Tender specification for sustainable charging stations

The charging infrastructure units should offer different assembly options with the same hardware design so that they can be attached to walls or poles. It should also be possible to install the charging station on the floor using a stele.

The device could thus be installed as a wallbox (wall attachment), a free-standing charging station (with single and double charging points) or a street light charging point (lantern/stele diameter 100 to 225 mm).

The components of the charging infrastructure, charge controller, protection, power supply, meter, etc. must be standard marketable goods to allow for ease of maintenance and simple replacement if required. The charge controller should, if possible, be used in products supplied by a large number of different manufacturers in order to guarantee a high level of compatibility with other products.

The charging infrastructure should comply with the following standards: EN 61851-1, charging socket type 2 according to EN 62196, vehicle communication for plug & charge authorisation according to ISO 15118.

The enclosure must be securely protected against theft and vandalism. Protection should be in the form of a Mennekes type 2 socket with integrated shutter. This shutter does not lock the socket. However, it can only be opened if a type 2 charging plug is used. The use of plug & charge (ISO 15118) is therefore still possible for the authorisation of electrical vehicle charging.

It should be possible to connect the charging infrastructure units to a backend via Ethernet, WLAN or mobile radio. Mobile radio communication should be possible via 4G, 3G and 2.5G.

The OCPP 1.5 and OCPP 1.6 protocols should be supported. It should be possible to install future versions of the OCPP protocol at a later stage by means of software updates.

The charging infrastructure units should support master/slave communication so that at least two charging points can be connected to a backend as a charging station with two connectors.

The charging infrastructure units should allow for the use of a unit with a radio modem for the backend connection of additional units without a radio modem (gateway function).

The charging infrastructure units should support load management. Load management should be able to control up to 250 charging points and distribute the load dynamically between the units so as not to overload a limited shared power supply. One controller should take on the role of master controller in this case. No further external control units should be necessary.

It should also be possible to connect an external power measurement device via Ethernet. It should be possible to incorporate the charging point via a standard interface (Modbus TCP) in available (local) energy management systems from where it can be controlled. The charging units should be easily integrated into smart grid systems via an existing data interface for controlled charging.

The charging units should be equipped with sensor technology to detect DC fault currents so that any such faults can be identified, and charging is interrupted. The charging point must also be able to transmit any residual currents detected to the backend.

In addition, the units should comprise an RCD type A and a circuit breaker for nominal power so that several charging points can be connected via the same feeder line (e.g. shared busbars).

As well as the protective measures, the charging point should also comprise an EHZ type smart meter with e-mobility enhancement supplied by the manufacturer EMH. This

should be assembled on a BKE plate so that the measuring point operator can replace it with their own meter if necessary.

The charging point must be compliant with German calibration law. A manufacturer-independent solution should be used in this context with S.A.F.E. Initiative transparency software (www.transparenz.software). A kWh meter which is clearly visible from the outside must be installed.

The charging point should feature an RFID reader, which as a minimum can detect RFID-MiFare cards and use them for authorisation. Future software updates to the RFID algorithms should be possible in order to support future developments regarding data protection.

Authentication and authorisation at the charging point should be performed via RFID, a remote start from the backend (e.g. via a mobile app) or via the ISO standard 15118 (plug & charge). It should also be possible to configure free charging without authorisation.

The charging units should be updatable online by means of firmware so that continuous adaptations can be made in line with upgrades in standards.

The charging units should comprise a meter board which has been developed on the basis of valid VDE application rules and has already been approved by at least one German grid operator for direct connection to the distribution grid. However, the charging units should equally be approved for operation in a sub-distribution system.

The enclosure must be made from stainless steel. The colouring must be powder-coated and available in a range of different shades (RAL colours and a wide range of special colours).

The two acrylic plates used at the top of the RFID reader and in the centre beneath the charging socket may be printed to suit specific customer requirements. The plates are back printed and the print is UV resistant.

The larger surfaces of the enclosure must offer customers the possibility of adding their own individual stickers if required.

Dimensions (L x W x H) 182 x 220 x 1052 mm, weight 19 kg

Additions
Charge controller used

Bender – model CC612-1M4PR: Order number: B94060011

-Powerline communication ISO 15118, compatible with 4G modem, DLM dynamic load management, OCPP 1.5 and OCPP 1.6, 6 mA residual current sensor RDC-MD, eHZ interface, S0 meter interface, user interface.

SIM card slot: micro SIM
Operating temperature: -30…+70°C
Protection class: IP20

Interface:

- **Integrated web server**
- **Modbus communication**
- **2 separate USB interfaces**
- **2 separate relays (1x configurable, 1x to control charging contactors)**
- **2 separate inputs**
- **1 meter interface**
- **1 actuator to control connector locks**

Item numbers and accessories

Available ebee charging point models

Charging point Berlin (CPB3230)	Charging point Berlin (CPB1630)	Charging point Berlin (CPB1610)
22 kW	11 kW	3.7 kW
3-phase (32A/400V/AC)	3-phase (16A/400V/AC)	1-phase (16A/230V/AC)

Available accessories/options

- ***Display (LCD, lit, 2 lines) Item No. 60701***
- ***Emergency opener (releases the charging plug in the event of a power failure) Item No. 60700***
- ***Optional W-LAN module (alternative to Ethernet adapter) Item No. 60704***
- **Base for installation as single or double stele**

Description:

Base for ebee charging point with powder-coated stainless steel enclosure (RAL7016). Protected cable run for charging station installation, integrated junction box consisting of a circular stainless steel hollow body, powder-coated, closed at the top and section, bore holes and thread for cables and charging point attachment. To be installed on a smooth surface (e.g. concrete) with triple screw fittings or buried base on loose soil (external area). Delivery including buried base for concrete encasement.

Materials: Stainless steel (pillars) / galvanised steel (buried base)

Manufacturer: ebee or similar

Item: 20064 (Double stele - Kit - RAL7016)

Item: 20059 (Single stele - Kit - RAL7016)

Selected make/type: '_____/_____'

delivery, installation and connection ready for use.