CHAdeMO Standard for EPAC charger

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Charge2Bike

CHAdeMO eBike charging project

Non-proprietary DC fast charging protocol for eBikes

- **Small** standard connector
- **Simple and fast**
- **Optimised** power for eBikes
- **Backward compatible** to existing eBikes via adapter

Key specs:

- Power max. 800W
- Voltage range 24-50.4V nominal, max. 60V
- Current max. 20 A
- CAN based communication

Advantages:

- No more AC charger to carry around
- Safe and fast charging
- Facilitating e-bike-as-a-service (billing, fleet management)

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Non-proprietary DC fast charging protocol for e-Bikes

In order to meet the growing social need for EPACs, CHAdeMO Association began standardisation work in 2021, and the first EPAC charging standard v1.0 was released to association members in 2022.

Since then, the CHAdeMO EPAC Working Group has been conducting various evaluations and product development in cooperation with member companies. Based on the knowledge and experience gained in this process, the Association has published v1.2 in 2024.

CHAdeMO Association's EPAC charger standard (Charge2Bike) v1.2 is a charging standard designed specifically for electrically power assisted cycles (EPACs).

Charge2Bike (C2B) V1.2 specifications

- Max power **800W** (**2kW** by extended mode)
- Voltage range **24-60Vdc**
- Max current **20A**
- CC or CC/CV charging mode
- Targeted battery **7-14 cell** Li-ion batteries (<1000Wh)

Key features

- **Small and robust** standard connector with **a wide charging range**
- **Optimised power for e-Bikes**
- **CAN-based** communication which does not affect EPAC standards
- Electrical safety and mechanical requirements **for outdoor use**
- Supporting **home charger applications** and **charging station applications**
- **Easy backward compatibility with existing EPACs** through 'connection adapters'

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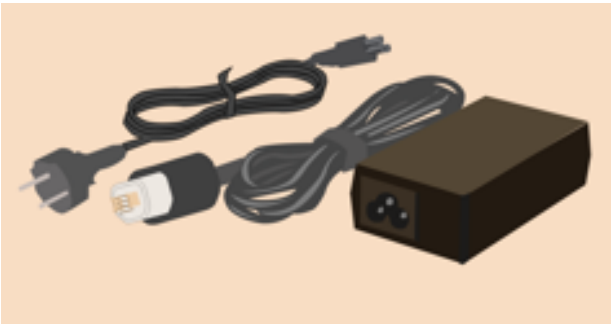
Envisaged use case examples

C2B charging station

- For public, semi-public and private fleet use, including **shops and delivery services**
- Max 800W output
- Max 60Vdc output
- CC or CC/CV charging mode

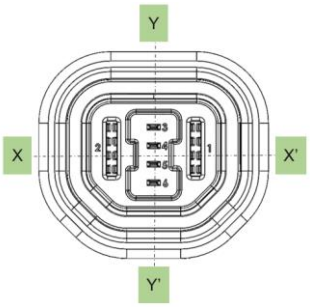
C2B desktop charger



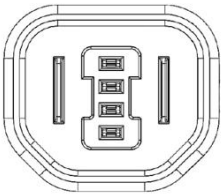
- For private use, at home or **in garage**
- 100W — 250W output
- Max 60Vdc output
- CC/CV charging mode

The Connector

- Dimensions X18.4mm * Y16.1mm
- 6 terminals (2 power, 4 signal)
- Finger protection (touch proof) (compliant with UL standard)
- IP45 (dustproof, waterproof)
- Repeated insertion and removal durability: 10,000 times or more
- UL94 V-0 / RoHS Pb free
- Includes a safety mechanism when mating
  - Connection checking
  - Lost communication
  - Two separate power supplies



EPAC inlet



Charger outlet

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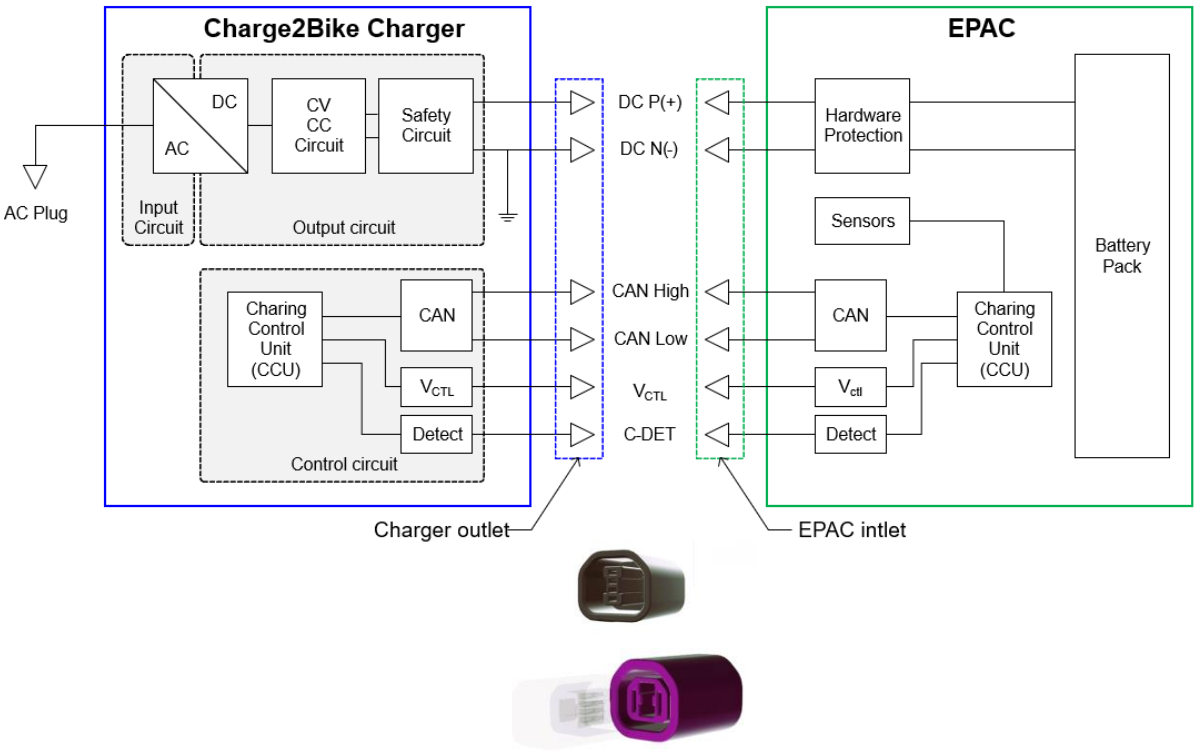
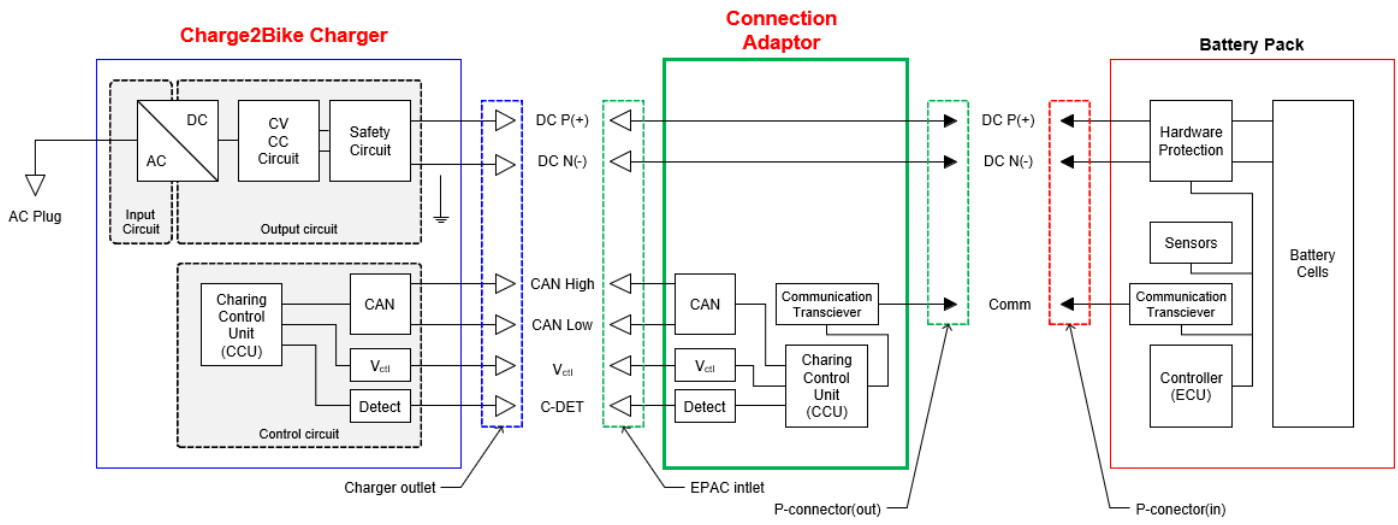
How it works

- **Case 1: C2B charger with (native) C2B EPAC**



- **Case 2: C2B charger with legacy EPAC via connection adapter**



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Our members

- Examples of EPAC Working Group members*

Amphenol, bike energy, BOSCH, FRIWO, JET, Panasonic, SHIMANO

* You can find the list of all CHAdeMO Association members here

Related news

- CHAdeMO standard for EPAC charger (Charge2Bike v1.2) released (2024-10-01)
- CHAdeMO position statement on e-Bike charging and EN 50604-1 (2024-07-01)
- Eurobike 2024 @Frankfurt (2024-06-19)
- CHAdeMO 39th infrastructure workshop (2024-03-13)
- CHAdeMO to host a large stand with 17 co-exhibitor at EVS36 in Sacramento (2023-06-26)
- CHAdeMO presented its e-bike charging standard development work at Eurobike (2022-06-30)
- CHAdeMO to form an EPAC WG (2021-02-25)

Interested? Want to know more?

- Contact us at info@chademo.eu or +33 6 9512 2162 for more information about joining EPAC WG

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