidec project highlights the principles Pionix stands for:

- **Modularity matters** – flexible architecture adapts to innovative hardware concepts
- **Developer experience drives innovation** – tools that accelerate progress
- **Open source creates resilience** – community-driven software ensures future-proofing
- **Security must be integrated, not added** – trust is built in by design