

eMobility Division

DC Product Presentation

DC Product Team
2023

circontrol.com



- ⚡ POWER FACTOR CORRECTION
- ⚡ SURGE / LIGHTNING PROTECTION
- ⚡ HARMONIC FILTERS
- ⚡ FREQUENCY CONVERTER
- ⚡ POWER AUDITING / EARTHING PRODUCTS
- ⚡ UPS & BATTERIES / POWER TRANSFORMERS
- ⚡ EV CHARGING / PARKING GUIDANCE SYSTEM

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eMobility Division DC Product Presentation

INTRODUCTION



DC Product Presentation – Introduction

Charging Times per:
100km / 60miles

Price per kWh

7 minutes	/	150 km x 10 minutes	DC Raption 350
7 minutes	/	150 km x 10 minutes	DC Raption150
10 minutes	/	100 km x 10 minutes	DC Raption100
20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series



Raption Series







AC eVolve and eNext Series

AC 22Kw	45 - 50 minutes	/	22 km x 10 minutes
AC 11Kw	1h 30m hours	/	11 km x 10 minutes
AC 7,4Kw	2h 15m hours	/	7,4 km x 10 minutes
AC 3,7Kw	4h 35m hours	/	3,7 km x 10 minutes

Average consumption17kWh x 60 miles

From private to public charging

Charging events 60-85%		Charging events 15-40%	
DC Home	DC destination	DC Fast	DC High Power
12-20kW 1-3h	20-25kW 1-2h	50-150kW 30-90min	175-350kW 10-20min
			
Family Home Multi family housing	Car dealers Public Carparks Urban fleets Office, workplace	Retail Metro-Highway Car sharing Petrol station	Highway corridor Bus depots Petrol station

DC Product Presentation – Introduction

From private to public charging

Charging events 60-85%

DC Home

12-25kW
80km 1h
1-3h



DC destination

20-25kW
100km 1h
1-2h



Charging events 15-40%

DC Fast

50-100kW
280km
20-30min



Charging events 15-40%

DC High Power

150-175kW
450-500km
30min



350kW
350km
10min



DC Product Presentation – Introduction

DC Peak Power charge (kW)



Sales Volume

DC Product Presentation – Introduction

Charging Times per:
100km / 60miles



eVolve Rapid



Raption 50/100



Raption 150C



Raption 350 HPC

Price per kWh

3 minutes	/	350 km x 10 minutes	DC Raption 350
7 minutes	/	150 km x 10 minutes	DC Raption150
10 minutes	/	100 km x 10 minutes	DC Raption100
20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series

Average consumption17kWh x 60 miles

eMobility Division DC Product Presentation

PRODUCTS



DC Product Presentation – Introduction

Charging Times per:
 100km / 60miles

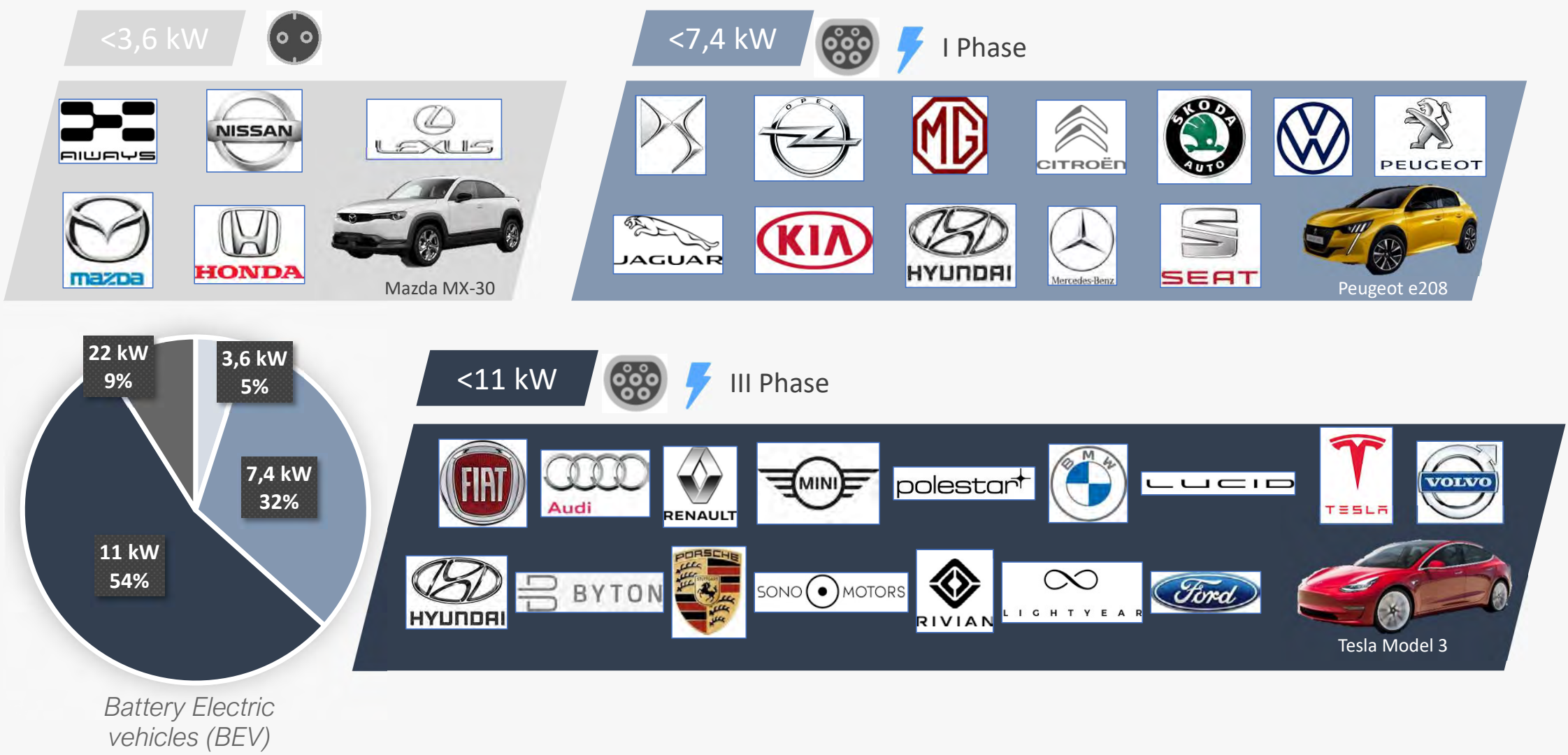


Price per kWh

3 minutes	/	350 km x 10 minutes	DC Raption 350
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20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series

Average consumption17kWh x 60 miles

DC Product Presentation – eVolve Rapid



DC Product Presentation – eVolve Rapid

eVolve Rapid Master - satellite

Rapid charger 25kW

Master-satellite charge system

Communication charge system

The charge master-Satellite system allows manage more than one charger from only one external point

- 25kW CCS all BEV
- Master – Satellite ecosystem with all combinations AC - DC and Raptions
- 8 "touch screen for customizable user interface
- Resistance in front of vandalism acts in urban environments
- OCPP 1.6 and 2.0 prepared to communicate and be managed by CPOs
- Credit card payment system



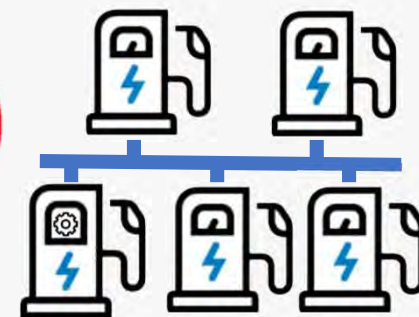
DC Product Presentation – eVolve Rapid

eVolve Rapid Master – Satellite series

Design

Urban environment highlights:

- Post with minimal footprint and possibility of being located close to the wall
- eVolve envelop, vandal acts resistant IP54 and IK10 (touch screen included)
- Cable Care concept, cable reel and holder for the connector
- Security lock with unique identification for Circontrol
- Charge status and availability LED light indicator
- 5.5 m hose, suitable for large vehicles and complex sites
- Communication type serial between chargers (Ethernet)



Post cable
reel and holder



WB cable
reel

DC Product Presentation – eVolve Rapid

eVolve Rapid Series

Entry product serie

- eVolve Rapid Basic as an entry DC charger serie
- From Basic upgradeable to Satellite becoming in a future-proof solution
- Add just a Master to achieve an smarter solution



**eVolve Rapid
Basic**



**eVolve Rapid
Satellite**

DC Product Presentation – eVolve Rapid - References

PSA – Car dealer case



PSA / Stellantis car dealer

UNICAP, a company dedicated to the wholesale distribution of spare parts, official of the PSA group, contacts Circontrol, through the recommendation of the company SPIE, for the purchase of fast charging DC points.

Challenge

OEMs are requiring a DC charging point to maintain quality dealer status.

1. DC charging point
2. Simple and easy-to-use charger interface for the workshop worker
3. Charger scalability
4. Reduced cost

Solution

1. 25kW CCS2 DC WB charger
2. Start / stop user interface
3. Mater – satellite ecosystem and retrofit kit
4. Simple, low-power charger

DC Product Presentation – eVolve Rapid - References



Citroën ë-C4 |
EV car charging

Peugeot e-208 |
EV car charging



DC Product Presentation – eVolve Rapid - References

Zity Case



Car sharing Zity

ZITY is an electric carsharing service that emerged from the union of Renault Spain and Ferrovial Services with more than 450,000 users in Madrid. It has a fleet of 950 vehicles in Madrid and 950 in Paris.

Electric vehicle and necessity

VE model: New Renault Zoe 2018 – Dacia Spring

1. Fast charge than AC (Zoe 7,4 kW & Dacia 6,6 kW).
2. Simple, operator-friendly charger use
3. Charge cars continuously
4. Minimal operating cost of changing an AC to DC charger

Solution

1. Charger of 25kW CCS2 CC
2. Start / stop User interface .
3. Work temperature range +45°C
4. Wallbox installation

Value added

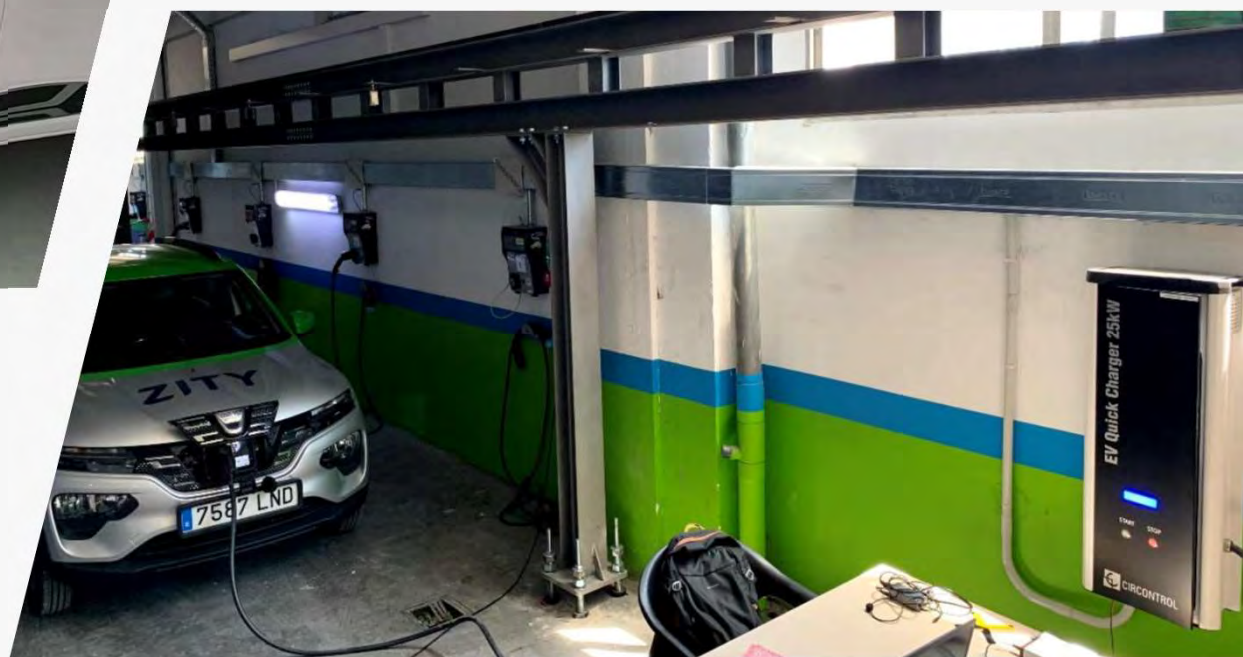
1. Similar power for AC charger electrical installation
2. Low price for its simplicity (no com.)

DC Product Presentation – eVolve Rapid - References



📍 H.Q. Zity Madrid | New Dacia Spring fleet

📍 H.Q. Zity Madrid | Wallbox eVolve Rapid charger



DC Product Presentation – eVolve Rapid - References

Alimerka case



Alimerka

Distribution company with more than 168 supermarkets distributed among the autonomous communities of Asturias, Castilla y León, Galicia and Cantabria and employs some 5,900 people.

Electric vehicle and necessity

Truck model: MAN eTGM with 180 km range

1. Slow charge at night(8 hours)
2. Fast charging in case of necessity (1:30 hours)
3. Truck's fleet growth

Solution


1. Post eVolve Rapid Basic 25kW Charger
2. Raption 150 charger
3. Basic satellite post and installation of more satellite posts

Added value


1. Fast charging that does not stress the batteries
2. Possibility of master – satellite management
3. 1st installation price reduction

DC Product Presentation – eVolve Rapid - References



 Alimerka's Logistic center |
VE charge



 Alimerka's Logistic center |
Wallbox eVolve Rapid charge



 Alimerka's Logistic center | Raption 150 Charge

DC Product Presentation – Raption 50 /100

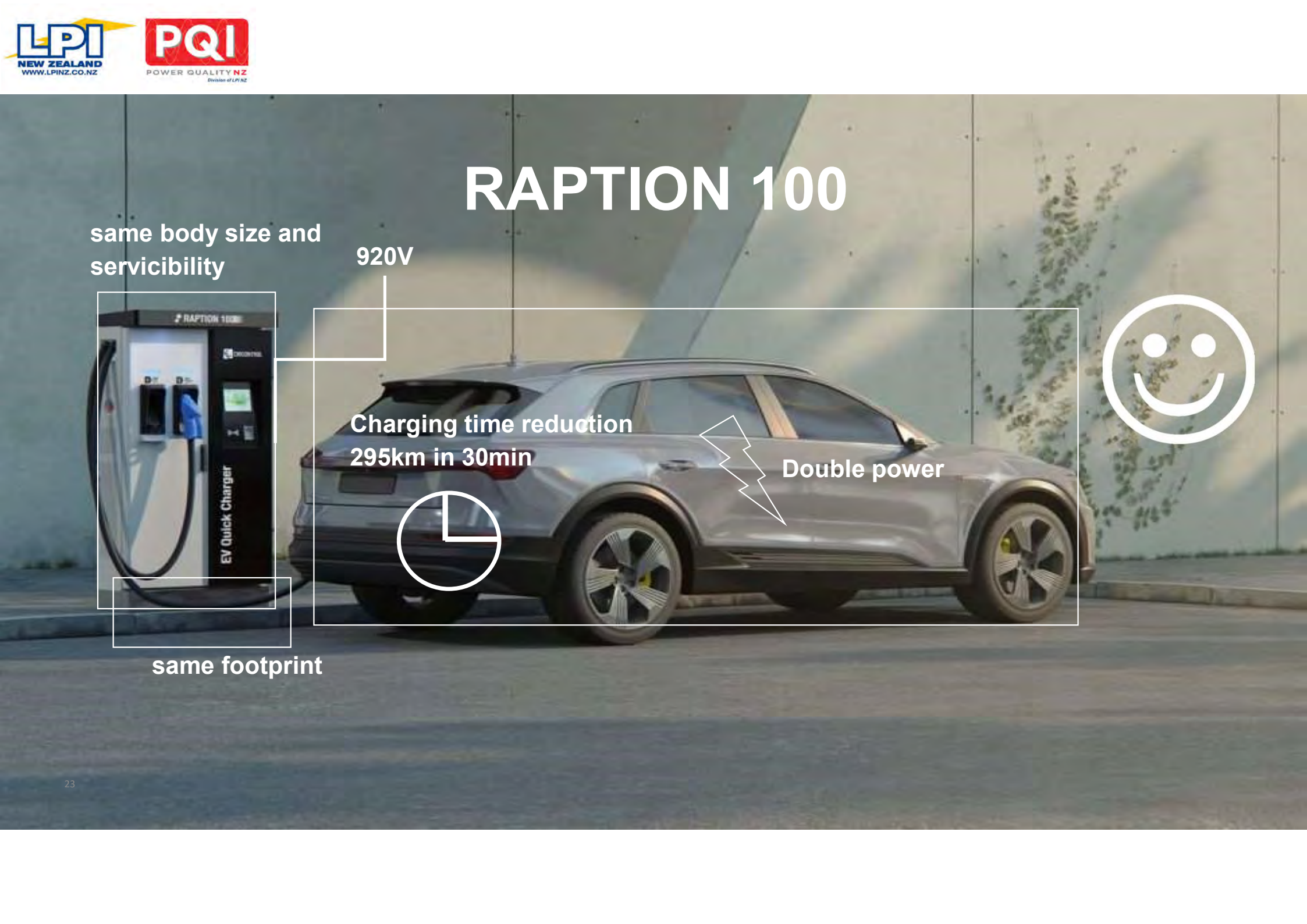
Charging Times per:
 100km / 60miles



Price per kWh

3 minutes	/	350 km x 10 minutes	DC Raption 350
7 minutes	/	150 km x 10 minutes	DC Raption150
10 minutes	/	100 km x 10 minutes	DC Raption100
20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series

Average consumption17kWh x 60 miles



RAPTION 100

same body size and
servicibility

920V

Charging time reduction
295km in 30min

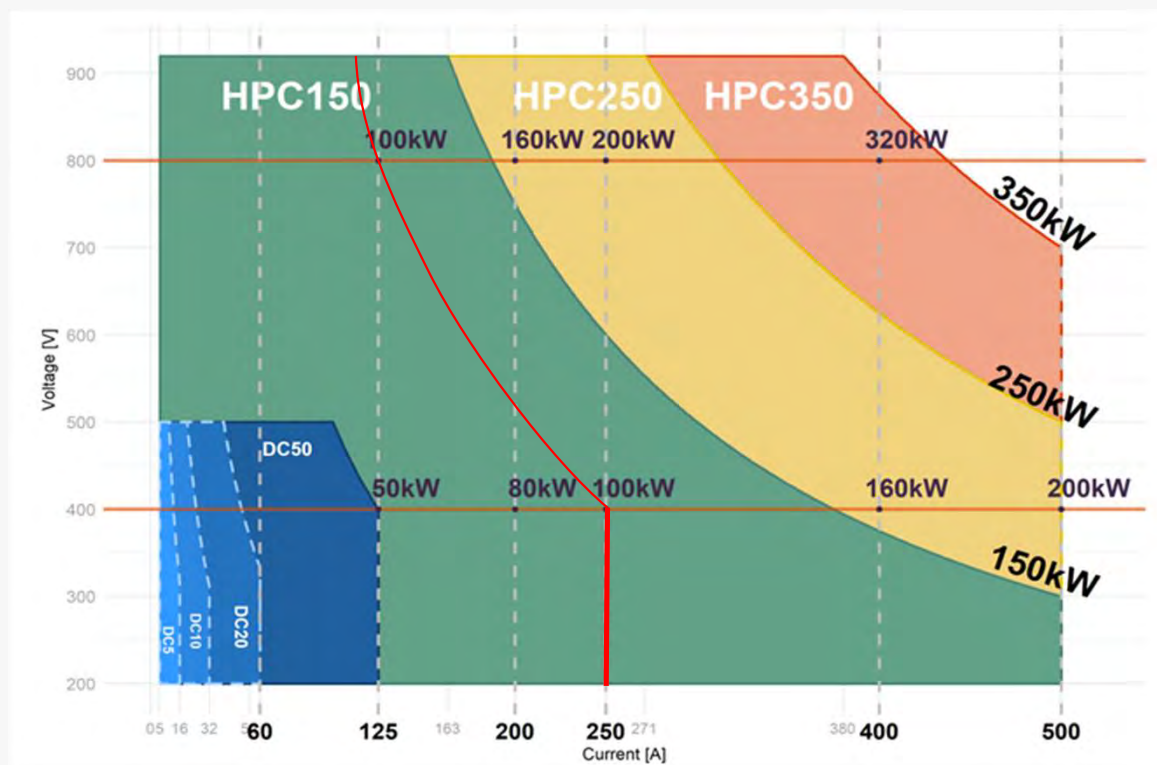
Double power



same footprint

DC Product Presentation – Raption 50 /100

Charging Curves



- New Delta 25kW power module
 - High efficiency
 - 920V or 400V



- Non cooled cable CCS 250A
 - Reduce TCO (total cost of ownership)
 - Very Low maintenance
 - Robustness



DC Product Presentation – Raption 50 /100

Scalable System



Power output scalable; price reduction according to available power

DC Product Presentation – Raption 50 /100

Simultaneous charging

CCS 100kW 920-200V
CHA 50kW or 100kW* 500-100V

AC 22kW



*HW ready to a SW upgrade within second half of 2021

DC Product Presentation – Raption 50 /100

Master - Satellite



- Raption series can be Master
- Satellites AC & DC chargers
- OCCP 1.6 SM for AC Power distribution

DC Product Presentation – Master - Satellite

Raption Master (50-100-150) with AC Satellite



Raption DC

- Raption series can manage up to **8 satellites AC (16 outlets)**
- 1 solo OCCP 1.6 SM to distribute AC power



Posts / wall box AC satellites

DC Product Presentation – Master - Satellite

Raption Master (50-100-150) with DC Satellite

- Raption can manage up to **6 satellites in DC (6 outlets)**
- 1 OCCP 1.6 SM to distribute DC power



Raption DC



Postes / Wall box DC satellites

DC Product Presentation – Master - Satellite

Poste Master with DC Satellite

- Can manage up to **6 satellites in DC**
- 1 OCCP 1.6 SM to distribute DC power



Poste Master DC

Postes / Wall box DC satellites

DC Product Presentation – Raption 50 /100



- DC locking connector
- Reduction of breaking risk due to vandalism (lower OpEx)

DC Product Presentation – Raption 50 /100

Interoperability & Reliability EV test

VW ID3



Mercedes EQC



Mini





DC Product Presentation – Raption 150

Charging Times per:
 100km / 60miles



Price per kWh

3 minutes	/	350 km x 10 minutes	DC Raption 350
7 minutes	/	150 km x 10 minutes	DC Raption150
10 minutes	/	100 km x 10 minutes	DC Raption100
20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series

Average consumption17kWh x 60 miles

DC Product Presentation – Raption 150

CHARIN POWER CLASSES



Power Class	Power*	U _{min} in [V]	U _{max} in [V]	I _{min} in [A]	I _{peak} in [A]	I _{rated} in [A]	P _{reference} in [kW]	Duration I _{peak}	Name (EN)
LPC	xx (kW)	≤200	≥920		<20	<20	<8	inf	Low-Power Charging
DC	xx (kW)	≤200	≥920	≤1	≥20	≥20	≥8	inf	DC Charging
FC	xxx (kW)	≤200	≥920	≤1	≥125	≥94	≥50	>=30 min	Fast Charging
UFC	xxx (kW)	≤200	≥920	≤5	≥250	≥188	≥100	>=20 min	Ultra-Fast Charging
HPC	xxx (kW)	≤200	≥920	≤5	≥500	≥375	≥150	>=10 min	High-Power Charging
MCS	TBD								

Derated current (I_{rated}) shall be available always in the temperature range of -5 to 40°C³

I_{peak} shall be provided @25°C for at least 10 minutes for HPC, 20 minutes for UFC and 30 minutes for FC. After this time, derating may be used to cool down the system. LPC & DC shall not be derated. I_{peak} derating shall not drop below 75% I_{peak}.

DC Product Presentation – Raption 150

UFC CHARGER (NON COOLED)

Raption 150

Product highlights:

- Scalable in steps of 25kW
- DC dual charge for 2 EV's
- Flexible user universal identification and payment(RFID, Contactless, App)
- 920V for latest EV's able to charge at 850V
- Envelop, vandal acts resistant IP54 and IK10 (touch screen included)
- Master of AC/DC satellites

Raption 150	CCS	CCS CHA	CCS CCS
Connection		 	 





Raption 150 Compact



Courtesy lights

OCPP 1.6J....2.X

Wall site mounting

Frontal key door

Flexible payment method

CHAdeMO 100kW

DC metering

4m uncooled cable

DC Product Presentation – Raption 150 Compact

UFC CHARGER (NON COOLED)

Raption 150 Compact

Product highlights:

- Scalable in steps of 25kW (50kW,75kW,100kW...)
- DC dual charge for 2 EV's
- Burst charge, able to reach 375A 150kW @ 400V
- Class B (residential environment for general people)
- Flexible universal identification and payment by (RFID, Contactless, App)
- 920V for latest EV's able to charge at 850V
- Minimal footprint and possibility of being located close to the wall
- High power efficiency at low power
- Envelop, vandal acts resistant IP54 and IK10 (touch screen included)
- Master of 6 x AC/DC satellites

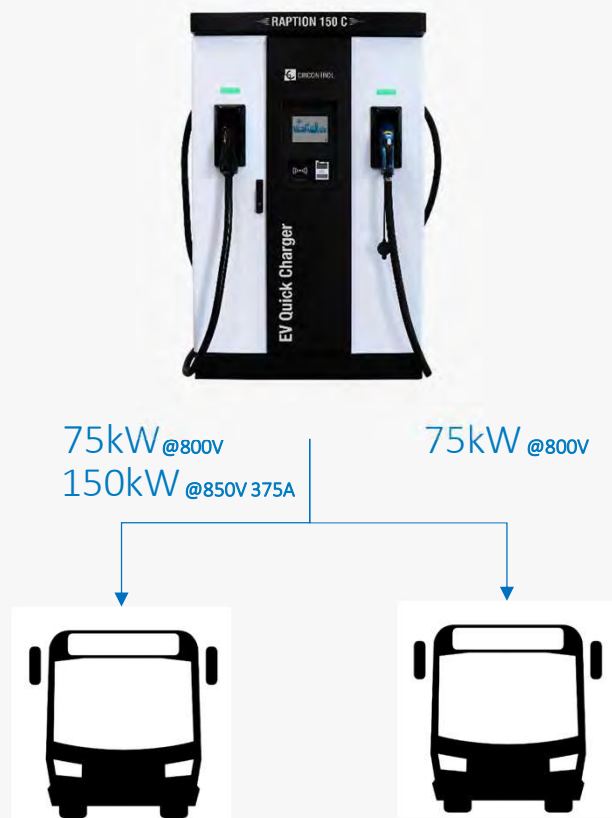
Raption 150 Compact Models	CCS	CCS CHA	CCS CCS
Connection		 	 



DC Product Presentation – Raption 150 Compact

SIMULTANEOUS CHARGING

@850V Buses, heavy truck, high end EV's...



@400V Standard EV's...



DC Product Presentation – Raption 350 HPC

Charging Times per:
 100km / 60miles



Raption 150 C Raption 350 HPC Raption 100

Price per kWh

3 minutes	/	350 km x 10 minutes	DC Raption 350
7 minutes	/	150 km x 10 minutes	DC Raption150
10 minutes	/	100 km x 10 minutes	DC Raption100
20 minutes	/	50 km x 10 minutes	DC Raption50
35 - 40 minutes	/	25 km x 10 minutes	DC eVolve Rapid series

Average consumption17kWh x 60 miles

DC Product Presentation – Raption 175 - 350

CHARIN POWER CLASSES



Power Class	Power*	U _{min} in [V]	U _{max} in [V]	I _{min} in [A]	I _{peak} in [A]	I _{rated} in [A]	P _{reference} in [kW]	Duration I _{peak}	Name (EN)
LPC	xx (kW)	≤200	≥920		<20	<20	<8	inf	Low-Power Charging
DC	xx (kW)	≤200	≥920	≤1	≥20	≥20	≥8	inf	DC Charging
FC	xxx (kW)	≤200	≥920	≤1	≥125	≥94	≥50	>=30 min	Fast Charging
UFC	xxx (kW)	≤200	≥920	≤5	≥250	≥188	≥100	>=20 min	Ultra-Fast Charging
HPC	xxx (kW)	≤200	≥920	≤5	≥500	≥375	≥150	>=10 min	High-Power Charging
MCS									TBD

Derated current (I_{rated}) shall be available always in the temperature range of -5 to 40°C³

I_{peak} shall be provided @25°C for at least 10 minutes for HPC, 20 minutes for UFC and 30 minutes for FC. After this time, derating may be used to cool down the system. LPC & DC shall not be derated. I_{peak} derating shall not drop below 75% I_{peak}.

DC Product Presentation – Raption 175 - 350

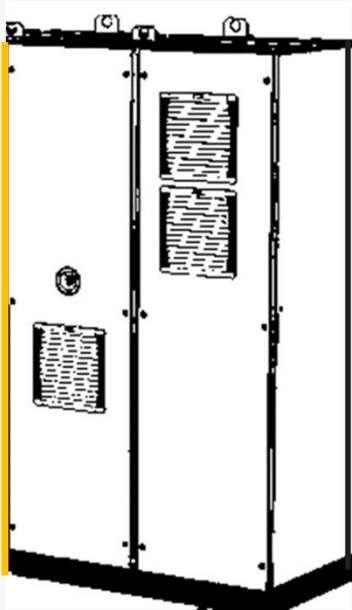
H P C C H A R G E R (C O O L E D)

Raption 175

Product highlights:

- Scalable in steps of 25kW
- Cooled cable continuous 500A 175kW @ 400V-920V
- Uncooled cable 375A supported
- Flexible user universal identification and payment (RFID, Contactless, App)
- 920V for latest EV's able to charge at 850V
- Envelop, vandal acts resistant IP54 and IK10 (touch screen included)
- Ready for power expansion
- Master of AC/DC satellites

HPC 175 Models	CCS500	CCS400	CHA200
Connection			



DC Product Presentation – Raption 175 - 350

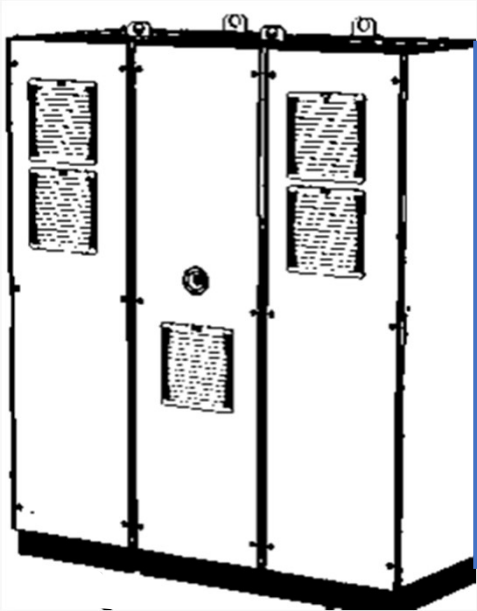
H P C C H A R G E R (C O O L E D)

Raption 350

Product highlights:

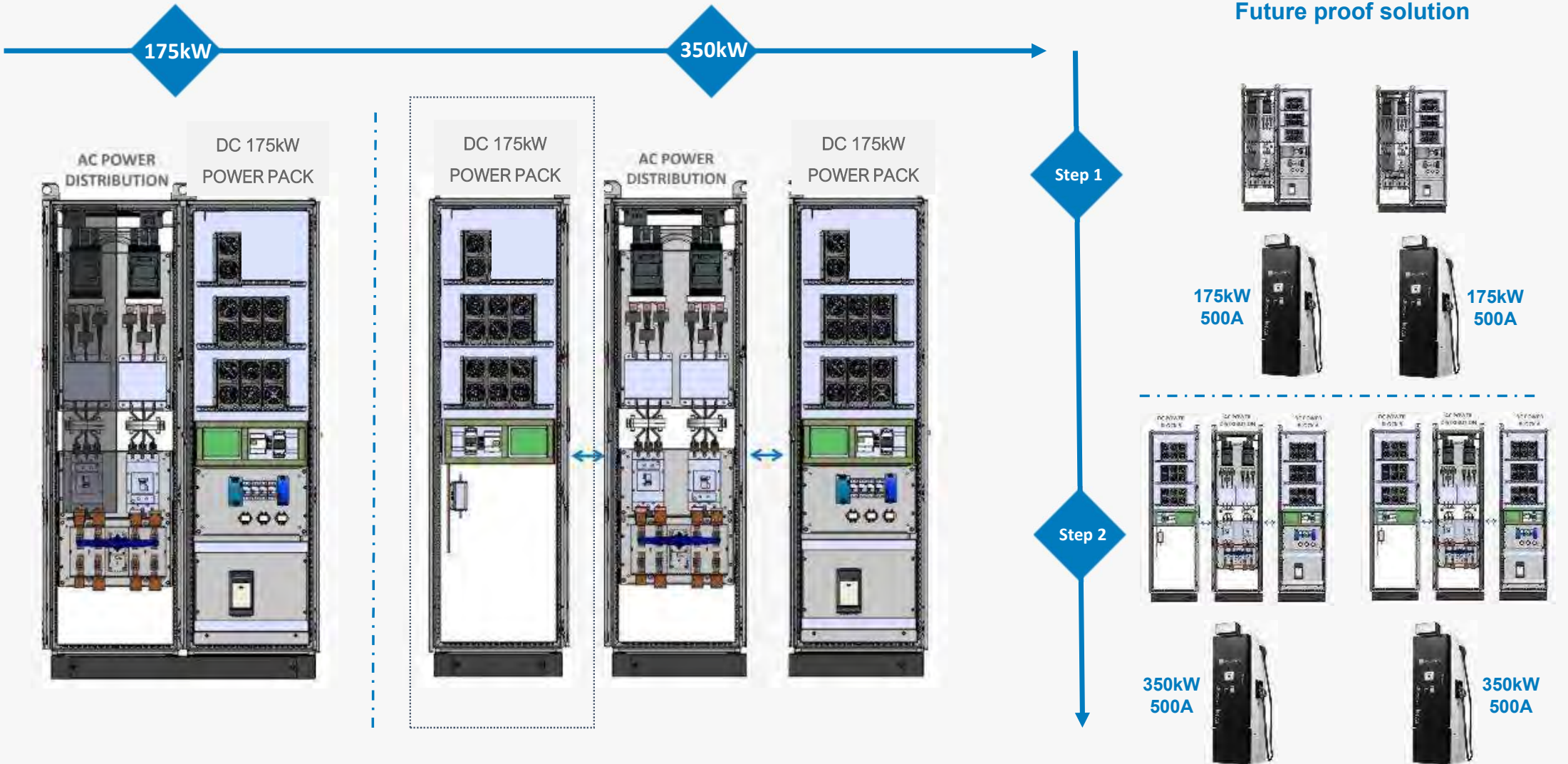
- Scalable in steps of 25kW (250kW, 300kW)
- Cooled cable continuous 500A 350kW @ 400V-920V
- Flexible user universal identification and payment (RFID, Contactless, App)
- 920V for latest EV's able to charge at 850V
- Envelop, vandal acts resistant IP54 and IK10 (touch screen included)
- Master of AC/DC satellites

HPC 350 Models	CCS500	CCS500 CHA200
Connection		 



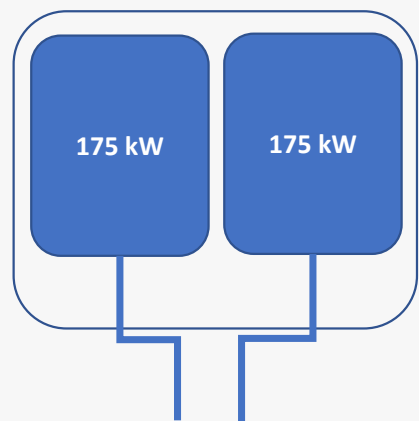
DC Product Presentation – Raption 175 - 350

POWER UNIT MODULARITY (175KW – 350KW)

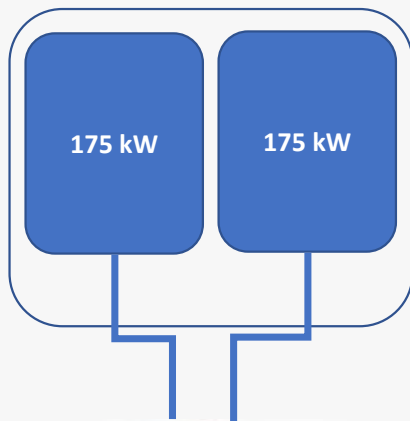


DC Product Presentation – Raption 175 - 350

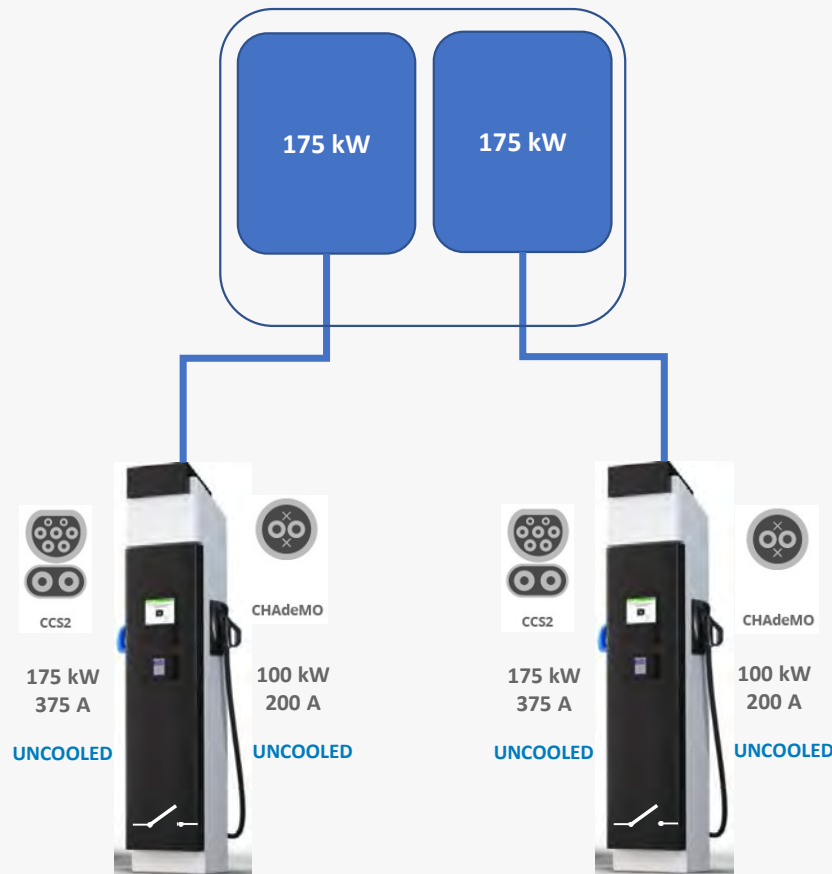
DISPENSER MODULARITY



Single

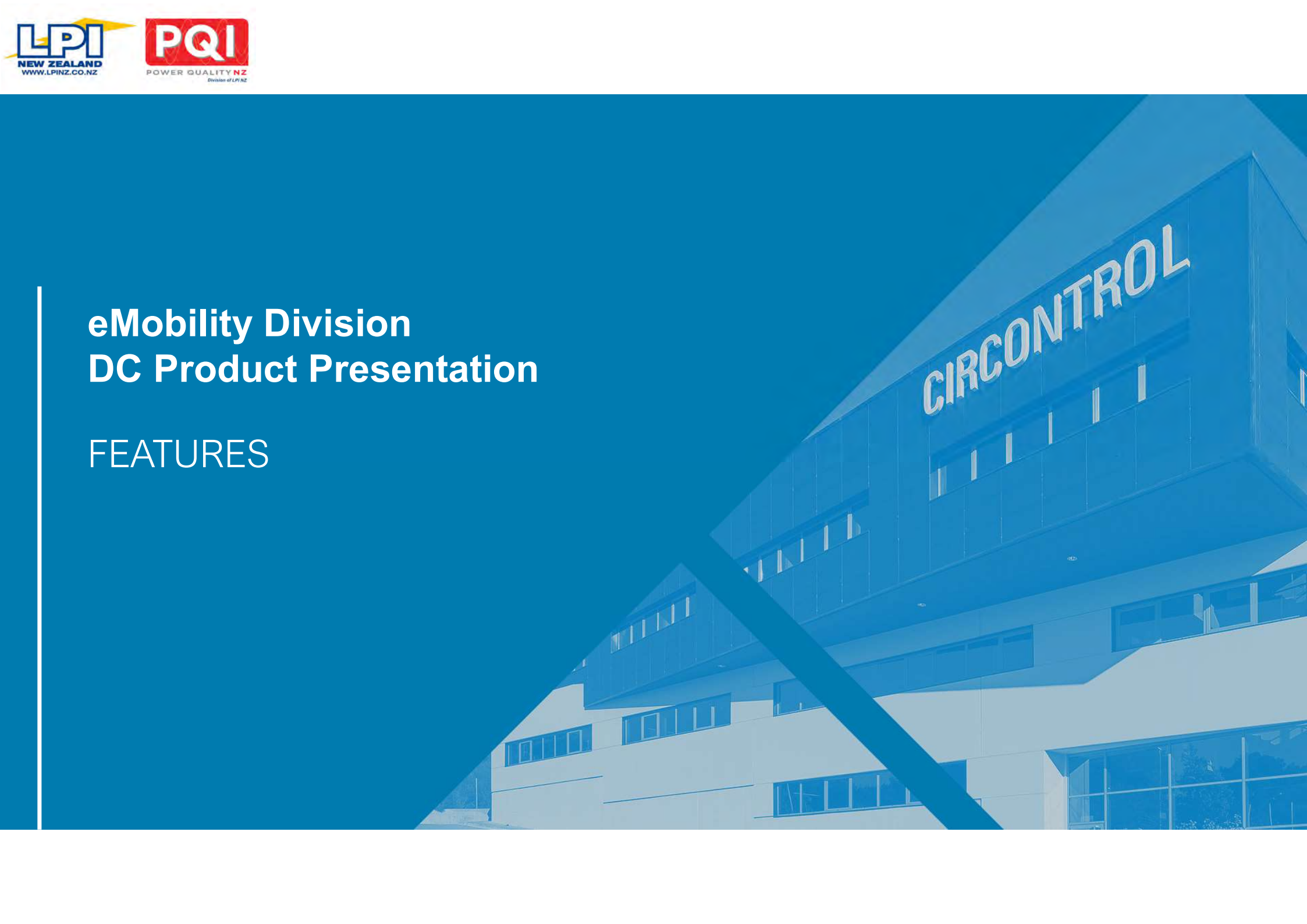


Simultaneous



Non Simultaneous

Non Simultaneous



eMobility Division DC Product Presentation

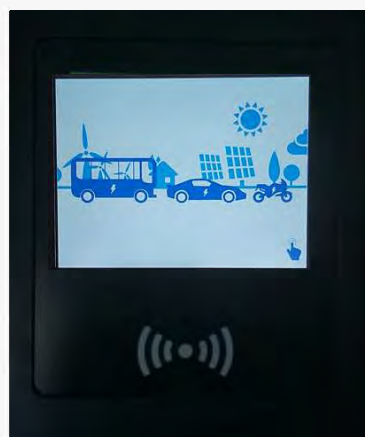
FEATURES

DC Product Presentation – FEATURES

Charger touch screen 8" - HMI



IK10



- Daylight readable & multi-language option (increased user experience)
- Clear and useful instructions for EV driver

DC Product Presentation – FEATURES

Charger touch screen 8"

Increasing user experience



- Customize your screen saver
- Make a marketing proposal as discounts to users
- Avoid stickers on the charger



- Charging amount is showed in summary screen
- Tariff button informs user about charging prices

Tariff	
AC	DC
Connection fee 1£	Connection fee 2£
Price per energy consumed 1£/kWh	Price per energy consumed 2£/kWh
Price per charging time 1£/min	Price per charging time 2£/min

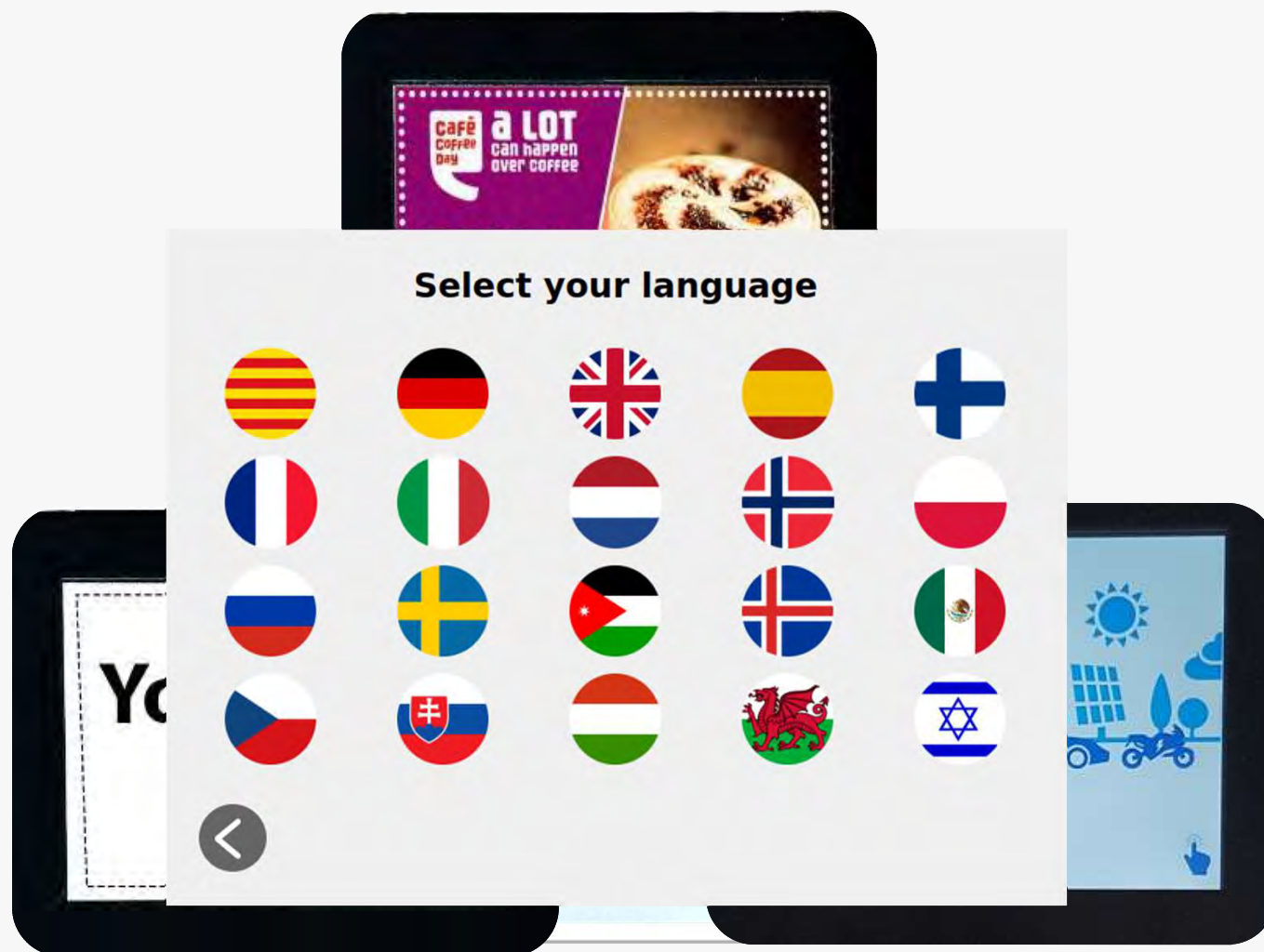
- Inform the user with your tariff per connector and concept

DC Product Presentation – FEATURES

Charger touch screen 8"

Increasing user experience

- Intuitive charging screen that informs the user of the charging time and power delivered
- Screen to show rates at the start of the beginning and charging summary at the end of the charge
- Screen saver customization to enhance the brand image or offer services and products of the adjacent business (cross-selling)
- More than 30 languages available



DC Product Presentation – FEATURES

Charger touch screen 8"

Increasing user experience



FLEXIBLE USER AUTHENTICATION AND METHOD PAYMENT

- Operator APP



- EU Contacless payment



DC Product Presentation – FEATURES

Modular network charger Master – Satellite series

Scalable ecosystem

- Master - satellite solution with all AC - DC combinations as master
- Raption Series have the capability of being a master



Raption 150 compact



**eVolve
Master**



**Post eVolve
Rapid Master**

Gama eVolve Rapid - Features

Modular network charger Master – Satellite series

Scalable ecosystem

- Master - satellite solution with all AC - DC combinations as master
- Raption Series have the ability of being a master



**Post eVolve
Rapid Satellite**



**WB eVolve
Rapid Satellite**



**Post eVolve
Satellite**



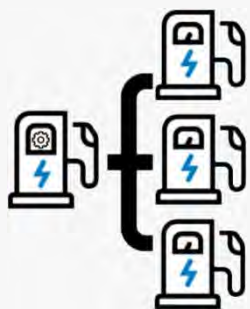
**WB eVolve
Satellite**

Gama eVolve Rapid - Features

Modular network charger Master – Satellite series

Scalable ecosystem

- Master - satellite solution with all AC - DC combinations as master
- Raption Series have the ability of being a master
- Scalable system
 - 6 DC Satellite
 - 8 AC satellite (18 plugs)



Satellite



Master

