3 August 2026

CHAdeMO Association Europe

CHAdeMO Association response to Public Consultation for the review of Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure (AFIR)

(L-category DC charging standards)

Summary

Regarding Annex II 1.3.3 (DC charging for L-category) of AFIR, the provision requiring *at least "Combo 2" for DC normal-power and high-power recharging points reserved for L-category electric vehicles* does not meet the needs of the industry or general users. To meet market demand, CHAdeMO Association proposes **separating normal-power and high-power DC recharging points** reserved for L-category electric vehicles, and mandating another international recharging standard, EN IEC 62196-6 ("Type 6"), for the former.

- System using "Combo 2" connectors are unsuitable for most widely used L-category electric vehicles (e-PTWs*). Not only are these connectors (and inlet) too large to be fitted to small-size vehicles, but the voltage range (200V-920V) is also too high.
  Note: *e-PTW stands for electric powered two- and three-wheeler (and quadricycle).

- The "Combo 2" connectors (and inlets), by definition ('combined charging system'), have both AC and DC parts integrated. Consequently, an onboard charger (OBC) would be required on the vehicle side ; but the necessary OBC would also end up being too large, heavy, and costly.

- A blanket mandate of "Combo 2" plugs to all recharging points reserved for L-category electric vehicles risks hindering the development and installation of recharging points for smaller L-category segments, stifling innovation and delaying the electrification of L-category vehicles.

- The "Type 6" connector (EN IEC 62196-6, used in compliance with EN IEC 61851-25 DC charging standard) is optimised for charging smaller e-PTWs with a voltage range of 0-120V, which is common for such e-PTWs. Despite its compact size, this connector supports high currents of up to 100A and enables low-power charging with high current accuracy. As the EN IEC 61851-25 standard is designed specifically for DC charging and is optimised for charging small electric vehicles, the adoption of the "Type 6" connector eliminates the need for an OBC, thereby reducing vehicle costs.

Proposed change to the Commission Delegated Regulation (EU) 2025/656 of 2 April 2025 of AFIR

Annex II 1.3.3 (DC charging for L-category)

(a) The publicly accessible direct current (DC) normal-power recharging points reserved for L-category electric vehicles installed or renovated from (the appropriate date to be inserted) shall be equipped, for interoperability purposes, at least with vehicle connectors as described in standard EN IEC 62196-6:2022.

(b) The publicly accessible direct current (DC) ~~normal-power recharging points and~~ high-power recharging points reserved for L-category electric vehicles installed or renovated from 8 January 2026 shall be equipped, for interoperability purposes, at least with vehicle connectors of the combined charging system “Combo 2” for Mode 4 recharging as described in standard EN IEC 62196-3:2022; publicly accessible direct current (DC) ~~normal-power recharging points and~~ high-power recharging points installed before that date shall continue to comply with standard EN IEC 62196-3:2014 until they are renovated.

Footnotes for our comment section

Note 1: CHAdeMO comment for public consultation for the draft of Commission Delegated Regulation (EU) 2025/656 of 2 April 2025

https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14346-Alternative-fuels-infrastructure-standards-wireless-recharging-electric-roads-vehicle-grid-communication-hydrogen/F3513057_en

Note 2: ACEM position statement:

https://acem.eu/wp-content/uploads/2020/04/ACEM_Position_Paper_-_Emobility_2020.pdf

https://www.acem.eu/publications/position-papers/acem-position-paper-the-role-of-eptws-in-sustainable-mobility/

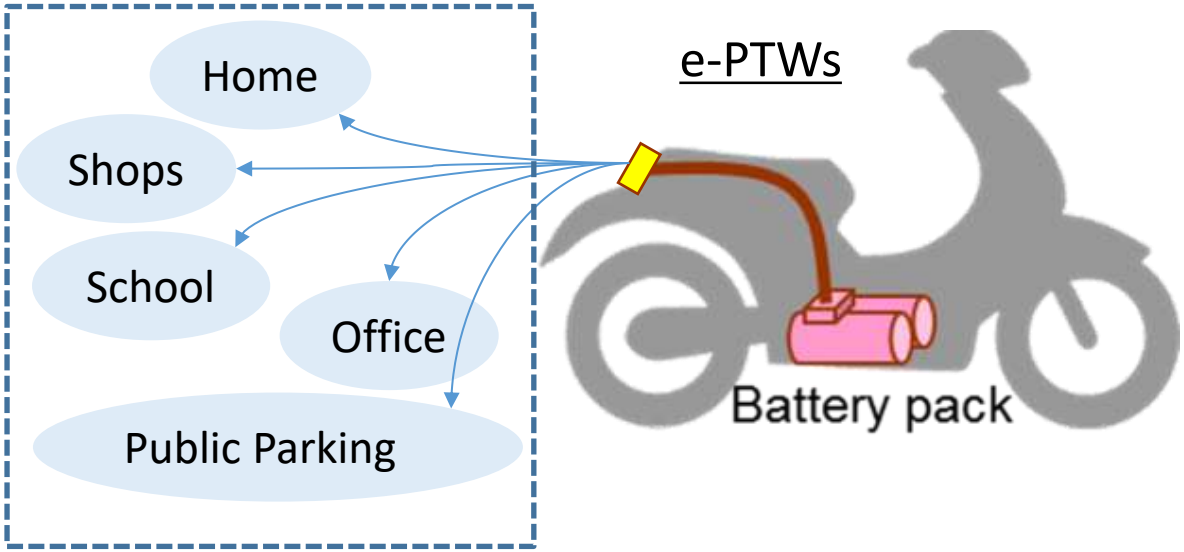
Note 3: ACEM comment for public consultation for the draft of Commission Delegated Regulation (EU) 2025/656 of 2 April 2025
https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14346-Alternative-fuels-infrastructure-standards-wireless-recharging-electric-roads-vehicle-grid-communication-hydrogen/F3513014_en

3 August 2026

CHAdeMO Association Europe

Supplementary information on L-category DC charging standards for AFIR

DC charging system with “Type 6” is optimised for e-PTWs



No onboard charger
Light weight and low cost
(see next page)

Small DC charging system
Charging at home and in public areas

Vehicle type*	Public charging Infrastructure			Private AC charging (at home)
	Small DC charging system (ex. Type 6)	**Large DC charging system** (ex. Combo2)	AC charging system	
50 c.c. Class	○	NA	○	○
125 c.c. Class	○	NA	○	○
250 c.c. Class	△	○	○	○
400 c.c. Class	NA	○	○	○

○ Suitable
△ Feasible
NA Basically not available

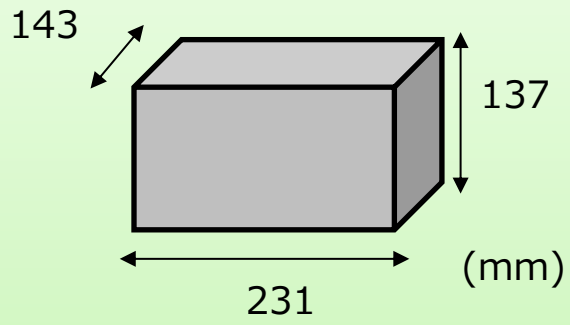
Note: *The Vehicle type is estimated from the equivalent gasoline engine PTWs

An onboard charger (OBC) required to use “Combo2” is large, heavy, and costly for smaller e-PTWs

Combo 2 connectors require the vehicle body to carry an OBC due to its ‘combined’ design

- **Size:** depends on the layout within the vehicle, the output capacity, and cooling method
  (See an example on the right)
- **Weight:** adding an OBC for “Combo 2” increases the vehicle weight **by 3-7 kg** significantly reducing the payload capacity for last-mile delivery applications
- **Cost:** an OBC for “Combo 2” increases the vehicle’s Bill of Materials (BoM) by **€350-€550**

Example of an OBC

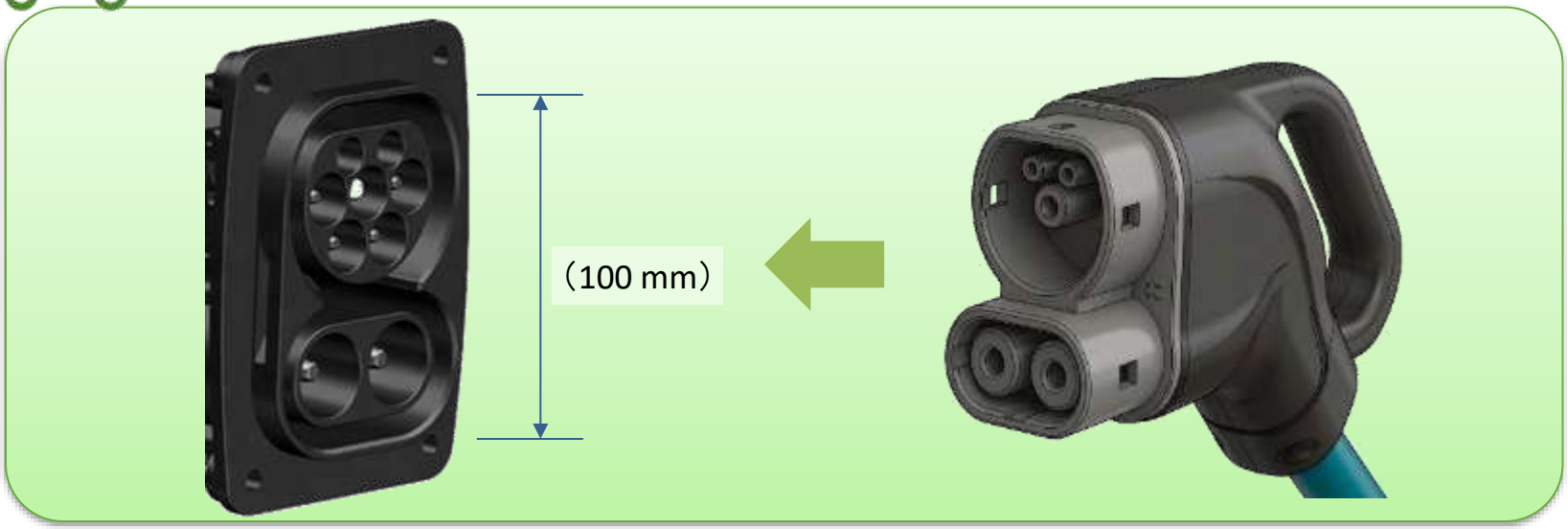


- Output: 3 kW
- Input: 200-240V, 15A
- Cooling: air-cooling with blower
- Volume: about 5ℓ

Note: inputs from industry stakeholders

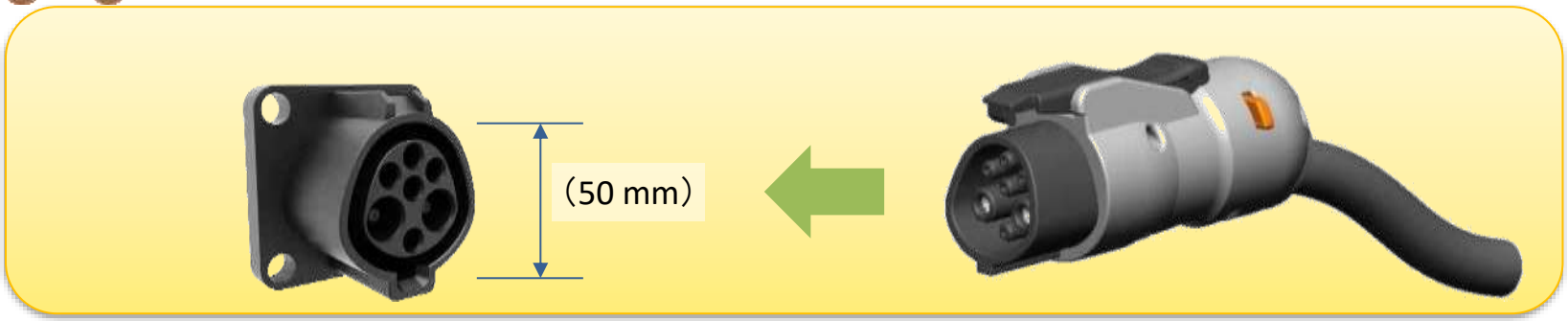
“Type 6” connector/inlet are compact

“Combo 2” suitable for passenger cars



It would be difficult to install on a small e-PTW due to its size.

“Type 6” optimised for (small) e-PTWs



Mating surface size is equivalent to IEC 62196-2 type1 (SAE J1772 AC-charging) connector.

“Type 6” connector is an EN IEC international standard

IEC/EN 62196-6 published 2022-04-22

Title

Plugs, socket-outlets, vehicle connectors and vehicle inlets

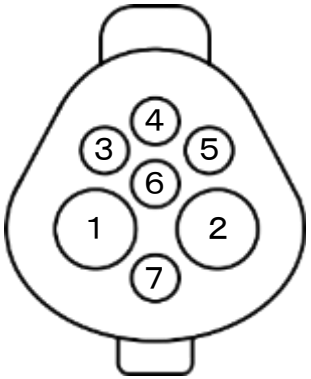
- Conductive charging of electric vehicles
- Part 6: Dimensional compatibility requirements for DC pin and contact-tube vehicle couplers intended to be used for DC EV supply equipment where protection relies on electrical separation

Scope

- Applicable to vehicle connectors, vehicle inlets and cable assemblies for electric vehicle (EV), intended for use in conductive charging systems which incorporate control means, with a rated operating voltage up to **120 V DC** and rated current up to **100 A**.
- Intended to be used for a DC interface of the conductive charging system according to **IEC 61851-25:2020**.

Pins

Mating surface of the connector
(viewed from the vehicle inlet side)



Pin number	Pin function
1	DC +
2	DC -
3	Control pilot
4	Communication (CAN) (+)
5	Communication (CAN) (-)
6	Auxiliary power supply (+)
7	Auxiliary power supply (-)

IEC/EN 61851-25 DC Charging system offers low-voltage and high-current-accuracy charging best-suited for ePTWs

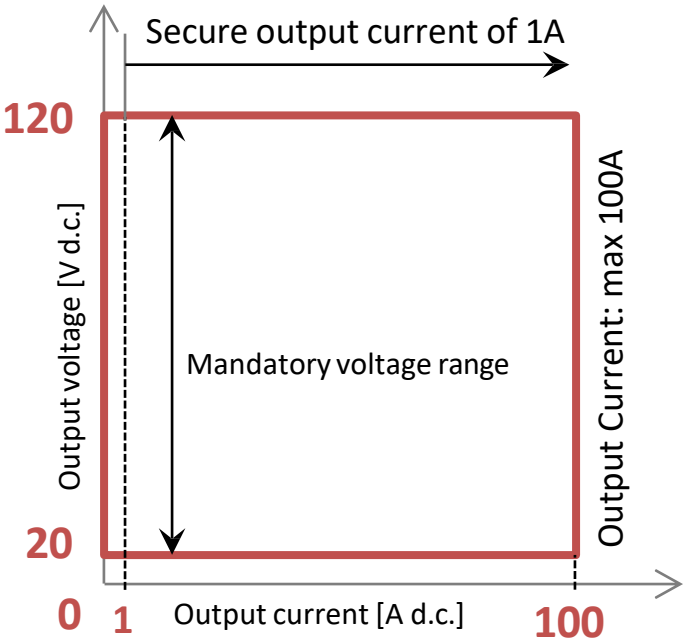
Output (DC) range:

Output voltage range: **20 to 120 V (mandatory)**

Output current range: **0 to 100 A maximum**

Note

1) Output current does not necessarily have to be up to 100A (for example, max 50A is acceptable).
2) In stop mode, the output is switched off when the output current drops below 1A.



Current accuracy:

Conditions	Specifications			
	Min	Typ	Max	Unit
Charge current command value: 0A-10A	Typ -0.5A	Charge current Command value	Typ +0.5A	A
Charge current command value: 10A or more	Typ×95%		Typ×105%	

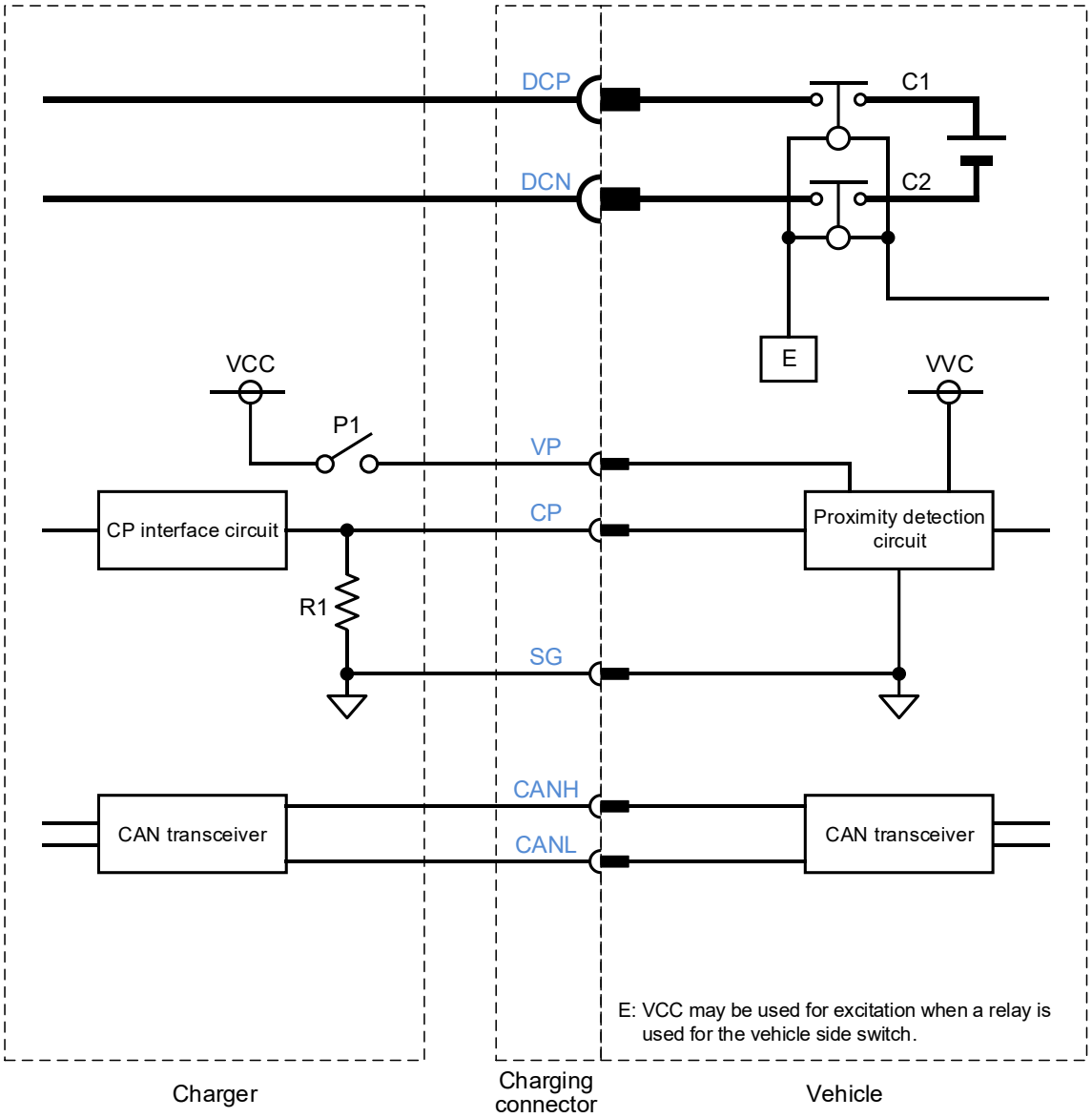
IEC/EN 62196-6 & 61851-25 interface is simpler than that used for passenger cars, and enabling safe charging

Same as passenger car systems:

- CAN used for digital communication
- Dual system at start/stop maintained
  (CP (Control Pilot) line and CAN communication)

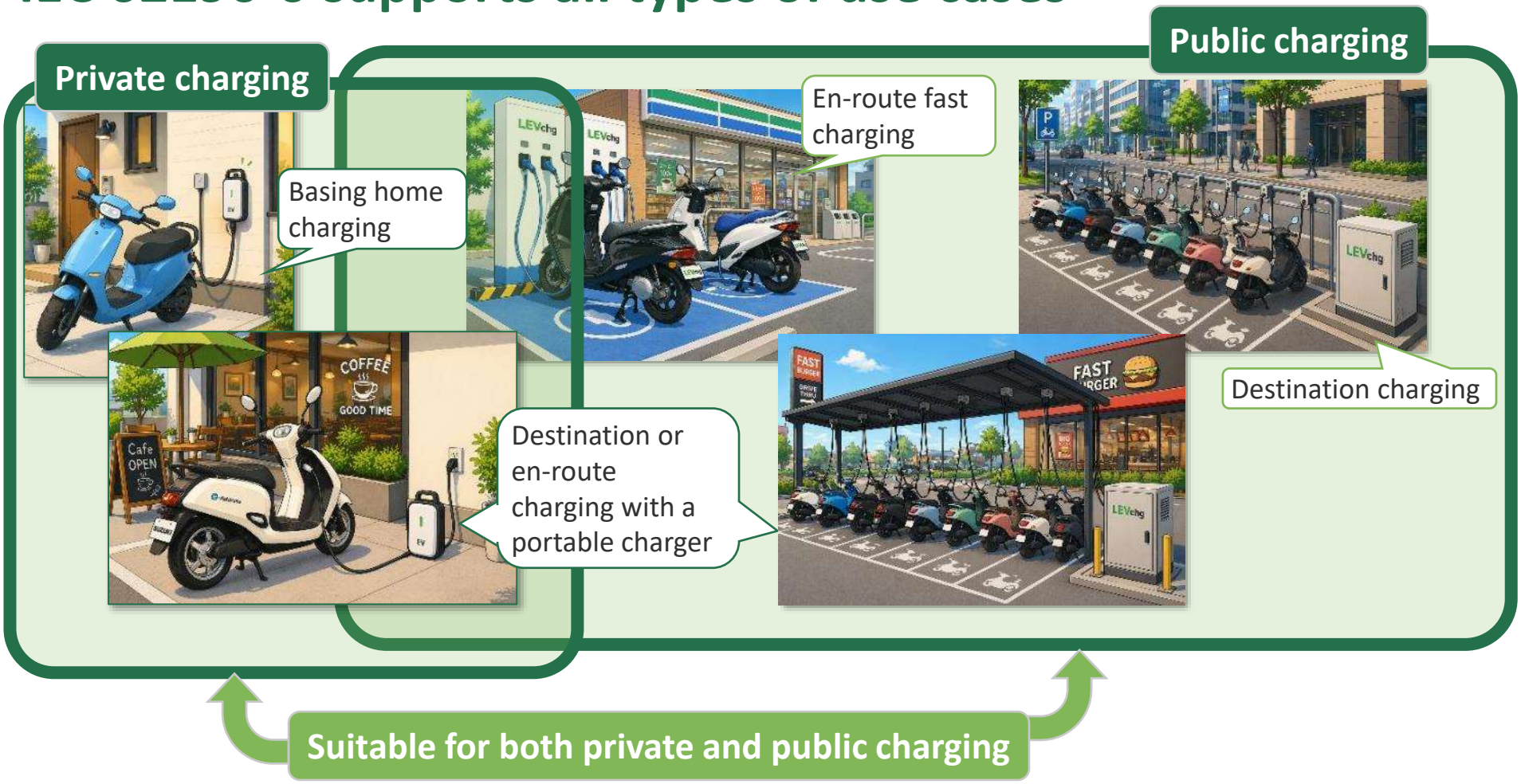
Specificities:

- Interface simplified from the passenger car systems
- The minimum units for volts and amperes are set to 0.1 ([A], [V])
- Control power for the vehicle side can be supplied from the charger side in case the vehicle side battery is fully discharged
- Charging standby mode is added considering the temperature control of the traction battery may not be sufficient



Interface

IEC 62196-6 supports all types of use cases



- DC charging use cases from private charging (around 1kW) to public charging (max. 12kW)
- Charge speed and autonomy
  - 3 hours @1kW → Over 60km of autonomy (sufficient for commuting)
  - 20 minutes @12kW → Over 60km of autonomy (top-up)

IEC 62196-6 adoption is advancing in Europe as well as in global e-PTW markets

Finland

- IEC 61851-25 compliant chargers by **UltraChargers** are already serving the delivery sector as well as fleet operators in the Helsinki area

- UCH-3 charger with **NIO UQI GT** scooter were successfully piloted for commercial application from Aug-Oct 2025 in Porvoo prior to larger scale commercial fleet operations

Thailand/Vietnam

- **Honda UC3** are launched in the Thai/Vietnam markets

Charging Station | Official Honda EV Website

- UC3 employs the CHAdeMO e-PTW standard based on IEC 61851-25
- Chargers are being installed
  - **Thailand:** at Honda motorcycle dealerships and shopping malls in and around Bangkok
  - **Vietnam:** at Honda motorcycle dealerships in major cities (Hanoi, Ho Chi Minh City, and Da Nang)

About CHAdeMO Association

CHAdeMO Association is an alliance of e-mobility stakeholders around the CHAdeMO DC charging standards (IEC/EN/IEEE), supporting the transport sector's transition towards carbon neutrality from the charging technology side. Founded in 2010 with the mission of ***providing safe, affordable and interoperable charging for all type of EV users***, the Association provides various DC charging standards optimised to different types of EVs - from trucks and buses to electric two/three-wheelers and bicycles. It has today over **500 member organisations from 45 countries**, including vehicle OEMs, electricity providers, charger, battery, and component manufacturers, as well as research institutes and municipalities.

CHAdeMO members are active contributors in the domain of electro-mobility at international standardization arena, notably at IEC, ISO, iEEE, etc. CHAdeMO develops standards, but the Association itself, **a not-for-profit association**, does not develop, commercialise, install, or operate any chargers. CHAdeMO Association is a Type-C member of **DG MOVE's STF sub-group on governance and standards** for communication exchange in the electro-mobility ecosystem, contributing to the discussions around AFIR-related standards since 2021.

Contact: info@chademo.eu +33 6 9512 2162

CHAdeMO

About CHAdeMO Association

Our members

And many, many more..

About

500

entities from

45

countries

CHAdeMO