



# Inductive Charging Retrofit Kit

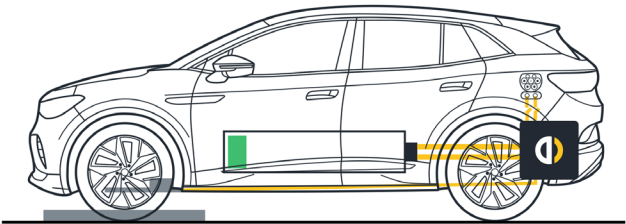
The iBox enables inductive charging for existing electric vehicles – flexible, bidirectional, and compatible with both 400-V and 800-V batteries. This universal retrofit unit integrates all essential HV components and fits passenger cars, trucks, buses, municipal and agricultural vehicles. It makes wireless charging accessible without requiring new vehicles.

## System Description

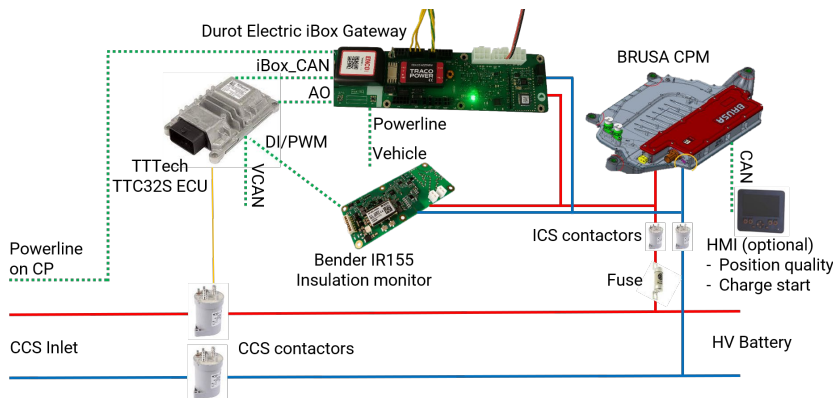
Inductive Charging for Existing Electric Vehicles:

The iBox is a universal retrofit unit and includes a CCS communication module, an insulation monitoring device, a DC/DC converter for intermediate-circuit pre-charging, HV contactors, and its own control unit that coordinates and monitors the charging process. For integration of the box, the DC cables and the CP signal between the vehicle's charging socket and the battery are separated, extended, and routed into the box.

- ⚡ Compatible with 400V and 800V batteries
  - ⚡ Supports bidirectional charging
  - ⚡ Adaptable to different vehicles and charging devices
  - ⚡ Usable for passenger cars, trucks, buses, municipal and agricultural vehicles. This makes inductive charging accessible not only for new vehicles but also for existing fleets.
- The iBox is available as validated A-Sample.



## Block diagram iBox



## Features

### Norms and Regulations

- ISO 6469-3:2021 compliant
- ISO 20653 IP67
- ECE R10 compliant

### Specification Overview

- 400V & 800V system voltage
- Up to 10kW charging power
- CAN 2.0B Interface
- Cooling Water Glycol 50/50 for CPM
- Positioning system (POS)
- Foreign object detection (FOD)
- Living object protection (LOP)
- Thermal overload protection
- Weight 8 kg

## ICS specifications



| Description                                              | value     | unit             |
|----------------------------------------------------------|-----------|------------------|
| Maximum output power                                     | 10        | kW               |
| Battery voltage range                                    | 200 – 850 | V <sub>DC</sub>  |
| Maximum output current                                   | 18.5      | A <sub>DC</sub>  |
| Max. mains input phase current (3ph system)              | 16        | A <sub>RMS</sub> |
| Grid voltage (3-phase system)                            | 190-253   | V <sub>RMS</sub> |
| LV-wiring system CPM                                     | 9-16      | V <sub>DC</sub>  |
| Ambient temperature range for performance operation, CPM | -20...+65 | °C               |
| Ambient temperature range for performance operation, GPM | -20...+45 | °C               |
| Ground clearance CPM without derating (Z-height)         | 140 – 225 | mm               |
| Nominal X-tolerance                                      | ± 75      | mm               |
| Nominal Y-tolerance                                      | ± 100     | mm               |
| Max. operating altitude of device above sea level        | 4500      | m                |
| IP Protection CPM                                        | IP6k9k    |                  |

## Pinning LV Connector X10

| Pin | Name      | Description                  |
|-----|-----------|------------------------------|
| 1   | CP_Out    | Control Pilot Out            |
| 2   | PP_Out    | Proximity Pilot Out          |
| 3   | iBoxCAN_H | iBox CAN High, 500 kBaud     |
| 4   | iBoxCAN_L | iBox CAN Low, 500 kBaud      |
| 5   | VCAN_H    | Vehicle CAN High, 500 kBaud  |
| 6   | VCAN_L    | Vehicle CAN Low, 500 kBaud   |
| 7   | KL30      | Terminal 30                  |
| 8   | KL30      | Terminal 30                  |
| 9   | CP_In     | Control Pilot In             |
| 10  | PP_In     | Proximity Pilot In           |
| 11  | n.c.      | Not connected                |
| 12  | DCAN_H    | Diagnose CAN High, 500 kBaud |
| 13  | DCAN_L    | Diagnose CAN Low, 500 kBaud  |
| 14  | KL15      | Terminal 15                  |
| 15  | GND       | Ground                       |
| 16  | GND       | Ground                       |

## Pinning LV Connector X11

| Pin | Name            | Description                  |
|-----|-----------------|------------------------------|
| 1   | DCAN_H          | Diagnose CAN High, 500 kBaud |
| 2   | DCAN_L          | Diagnose CAN Low, 500 kBaud  |
| 3   | VCAN_H          | Vehicle CAN High, 500 kBaud  |
| 4   | VCAN_L          | Vehicle CAN Low, 500 kBaud   |
| 5   | Temp_Switch_12V | Temperature Switch 12V       |
| 6   | Temp_Switch_FB  | Temperature Switch Feedback  |
| 7   | Pump_+12V       | +12V for water pump          |
| 8   | Pump_GND        | GND for water pump           |
| 9   | CPM_KL30        | Terminal 30 Car Pad Module   |
| 10  | CPM_GND         | Ground Car Pad Module        |
| 11  | KL15            | Terminal 15                  |
| 12  | n.c.            | Not connected                |
| 13  | Temp_Sig        | Temperature Signal           |
| 14  | Temp_GND        | Temperature Ground           |
| 15  | Fan_+12V        | +12V for Fan                 |
| 16  | Fan_GND         | GND for Fan                  |

## HV Connections

| Name   | Description            |
|--------|------------------------|
| K11.87 | Inlet CCS HV+          |
| K12.87 | Inlet CCS HV-          |
| K11.88 | Battery HV+            |
| K12.88 | Battery HV-            |
| K21.87 | Car Pad Module CPM HV+ |
| K22.87 | Car Pad Module CPM HV- |



## Technical Drawing

