Octopus Electroverse Scales EV Roaming with Custom RFID Cards

See how Octopus Electroverse powers Europe's largest EV roaming network of 1.3 million chargers using highly secure, OCPP-compatible RFID cards.

In the rapidly expanding world of electric vehicle infrastructure, range anxiety has largely been replaced by "app anxiety"—the frustration of needing dozens of different apps and accounts to access public chargers. Octopus Energy recognized this friction and launched Octopus Electroverse to solve it. Today, Electroverse is Europe's largest EV roaming network. To bridge the gap between their powerful software and the physical charging stations, they turned to ChargeRFID.

The Partnership Context

Octopus Electroverse has achieved staggering scale: connecting over 1.3 million chargers across 40 countries, integrating with more than 950 different charging brands. Their promise to the consumer is simple: one app, one card, zero hassle.

To deliver on the "one card" promise, Octopus Electroverse needed an RFID manufacturing partner capable of producing millions of credentials that could perform flawlessly across a dizzying array of hardware and software environments. They chose ChargeRFID because of our proven track record in high-volume, high-security smart card production tailored specifically for the e-mobility sector.

The Challenge

The primary challenge in a roaming network of this magnitude is universal compatibility. When an EV driver taps their card on a charger in London, Berlin, or Rome, the credential must be instantly recognized and authenticated. The hardware landscape includes everything from legacy AC destination chargers to ultra-rapid DC hubs, running various versions of backend software.

Additionally, with 1.3 million chargers on the network, security is paramount. A compromised card could lead to significant financial losses through fraudulent charging sessions across multiple networks. Octopus Electroverse needed a card that was virtually impossible to clone, highly durable for years of use, and visually striking to represent their vibrant brand.

The Solution

ChargeRFID engineered custom PVC RFID cards EV charging networks trust for maximum reliability. To address the intense security requirements of a massive roaming network, we integrated the industry-leading MIFARE DESFire EV3 chips into every card.

The DESFire EV3 chip offers advanced cryptographic security, ensuring that the Octopus Electroverse charging card cannot be duplicated or skimmed. Furthermore, we meticulously programmed the card's memory structure to ensure absolute OCPP compatibility. Regardless of whether a charger is running OCPP 1.6J or the newer 2.0.1 standard, the ChargeRFID credential communicates seamlessly with the Charge Point Operator's (CPO) backend to authorize the session via the Electroverse roaming hub.

The Sustainability Angle

While PVC is a traditional material, its application here supports a broader environmental goal. By providing a single, highly durable card that grants access to 950+ networks, Octopus Electroverse eliminates the need for drivers to carry (and operators to manufacture) dozens of separate plastic cards.

Furthermore, ChargeRFID utilizes optimized manufacturing processes to minimize waste, and we offer transition paths to sustainable charging cards, such as recycled PVC (rPVC), ensuring that as the network scales, its physical footprint remains as efficient and eco-conscious as possible. The longevity of the MIFARE DESFire EV3 PVC cards means fewer replacements, keeping plastic out of landfills.

Results and Impact

The deployment of these custom RFID cards has been a cornerstone of the Octopus Electroverse user experience. Drivers routinely praise the simplicity of tapping a single, brightly colored card to initiate a charge anywhere in Europe.

The robust MIFARE DESFire EV3 technology has ensured secure, rapid authentications, significantly reducing customer support tickets related to failed charge initiations. By partnering with ChargeRFID, Octopus Electroverse has successfully scaled their physical touchpoints in tandem with their massive digital growth, solidifying their position as the ultimate EV roaming solution.

Building a roaming network or CPO platform? Ensure your drivers have seamless, secure access to every charger. Browse our OCPP-compatible RFID cards or explore our network roaming and fleet authentication solutions. Connect with ChargeRFID to learn more about our high-security RFID solutions.