



# POST eVolve Series

## *AC Charging solutions for EV's*

# CirCarLife

Intelligent charging solutions  
for electric vehicles

## Post eVolve; SMART vs BASIC

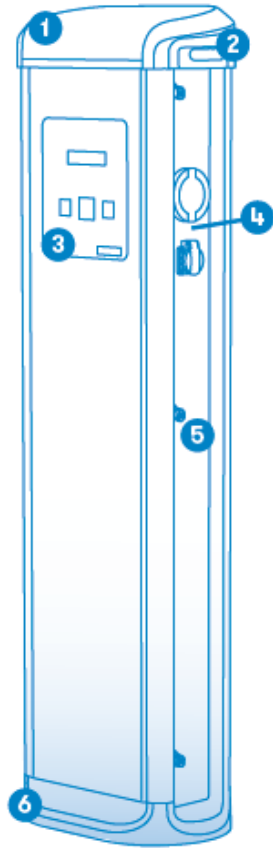
PRIVATE

PUBLIC



Simplest solution: no communication, no metering, no user management

## Post eVolve; Parts description



**1 – Hat**

**2 – LED Beacons**

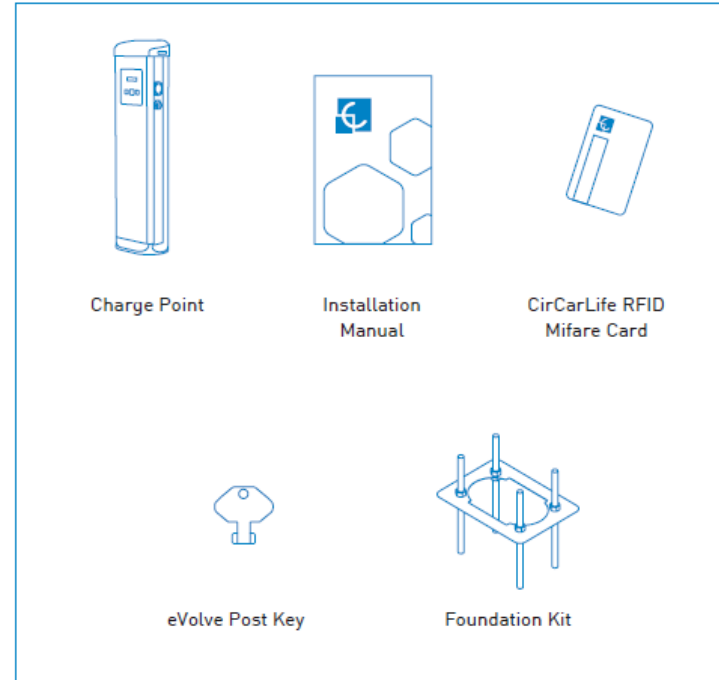
**3 – Display & RFID Reader\***

**4 – Plugs**

**5 – Key lock access**

**6 – Base**

### What's included:



Charge Point

Installation  
Manual










CirCarLife RFID  
Mifare Card

eVolve Post Key



Foundation Kit









(\* ) Only Smart Series

## Post eVolve SMART; Available models

Model	S	T	C63	TM4		
<b>AC power supply</b>	1P + N + PE	3P + N + PE	3P + N + PE	3P + N + PE		
<b>AC input voltage</b>	230 VAC +/-10%	400 VAC +/-10%	400 VAC +/- 10%	400 VAC +/-10%		
<b>Maximum input current</b>	64 A	64 A	63 A	64 A		
<b>Maximum input power</b>	14,7 kW	44 kW	43 kW	44 kW		
<b>Number of plugs</b>	2	2	1	4		
<b>Outlet A</b>	<b>Maximum output current</b>	32 A	32 A	32 A	16 A	
	<b>Maximum output power</b>	7,4 kW	22 kW	43 kW	22 kW	3,7 kW
	<b>AC output voltage</b>	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	230 VAC (1P + N + PE)
<b>Outlet B</b>	<b>Maximum output current</b>	32 A	32 A	32 A	16 A	
	<b>Maximum output power</b>	7,4 kW	22 kW	22 kW	3,7 kW	
	<b>AC output voltage</b>	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	230 VAC (1P + N + PE)
<b>Socket type</b>	2x Type 2 Socket (lock system)	2x Type 2 Socket (lock system)	Type 2 Cable	2x Type 2 Socket (lock system)	2x CEE/7	
	 	 		 	 	
	A B	A B	A	A B	B	

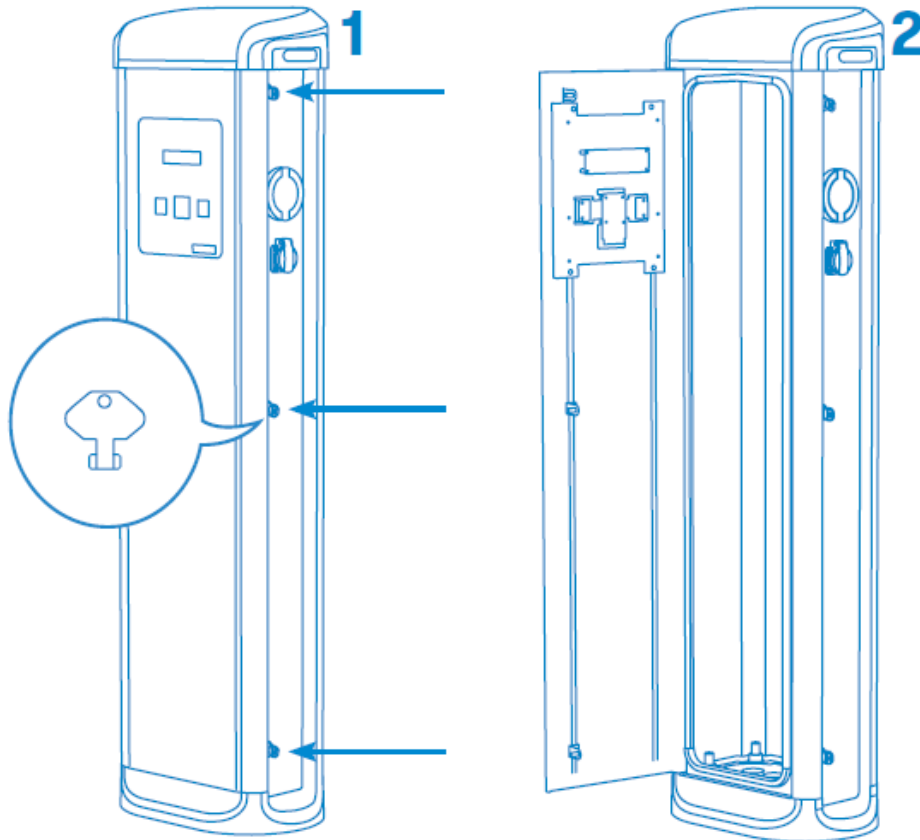
## Post eVolve BASIC; Available models

Model	S-one	T-one
AC power supply	1P + N + PE	3P + N + PE
AC input voltage	230 VAC +/-10%	400 VAC +/-10%
Maximum input current	32 A	32 A
Maximum input power	7,4 kW	22 kW
Number of plugs	1	1
Maximum output current per outlet	32 A	32 A
Maximum output power per outlet	7,4 kW	22 kW
AC output voltage	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)
Socket Type	Type 2 Socket	Type 2 Socket
		

Model	S	T	TM4		
AC power supply	1P + N + PE	3P + N + PE	3P + N + PE		
AC input voltage	230 VAC +/-10%	400 VAC +/-10%	400 VAC +/-10%		
Maximum input current	64 A	64 A	64 A		
Maximum input power	14,8 kW	44 kW	25,7 kW		
Number of plugs	2	2	4		
Outlet A	Maximum output current	32 A	32 A	16 A	
	Maximum output power	7,4 kW	22 kW	22 kW	
	AC output voltage	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	230 VAC (1P + N + PE)
Outlet B	Maximum output current	32 A	32 A	16 A	
	Maximum output power	7,4 kW	22 kW	22 kW	3,7 kW
	AC output voltage	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)	400 VAC (3P + N + PE)	230 VAC (1P + N + PE)
Socket Type	2x Type 2 Socket	2x Type 2 Socket	2x Type 2 Socket	2x CEE/7	
	 	 	 	 	
	A B	A B	A B		

## Post eVolve; Features

- Its **frontal key-locked door** provides an easy access to the inside of the charger which results in a lower OpEx (Operating Expenditure) due to a quicker installation and service (preventive/corrective). Moreover, it allows the charger to be installed next to a wall, optimising the available space



Example of Post eVolve  
installed next to a wall

## Post eVolve; Features

- About the charger's **housing, aluminium and ABS plastic** have been combined in a robust structural design that provides protection to both mechanical stress and severe environmental conditions, increasing the charger lifespan and avoiding its replacement in just a few years



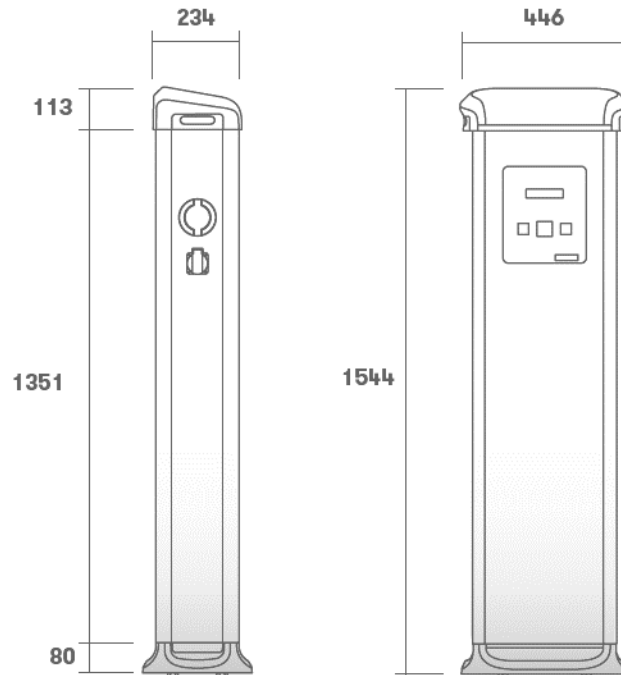
Aluminium extrusion

Antenna inside ABS hat

Aluminium

## Post eVolve; Features

- **Accessibility for the disabled** has also been considered, complying with international standards regarding the height of connectors/display that facilitates its operation



Plug & display at 1200mm approx.



Measures in mm



## Post eVolve; Features

- The **LED beacons** not only inform the user about the status of the plug but help to locate the charger when dark.



PLUG STATE	BEACON COLOR
Available	Green
Charging	Blue
Fault	Red

## Post eVolve; Features

- eVolve series includes the necessary **electrical protections** not only to minimize the human safety risk of electrical shock but also to ensure the maximum uptime due to independent protections per connector.

RCD for  
plug A and plug B



MCB & RCD for  
control circuit

MCB for  
plug A and plug B  
(type 2 sockets)

Example TM4:      
A B

MCB for  
plug A and plug B  
(schuko sockets)

(internal components layout change from model to model)

## Post eVolve; Features

- Wide frontal **customisation are**, increasing brand recognition



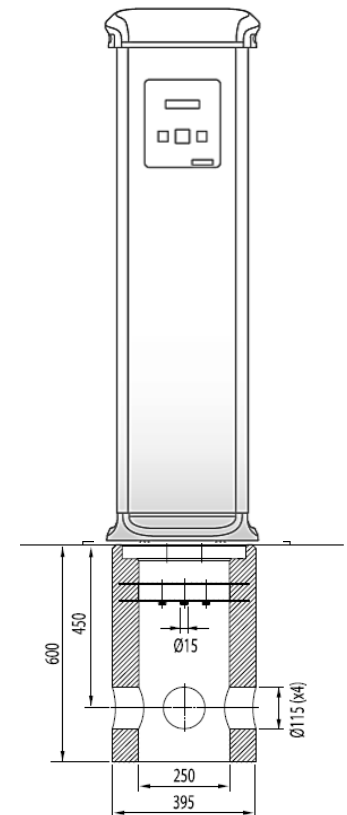
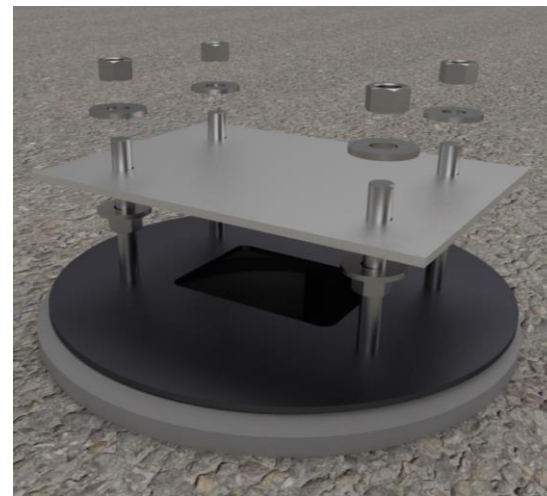
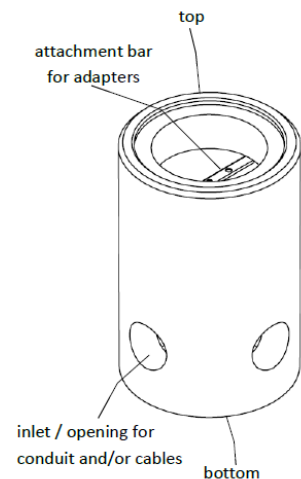
## Post eVolve; Features

- Optional including **tethered cables**, specially interesting for fleets and workplace



## Post eVolve; Features

- Optional **pre-fabricated foundation**, (1) which helps to reduce installation cost, (2) is a future proof solution (changing the adapter, the post can be easily replaced) and (3) protects foundation against bumps



## Post eVolve; Features

On February 7th 2017 the new edition of International Standard IEC 61851-1:2017 (Electric vehicle conductive charging system - Part 1: General requirements) was published<sup>(1)</sup>.

According to CENELEC (European Committee for Electrotechnical Standardization), the DOP (Date Of Publication) and DOW (Date Of Withdrawal) for IEC 61851-1:2017 is July 10th 2017<sup>(2)</sup>.

(1) <https://webstore.iec.ch/publication/33644>

(2)

[https://www.cenelec.eu/dyn/www/f?p=104:110:1491100651067601::::FSP\\_ORG\\_ID,FSP\\_PROJECT,FSP\\_LANG\\_ID:1258145,53160,25](https://www.cenelec.eu/dyn/www/f?p=104:110:1491100651067601::::FSP_ORG_ID,FSP_PROJECT,FSP_LANG_ID:1258145,53160,25)

IEC 61851-1:2017, in its section 8.5 (Residual current protective devices) states the following:

*EV supply equipment can have one or more connecting points to supply energy to EVs.*

***Where connecting points can be used simultaneously and are connected to a common input terminal of the EV supply equipment, they shall have individual protection incorporated in the EV supply equipment.***

*If the EV supply equipment has more than one connecting point that cannot be used simultaneously then such connecting points can have common protection devices.*

## Post eVolve; Features

*EV supply equipment that includes an RCD and that does not use the protective measure of electrical separation shall comply with the following:*

- *The connecting point of the EV supply equipment shall be protected by an RCD having a rated residual operating current not exceeding 30 mA;*
- *RCD(s) protecting connecting points shall be at least type A;*
- *RCDs shall comply with one of the following standards: IEC 61008-1, IEC 61009-1, IEC 60947-2 and IEC 62423;*
- *RCDs shall disconnect all live conductors.*

*NOTE 1 This applies to single-phase or three-phase connecting points.*

***Where the EV supply equipment is equipped with a socket-outlet or vehicle connector for AC use in accordance with IEC 62196 (all parts), protective measures against DC fault current shall be taken.***

*The appropriate measures shall be:*

- *RCD type B or*
- *RCD Type A and appropriate equipment that ensures the disconnection of the supply in case of DC fault current above 6 mA.*

[...]

## Post eVolve; Features

In order to comply with the above bold text, the current “by default” version of some product series (e.g. Post eVolve Smart which by default includes only RCD type A) is no longer valid.

After evaluating this situation and considering that either RCD type B or 6mA DC fault current detection increases the cost of the product, Circontrol decided to work on a solution that provides both value to the market (lower OpEx) and helps to differentiate from the competition: **RCD type B with automatic<sup>(3)</sup>/remote reclosing<sup>(4)</sup>**

This solution (RCD type B with automatic/remote reclosing) is significantly better than RCD type A with 6mA DC fault current detection due to the following reasons:

1. Since RCD type B tripping is ensured in many more scenarios than RCD type A (regardless 6mA DC fault current detection), this residual current protective device is future-proof against new coming battery / charging developments, ensuring human safety against electrical shocks
2. Its automatic/remote reclosing capability significantly reduces the OpEX (Operational Expenditure) in those occasions where the EVs trips the RCD (no technician has to go to the unit to reclose the RCD)

<sup>(3)</sup> IEC 61851-1:2017, in its section 15 (Automatic reclosing of protective devices) indicates: *In the following countries automatic reclosing of protection means is not allowed: DK, UK, FR, CH.*

<sup>(4)</sup> Only valid for AC chargers. For DC chargers including AC connector as per IEC 62196, due to technical limitations, the solution adopted is RCD type B



## Post eVolve SMART; Features

- Optional **self-reclosing RCD**, lower OpEx (Operational Expenses) since a technician is not to be sent when RCD trips due to an EV or faulty cable



**IEC 61851-1:2017, in its section 15 (Automatic reclosing of protective devices) indicates:  
In the following countries automatic reclosing of protection means is not allowed: DK, UK, FR, CH**

## Post eVolve SMART; Features

- To comply with the most demanding requirements regarding billing, eVolve series includes **MID certified meters**

# CEM-C20

Three-phase electrical energy meter  
with direct measurement, assembly on DIN rail



### Description

Three-phase electrical energy meter for direct measurements of up to 65 A. Built-in LCD display (7 digits) with rotating screen system. Features an optical communication port (OSC system) on the side of the unit for installing the communication module (CEM-M). Also features 2 buttons (1 sealable button) for viewing all the measured information.

Other features include:

- MID certification, module B+D (depending on the type)
- Class 1 active energy (Class B, in accordance with MID), Class 2 reactive energy
- Complies with the EN 50470 (MID European standards) or IEC 62052-11 standards (international standards), depending on the type.
- Compact size (4 modules, 72 mm)
- Resettable partial meter
- 1 programmable impulse output, in accordance with DIN 43864
- Indicates bad connections on the screen
- Energy storage, even in the case of bad connections

(internal components may change from model to model)

## Post eVolve SMART; Features

- Optional **anti-vandal doors & key-locking**; lower OpEx (Operational Expenses) since protects the connectors against vandalism



(key also available in BASIC models)







## Post eVolve SMART; Features

- The **Embedded Load Management** allows a lower TCO (Total Cost of Ownership) by charging two EVs simultaneously even when the charger is not supplied with its maximum output power

Example:

Post eVolve Smart T (2x22kW)  
supplied with 30kW (Pa) instead of 44kW (Pt)



Case 1 (only 1 car plugged in to the charger)				
		22kW (max)		
Case 2 (2 cars plugged in to the charger)				
		15kW* (max)		
				15kW* (max)

\*50% of Pa

## Post eVolve SMART; Features

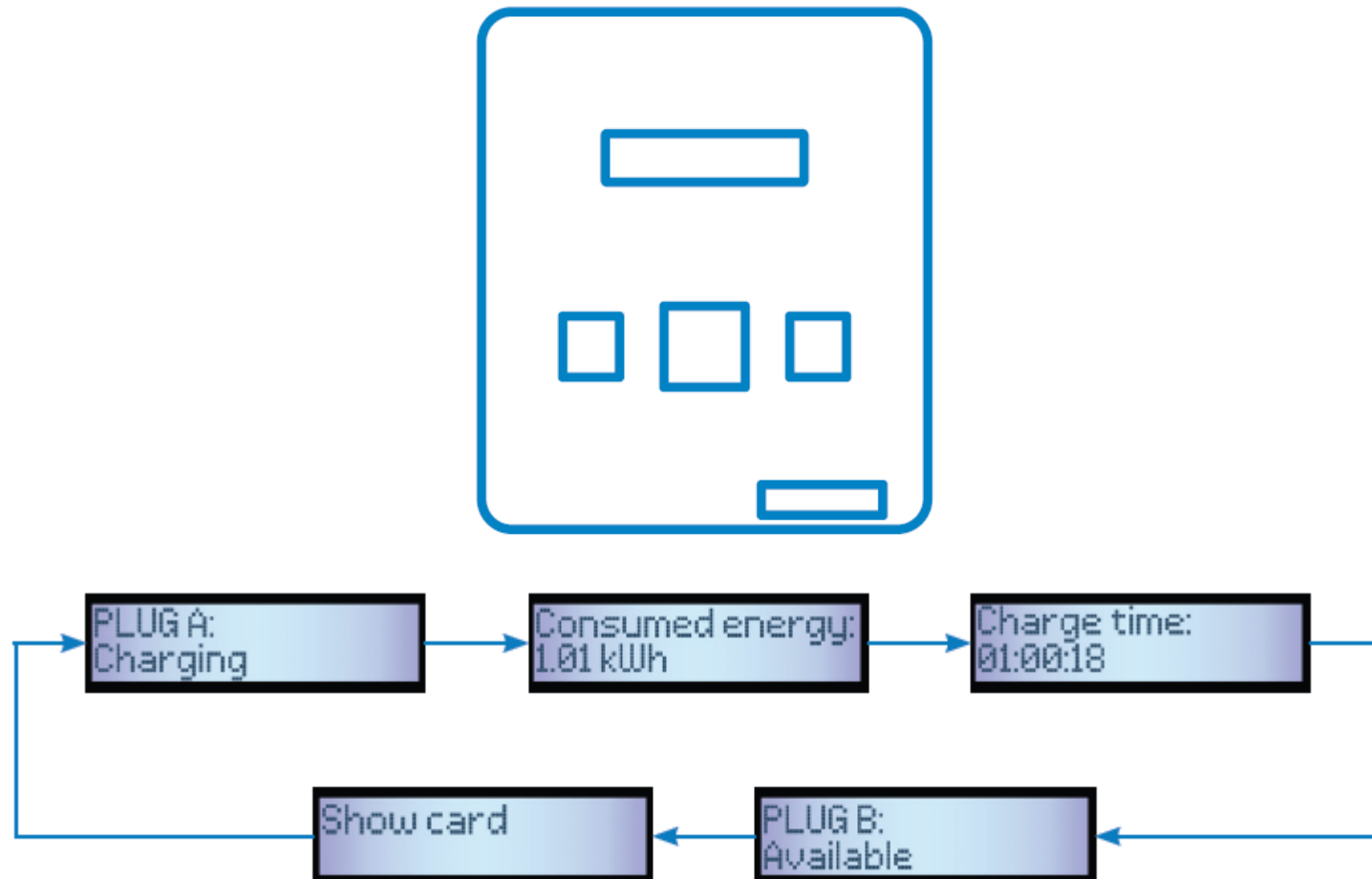
- In terms of communication, either by its Ethernet port (by default) or 3G/GPRS modem (optional) the charger can be connected to a back-office system (by means of **OCPP**) obtaining benefits such as user management, billing, remote error diagnostic, etc.



- For the user:
  - Registration (permanent/one-time usage)
  - Payment
  - Portal (e.g. statistics)
  - Reservation of charging points
  - Etc.
- For the car park operator:
  - Public visibility
  - Reporting & statistics
  - Pricing parameters
  - Billing
  - Roaming
  - Etc.

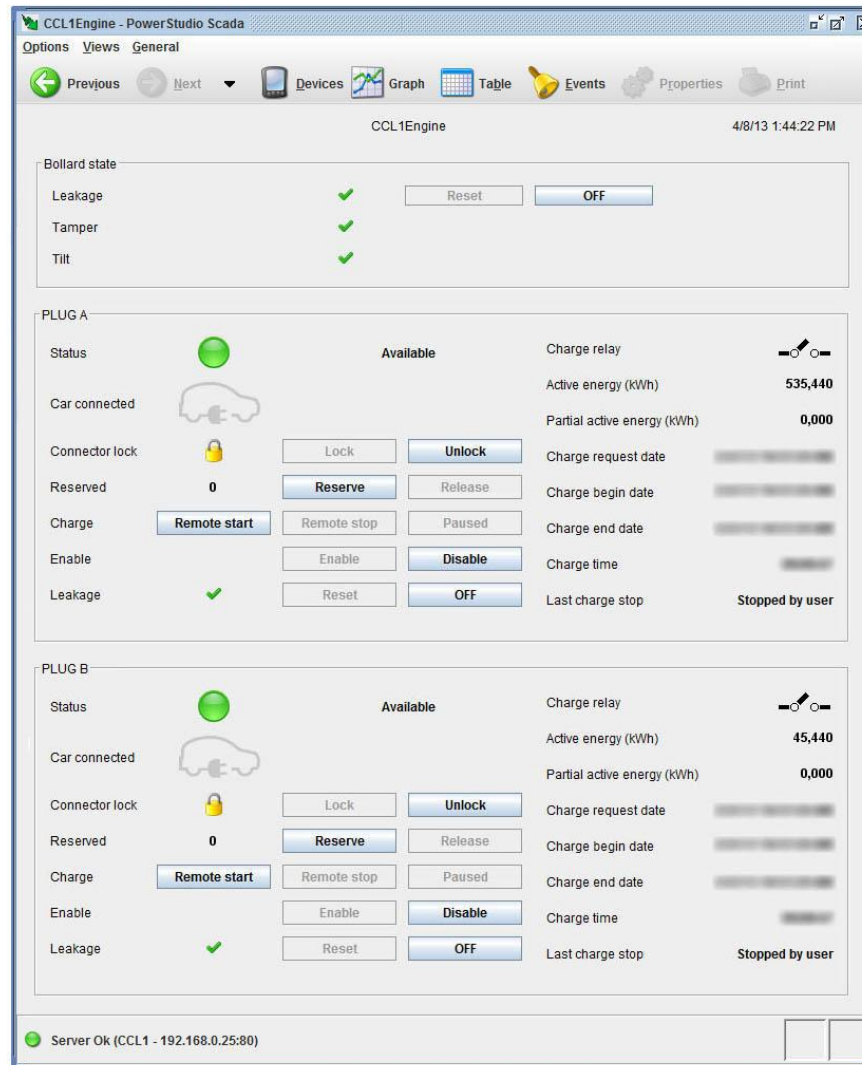
## Post eVolve SMART; Features

- Clear charging instructions and plug status are shown using a **backlight display**, increasing user satisfaction, especially useful when the charger has been previously reserved by another user



## Post eVolve SMART; Features

- Charge Point status can be **remotely monitored** using the software provided by Circontrol

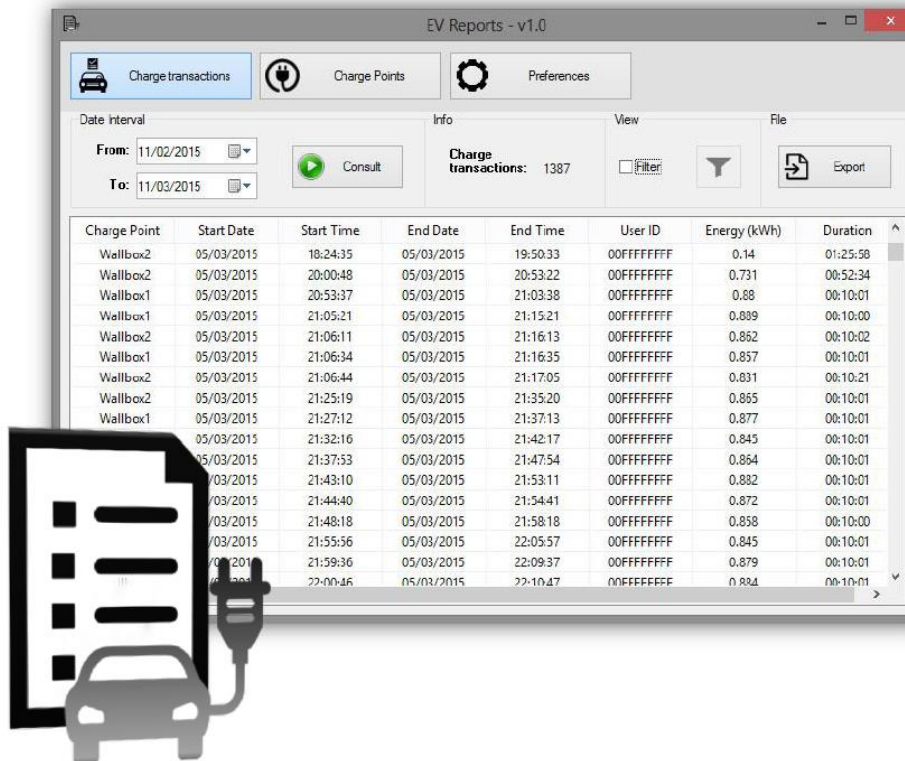


The screenshot displays the CCL1Engine - PowerStudio Scada software interface. The window title is "CCL1Engine - PowerStudio Scada" and the current time is 4/8/13 1:44:22 PM. The interface is divided into several sections:

- Options Views General:** A menu bar with "Options", "Views", and "General".
- Navigation:** Buttons for "Previous", "Next", "Devices", "Graph", "Table", "Events", "Properties", and "Print".
- Bollard state:** A section showing "Leakage", "Tamper", and "Tilt" with green checkmarks and "Reset" and "OFF" buttons.
- PLUG A:** A detailed view of the first charging station. It shows "Status" as "Available" with a green circle icon. "Car connected" is shown with a car icon. "Connector lock" is "Unlocked" with a lock icon and "Lock" and "Unlock" buttons. "Reserved" is "0" with "Reserve" and "Release" buttons. "Charge" has "Remote start", "Remote stop", and "Paused" buttons. "Enable" has "Enable" and "Disable" buttons. "Leakage" is "OFF" with "Reset" and "OFF" buttons. On the right, "Charge relay" is shown with a switch icon, "Active energy (kWh)" is 535,440, "Partial active energy (kWh)" is 0,000, and "Last charge stop" is "Stopped by user".
- PLUG B:** A detailed view of the second charging station. It shows "Status" as "Available" with a green circle icon. "Car connected" is shown with a car icon. "Connector lock" is "Unlocked" with a lock icon and "Lock" and "Unlock" buttons. "Reserved" is "0" with "Reserve" and "Release" buttons. "Charge" has "Remote start", "Remote stop", and "Paused" buttons. "Enable" has "Enable" and "Disable" buttons. "Leakage" is "OFF" with "Reset" and "OFF" buttons. On the right, "Charge relay" is shown with a switch icon, "Active energy (kWh)" is 45,440, "Partial active energy (kWh)" is 0,000, and "Last charge stop" is "Stopped by user".
- Server Status:** A green circle icon and text "Server Ok (CCL1 - 192.168.0.25:80)".

## Post eVolve SMART; Features

- **Compatible with EV Report tool;** user friendly software to centralize all the charge transactions that contains each charge point for a selected time interval. It allows quickly exported to CSV file format all the desired charge transactions. CSV files are an open source document file that easily can be opened by the most common spreadsheet software like MS Excel, Calc (LibreOffice)...



Charge Point	Start Date	Start Time	End Date	End Time	User ID	Energy (kWh)	Duration
Wallbox2	05/03/2015	18:24:35	05/03/2015	19:50:33	00FFFFFFFF	0.14	01:25:58
Wallbox2	05/03/2015	20:00:48	05/03/2015	20:53:22	00FFFFFFFF	0.731	00:52:34
Wallbox1	05/03/2015	20:53:37	05/03/2015	21:03:38	00FFFFFFFF	0.68	00:10:01
Wallbox1	05/03/2015	21:05:21	05/03/2015	21:15:21	00FFFFFFFF	0.889	00:10:00
Wallbox2	05/03/2015	21:06:11	05/03/2015	21:16:13	00FFFFFFFF	0.862	00:10:02
Wallbox1	05/03/2015	21:06:34	05/03/2015	21:16:35	00FFFFFFFF	0.857	00:10:01
Wallbox2	05/03/2015	21:06:44	05/03/2015	21:17:05	00FFFFFFFF	0.831	00:10:21
Wallbox2	05/03/2015	21:25:19	05/03/2015	21:35:20	00FFFFFFFF	0.865	00:10:01
Wallbox1	05/03/2015	21:27:12	05/03/2015	21:37:13	00FFFFFFFF	0.877	00:10:01
	05/03/2015	21:32:16	05/03/2015	21:42:17	00FFFFFFFF	0.845	00:10:01
	05/03/2015	21:37:53	05/03/2015	21:47:54	00FFFFFFFF	0.864	00:10:01
	05/03/2015	21:43:10	05/03/2015	21:53:11	00FFFFFFFF	0.832	00:10:01
	05/03/2015	21:44:40	05/03/2015	21:54:41	00FFFFFFFF	0.872	00:10:01
	05/03/2015	21:48:18	05/03/2015	21:58:18	00FFFFFFFF	0.858	00:10:00
	05/03/2015	21:55:56	05/03/2015	22:05:57	00FFFFFFFF	0.845	00:10:01
	05/03/2015	21:59:36	05/03/2015	22:09:37	00FFFFFFFF	0.879	00:10:01
	05/03/2015	22:00:46	05/03/2015	22:10:47	00FFFFFFFF	0.824	00:10:01



## Post eVolve SMART; Features

- **Compatible with DLM (Dynamic Load Management) System;**  
See video next: <https://www.youtube.com/watch?v=bHmhzHXqeAM>

The screenshots illustrate the following features:

- Dashboard Overview:** A central hub with icons for CHARGING POINTS, POWER MONITORING, LOAD MANAGEMENT, and GRAPHS. It includes summary cards for:
  - LOAD MANAGEMENT:** Work Schedule Priority (9), Priority Vehicles (9), No Priority Vehicles (10).
  - POWER MONITOR:** Contracted Power (70 kW), EV Active Power (48,8 kW), Building Active Power (13,9 kW).
  - CHARGE POINTS:** Installed (10 Units), Online (10 Units), Offline (0 Units).
  - PLUG STATUS:** Available (10 Plugs), Occupied (10 Plugs), Faulted (0 Plugs).
- Real-time Graphs:** A line graph showing 'REAL TIME GRAPH' with multiple data series representing different power metrics over time.
- Load Management Table:**

EV GROUPS	PRIORITY	NORMAL	ALL						
	L1	L2	L3	L1	L2	L3	L1	L2	L3
STATE	3	3	3	1	2	1	-	-	-
MAX ALLOWED PLUGS	0	0	0	1	2	1	-	-	-
CHARGING	0	0	0	1	2	1	-	-	-
PAUSED	0	0	0	0	0	0	-	-	-
TOTAL PLUGS	4	3	3	6	4	4	-	-	-
AVAILABLE CURRENT (A)	47	47	47	47	47	47	-	-	-
SHARED CURRENT (A)	47	47	47	47	47	47	-	-	-
NEAR PAUSED PLUG	0	0	0	0	0	0	-	-	-
NEAR PAUSED PLUG	0	0	0	0	0	0	-	-	-
- Charge Points Grid:** A detailed view of 15 charging stations, each with a status card showing ID, name, and current state (e.g., '01 AE-1111-FF', '06 -', '11 -').

## Post eVolve; MASTER – SLAVE (concept idea)



## Post eVolve; MASTER – SLAVE (coming soon)

### Features; touch-screen & RFID (only in master)

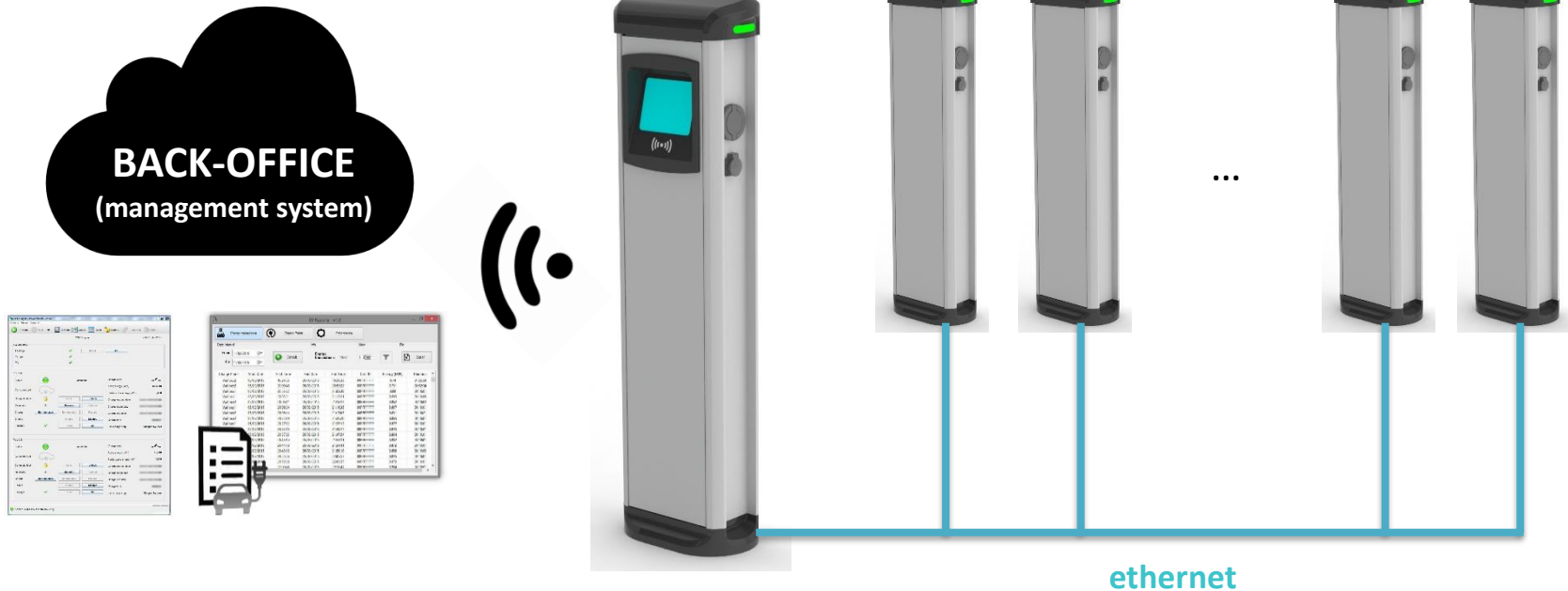
- Multi-language (increased user experience)
- Charge point selection (reduced CapEx)



## Post eVolve; MASTER – SLAVE (coming soon)

### Features; modem (only in master)

- oSlaves do not need modem (reduced CapEx & OpEx)



## Post eVolve; MASTER – SLAVE (coming soon)

### Features; DLM Standard

- Power distribution (reduced initial investment & OpEx)



## Post eVolve; MASTER – SLAVE (coming soon)

### Other considerations;

- 9 slaves for each master (TBC)
- Easy configuration via web
- Slaves offline mode when communication is lost with master

**COMING SOON**



## Post eVolve; MASTER – SLAVE (coming soon)



(master-slave system at Circontrol laboratory)

(example of Master with  
type 2 tethered cable)

