Electric vehicle (EV) market in India is developing and creating new requirements for associated charging infra-structure. While slow charging solutions are developed and manufactured in India, fast charging solutions are still imported either whole or in parts followed by assembly in assembly houses. The reason for this disparity to a large extent can be attributed to technology requirements of DC fast charging. While AC fast charging requires basic safety requirements due to lower power levels, fast charging EVs need to impose strict safety constraints from both EVs and chargers to prevent incidents. This is possible by intelligent hand shake and monitoring of the charging process.

Smart Electronic Module (SEM) for DC fast charger; as the name suggests; is designed to add these safety features and monitoring capabilities to a charger. Along with complementary power electronics, SEM enables quick development and deployment of DC fast chargers for EVs. It makes fast charging compliance accessible to OEMs while maintaining modular nature of the end-product. SEM is trying to bridge the technological gap that prevents a stand alone power converter to become a DC fast charger.

For proving that hardware prototype is capable of charging EV, many supporting components both hardware and software are required. Through-out the scope of the document, these modules are referred and are not in the scope of SEM. The document is a detailed report on SEM module and not on DC fast charger.