


Battery Pack

Battery Control Module

POWER



Combined Charging System Control Strategies

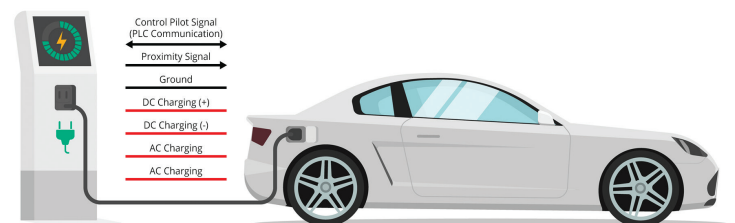
OpenECU Platform Software

Pi Innovo is now offering a software application source code product that implements Combined Charging System (CCS) control with the M560 and M580 that can be used in conjunction with the already powerful supervisory control capabilities of those controllers. M560 and M580 are designed to support AC charging (hardware) and DC charging (hardware and software) sessions in accordance with SAE J1772, IEC 61851, DIN 70121 charging standards. (For ISO 15118 contact Pi Innovo).

The M560 and M580 hardware is equipped with a HomePlug Green PHY compatible modem chip (Qualcomm Powerline Communication (PLC) chipset) enabling digital communication between Electric Vehicle Service Equipment (EVSE), and the Electric Vehicle (EV). M560 or M580 hardware supports control and communication signals used in various physical charging interfaces; Type 1 (AC , DC and Combined Charging), and Type 2 (AC, DC and Combined Charging).

The OpenECU platform software from Pi Innovo supports SAE J2847-2 and DIN 70121 implementing Vehicle to Grid (V2G) communication between EVSE and the EV. A Simulink API is available to provide an interface to the OpenECU hardware, and allow the development of CCS control software.

The application of CCS can be realized using Pi Innovo's CCS model-based Control Strategies, and functionalities include Input Signal Processing, Control Pilot Signaling, and Sequence Controller (Communication Sequencing).

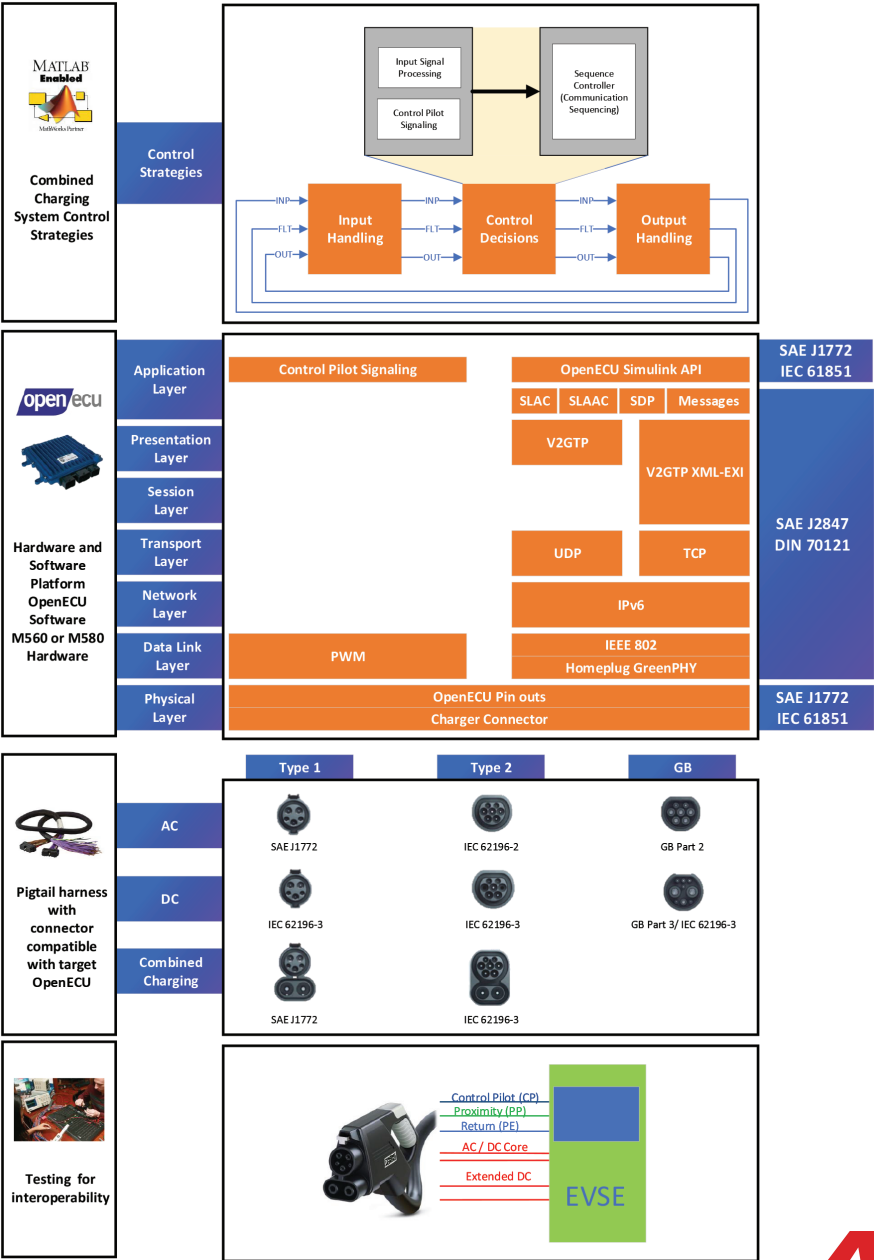


The following table shows the standards and types of charging supported by M560 or M580 with CCS :

PRODUCT	STANDARDS			
	SAE J1772	IEC 61851	SAE J2847	DIN 70121
HARDWARE	✓	✓	✓	✓
OpenECU SOFTWARE	✓	✓	✓	✓
CCS CONTROL STRATEGIES	✓	✓	✓	✓

PRODUCT	CHARGING TYPE			
	AC SINGLE PHASE	AC THREE PHASE	DC CORE	DC EXTENDED
HARDWARE	✓	✓	✓	✓
OpenECU SOFTWARE	✓*	✓*	✓	✓
CCS CONTROL STRATEGIES	✓*	✓*	✓	✓

*Note: AC Charging requires basic signaling and is implemented on Hardware.
Not required in software or control strategy.



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OPEN ECU
By Pi Innovo

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