Adpower
RENEWABLES

EV CHARGING SOLUTIONS

+971-4-8833456
sales@adpower.ae
www.adpower.ae

ABOUT US

At ADPOWER FZCO, we go beyond our role as a power generation supplier. With a steadfast commitment to renewable energy and a legacy of providing power solutions, we are your dedicated partner in steering the transition towards a sustainable energy future. This commitment now includes cutting-edge EV charging solutions. Proudly standing at the forefront of innovation and reliability in the industry, we bring a wealth of experience and expertise to meet your evolving energy needs.

For over two decades, our core mission has been to empower individuals, businesses, and communities with clean, efficient, and dependable power solutions. Our diverse product portfolio spans solar, Energy Storage Systems, cutting-edge Diesel Generators and Hybrid Power Generations which now includes our latest addition of EV charging solutions. This expansion allows us to meet the diverse needs of our clients, while minimizing environmental impact to achieve sustainable goals helping in reshaping a greener future for all.

OUR VISION

We envision a future where electric vehicle charging becomes more sustainable and accessible - a delightful experience that revitalizes both vehicles and their operators. With all of our help, EV enthusiasts can explore freely, liberated from range limitations while allowing the Earth to heal in a greener, more empowering tomorrow.

OUR MISSION

We're committed to pioneering electric vehicle charging solutions and providing unmatched expertise, propelling the world towards a future where sustainable mobility is a top priority. Through our innovations, we aim to not only power vehicles but also play a significant role in the global shift towards environmentally conscious transportation practices. Join us as we make a lasting impact on the journey towards a greener and more sustainable future for all.

CONTRIBUTING TO A SUSTAINABLE GREEN PLANET

In the battle against climate change, Mobile EV Charging Solutions Providers emerge as potent catalysts, pivotal in realizing the UN 2030 Sustainable Development Goals. Adpower proudly assumes the role of advocate, practitioner, and leader in the relentless pursuit of sustainable development and clean energy for the greater good of humanity.

At Adpower, our core values are anchored in product innovation, professionalism, authenticity, collaboration, and thought leadership. We embrace these principles wholeheartedly to guide our customers towards achieving sustainable energy practices. Through constant innovation, Adpower ensures that our EV charging solutions not only meet but exceed the dynamic needs of a world transitioning to cleaner and responsible energy consumption.

OF GLOBAL-ENERGY RELATED EMISSIONS COME FROM ROAD TRANSPORT

Electric vehicles are the key technology to decarbonize road transport, a sector that accounts for over 15% of global energy-related emissions.

WILL SEE DEMAND FOR ROAD TRANSPORT OIL PEAK

Electric vehicles are the key technology to decarbonize road transport, a sector that accounts for over 15% of global energy-related emissions.

IS STILL POSSIBLE IF WE ALL TAKE ACTION NOW

Reaching net-zero road transport emissions by 2050 is still possible but much faster progress is needed

RESIDENTIAL CHARGING

START EVERY DAY AT FULL CAPACITY.

ACCESSIBLE CHARGING FACILITIES WITH EASE.

With charging available at your home or apartment, you'll never have to deal with the anxiety of searching for public charging stations again.

MINIMIZE OBSTACLES DURING CONSTRUCTION

AC chargers are both safe and cost-effective for home charging, occupying minimal space.

HANDLE USER AUTHENTICATION AND BILLING PROCESSES.

Due to our chargers' user authentication capability and integration with a backend system, users will exclusively incur charges for their individual charging sessions.

COMMERCIAL CHARGING

RECHARGE WHILE OCCUPIED ELSEWHERE.

EASE THE WORRY OF RUNNING OUT OF DRIVING RANGE.

Installing chargers at your business site can alleviate anxiety for both customers and employees, ultimately enhancing their overall satisfaction.

EFFORTLESS INTEGRATION WITH A COMPREHENSIVE TURNKEY SOLUTION.

Streamlined site planning and construction services reduce the effort required to offer charging services

GENERATE AN ADDITIONAL REVENUE STREAM.

Utilize membership and billing management to create an extra revenue stream from EV charging fees.

PUBLIC CHARGING

QUICKLY RESUME YOUR JOURNEY.

INFUSE ECO-FRIENDLY VALUE INTO YOUR CURRENT BUSINESS.

Incorporate EV charging into established businesses like gas stations and utility services.

EFFICIENTLY DISTRIBUTE ENERGY.

integrate energy storage and renewable sources into current sites for enhanced energy efficiency and lowered electricity expenses.

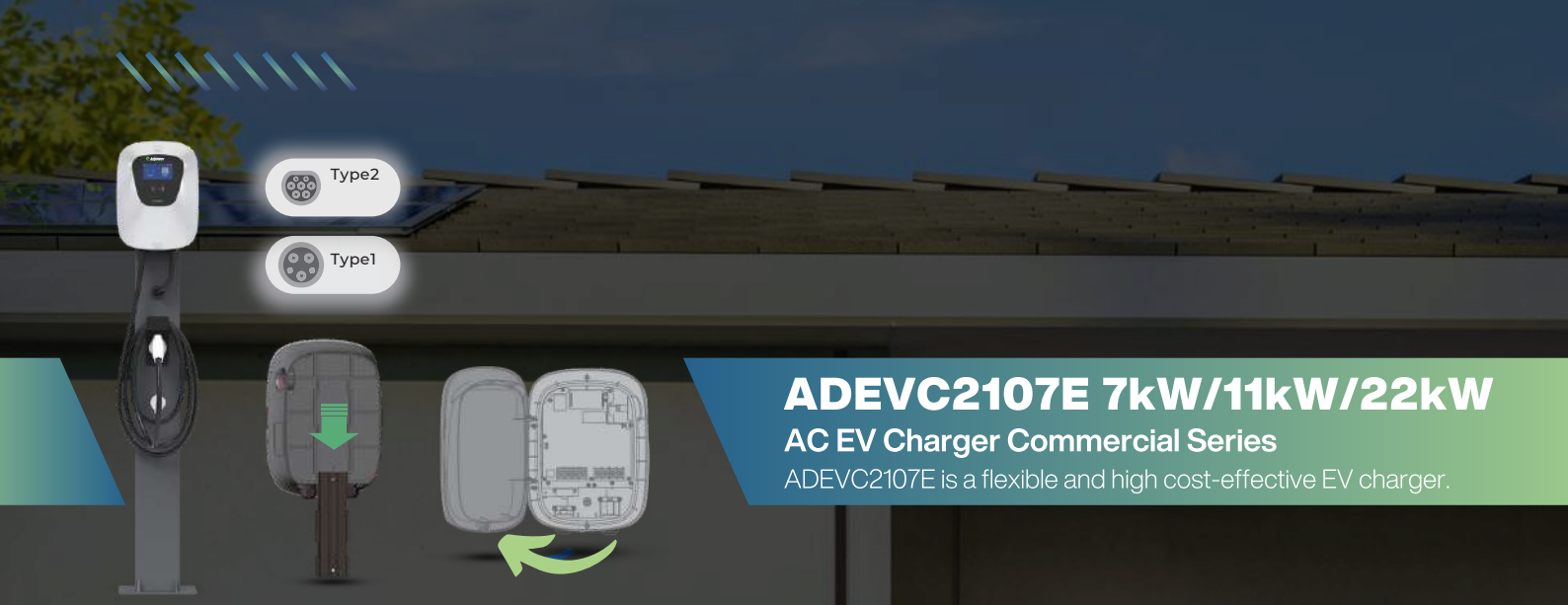
OPTIMIZE CHARGER AND ENERGY EFFICIENCY.

Enhance cost efficiency by maximizing charging service availability and improving energy efficiency.

- EV Charger Developer and Manufacturer
- Charging Station Management System
- Hardware/ Software Solutions Experts

Products Range

	Rated Power	Output Current	Output Voltage	Charger Connector
 PEVC2108E	7kW (11kW/22kW)	16A 32A	230V 400V	Type2 Type1
 PEVC2107E	7kW/11kW/ 22kW	16A 32A	230V 400V	Type2 Type1
 PEVC2201E	11kW/22kW (7kW)	16A 32A	230V 400V	Type2 Type1
 PEVC3401E	30kW 30kW	100A	1000V	CCS2 CCS1 CHAdeMO
 PEVC3106E	60kW 30kW	200A	1000V	CCS2 CCS1 CHAdeMO
 PEVC3107E	120kW/160kW 30kW 20kW (Optional)	200A 250A (Optional)	1000V	CCS2 CCS1 CHAdeMO
 PEVC3108E	180kW/240kW 30kW	200A 250A (Optional)	1000V	CCS2 CCS1 CHAdeMO
 PEVC3108E	360kW/480kW 30kW	200A 250A (Optional)	1000V	CCS2 CCS1 CHAdeMO



ADEVC2107E 7kW/11kW/22kW

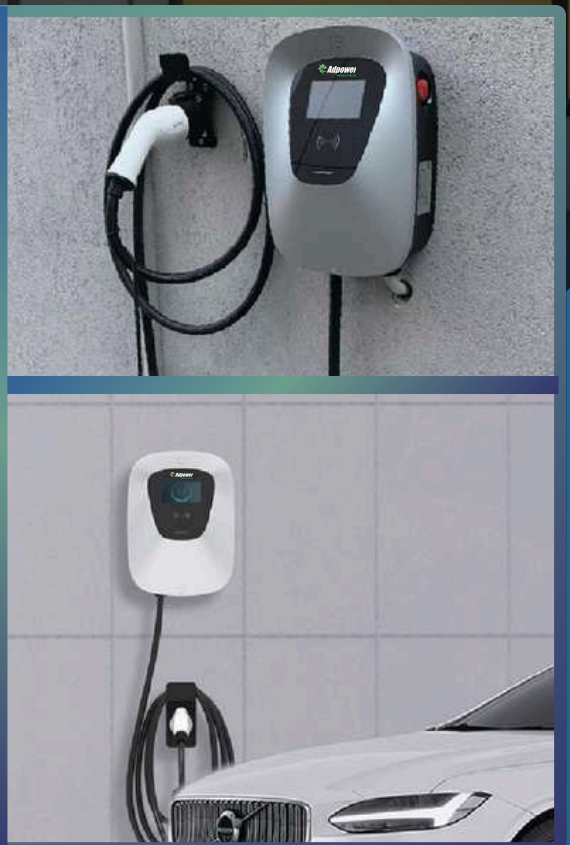
AC EV Charger Commercial Series

ADEVC2107E is a flexible and high cost-effective EV charger.

- Ideal choice for residential and commercial EV charging
- Stylish, ergonomic and customizable design
- IP55 rated for indoor/outdoor applications
- Optional RFID/App etc. for user identification and management
- Multiple protection to ensure users' safety
- Charger Connector: SAE J1772 (Type 1)/IEC 62196-2 (Type 2)
- Optional wall-mount and stand-mount to save installation space for both indoor & outdoor applications

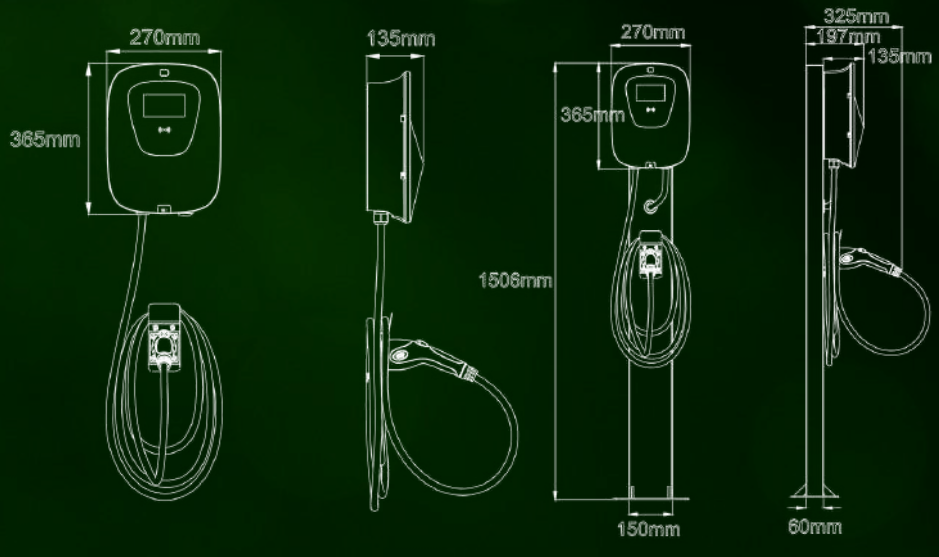
APPLICATIONS

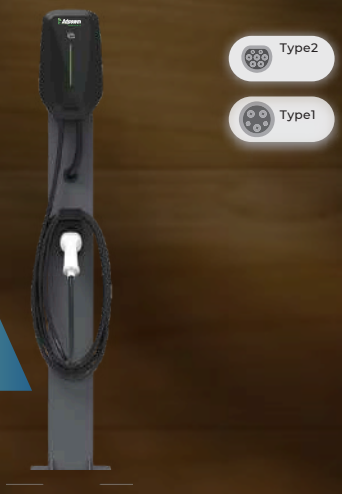
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV dealer workshops
- EV infrastructure operators and service providers



Power Specifications

Input Connection	Single-Phase: 1P+N+PE or 3-Phase: 3P+N+PE)
Input Voltage	230Vac ±10% or 400Vac±10%
Input Current	16A or 32A
Frequency	50Hz or 60Hz
Output Voltage	230Vac ±10% or 400Vac±10%
Output Current	16A or 32A
Rated Power	7.4kW / 11kW / 22kW
USER INTERFACE & CONTROL	
LCD Display	4.3" Color Touch Screen(Optional)
User Authentication	RFID(ISO/IEC 14443) / APP
LED Indicator	Green/Blue/Red
Charger Connector	IEC 62196-2 Type 2 (SAEJ1772 Type 1 Optional)
Energy Measuring	Embedded meter, with 1% accuracy
COMMUNICATION	
Backend	Bluetooth / Wi-Fi (4G / Ethernet Optional)
Backend Protocol	OCPP 1.6 J (OCPP2.x Coming soon)
PROTECTION	
Residual Current Protection Electrical Protection	Type A 30mA+DC 6mA Over/Under Voltage Protection,Over Current Protection, Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating Temperature Storage Temperature	-30°C - +50°C -40°C - +85°C
Operating Humidity Operating Altitude	Max. 93% RH, Non-Condensing ≤ 2000m
IP, IK Level	IP55, IK08
Cooling Method	Natural Cooling
MECHANICAL	
Product Dimension	270mm*135mm*365mm(W*D*H)
Package Dimension	330mm*274mm*500mm(W*D*H)
Weight	5.6kg(Net) / 7.2kg(Gross)
Charging Cable Length	5m (Customizable)
Mounting	Wall-mount and Stand-mount
CERTIFICATIONS	
Certificate	EN 61851-1 2019, IEC 62955 2018, IEC 61008-1 2010, IEC/EN 62196-1
Safety	TUV, CE





ADEVC2108E 7kW(11kW/22kW)

AC EV Charger Home Series

ADEVC2108E is a flexible and high cost-effective EV charger.

- Ideal choice for residential and commercial EV charging
- Stylish, ergonomic and customizable design
- IP55 rated for indoor/outdoor applications
- Optional RFID/App etc. for user identification and management
- Multiple protection to ensure users' safety
- Charger Connector: SAE J1772 (Type 1)/IEC 62196-2 (Type 2)
- Optional wall-mount and stand-mount to save installation space for both indoor & outdoor applications

APPLICATIONS

- Home charging
- Parking garage
- EV dealer workshops

Power Specifications

Input Connection	Single-Phase: 1P+N+PE (3-Phase Optional :
Input Voltage	3P+N+PE) 230Vac ±10% （400Vac±10% Optional）
Input Current	16A or 32A 50Hz or 60Hz
Frequency	230Vac ±10% （400Vac±10% Optional）
Output Voltage	16A or 32A
Output Current	7.4kW (11kW - 22kW Optional)
Rated Power	

USER INTERFACE & CONTROL

LCD Display User	-
Authentication LED	RFID(ISO/IEC 14443) / APP
Indicator Charger	Green/Blue/Red
Connector Energy	IEC 62196-2 Type 2 (SAEJ1772 Type 1 Optional)
Measuring	Embedded meter, with 1% accuracy

COMMUNICATION

Backend	Bluetooth

PROTECTION

Residual Current	Type A 30mA+DC 6mA
Protection Electrical	Over/Under Voltage Protection, Over Current Protection,
Protection	Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection

ENVIRONMENTAL

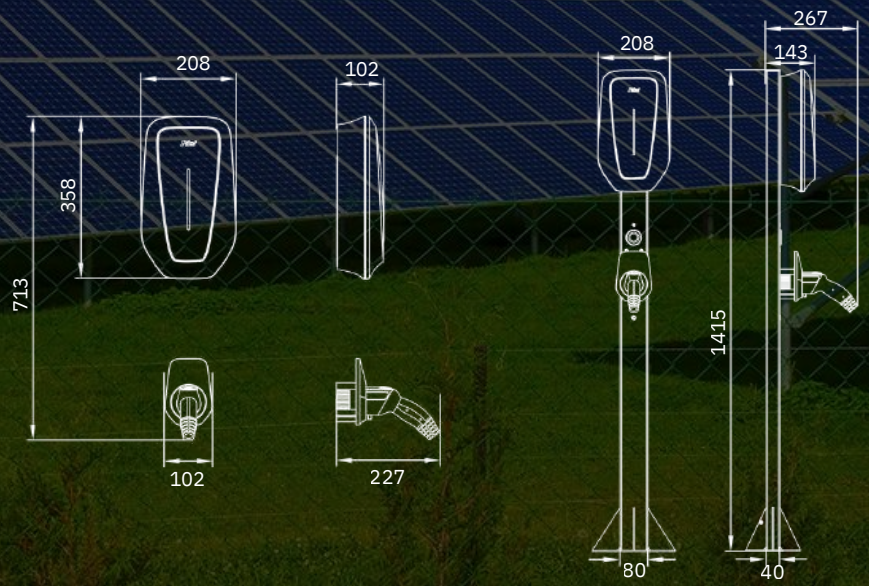
Operating	-30°C - +50°C
Temperature Storage	-40°C - +85°C
Temperature	Max. 93% RH, Non-Condensing
Operating Humidity	≤ 2000m
Operating Altitude	IP55, IK08
IP, IK Level	Natural Cooling
Cooling Method	

MECHANICAL

Product	208mm*358mm*102mm(W*D*H)
Dimension	270mm*420mm*220mm(W*D*H)
Package	3.3kg(Net) / 4kg(Gross)
Dimension Weight	5m (Customizable) Wall-mount
Charging Cable	and Stand-mount
Length Mounting	

CERTIFICATIONS

Certificate	EN 61851-1 2019, IEC 62955 2018, IEC 61008-1 2010, IEC/EN
Safety	62196-1 CE



ADEVC2201E 7kW/11kW/22kW

AC EV Charger Commercial Series

ADEVC2201E is a high-standard EV Charger which has passed TUV standard tests.

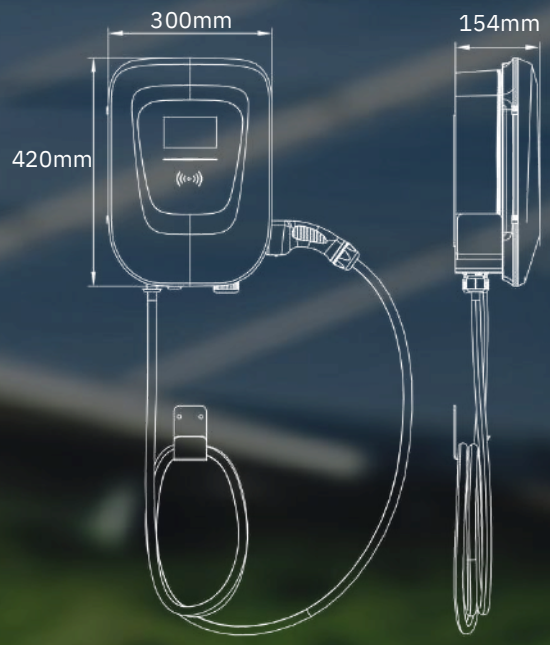
- **IPEVC2201E has got the TUV certification**
- **Ideal choice for residential and commercial EV charging**
- **MID meter makes measurement precise**
- **Stylish, ergonomic and customizable design**
- **IP55 rated for indoor/outdoor applications**
- **Multiple protection to ensure users' safety**
- **Optional RFID/App etc. for user identification and management**
- **Charger Connector: SAE J1772 (Type 1)/IEC 62196-2 (Type 2)**
- **Optional wall-mount and stand-mount to save installation space for both indoor & outdoor applications**

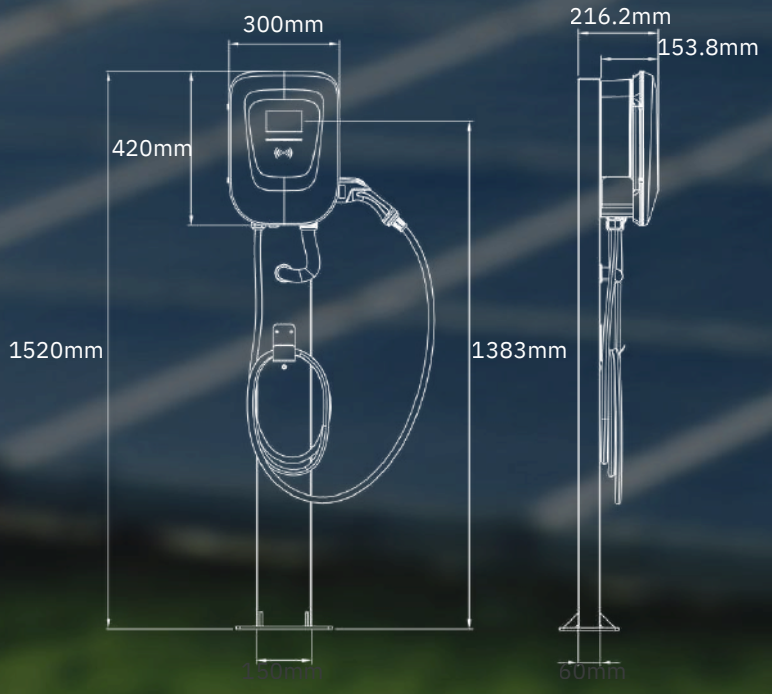
APPLICATIONS

- **Highway gas/service station**
- **Parking garage**
- **Commercial fleet operators**
- **EV dealer workshops**
- **EV infrastructure operators and service providers**

Power Specifications

Input Connection	-Phase : 3P+N+PE(Single-Phase Optional: 1P+N+PE)
Input Voltage	400Vac ±10% （230Vac±10% Optional ）
Input Current	16A or 32A
Frequency	50Hz or 60Hz
Output Voltage	400Vac ±10% （230Vac±10% Optional ）
Output Current	16A or 32A
Rated Power	11kW - 22kW (3.7kW - 7.4kW Optional)
USER INTERFACE & CONTROL	
LCD Display	4.3" Color Touch Screen(Optional)
User Authentication	RFID(ISO/IEC 14443) / APP
LED Indicator	Green/Blue/Red
Charger Connector	IEC 62196-2 Type 2 (SAEJ1772 Type 1 Optional)
Energy Measuring	MID Meter
COMMUNICATION	
Backend	Bluetooth / Wi-Fi / Ethernet (4G Optional)
Backend Protocol	OCPP 1.6 J (OCPP2.x Coming soon)
PROTECTION	
Residual Current Protection	Type A 30mA+DC 6mA
Electrical Protection	Over/Under Voltage Protection, Over Current Protection, Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating Temperature	-30°C - +50°C
Storage Temperature	-40°C - +85°C
Operating Humidity	Max. 93% RH, Non-Condensing
Operating Altitude	≤ 2000m
IP, IK Level	IP55, IK08
Cooling Method	Natural Cooling
MECHANICAL	
Product Dimension	270mm*135mm*365mm(W*D*H)
Package Dimension	330mm*274mm*500mm(W*D*H)
Weight	5.6kg(Net) / 7.2kg(Gross)
Charging Cable Length	5m (Customizable)
Mounting	
CERTIFICATIONS	
Certificate	EN 61851-1 2019, IEC 62955 2018, IEC 61008-1 2010, IEC/EN 62196-1 CE
Safety	





ADEVC3401E (30kW)

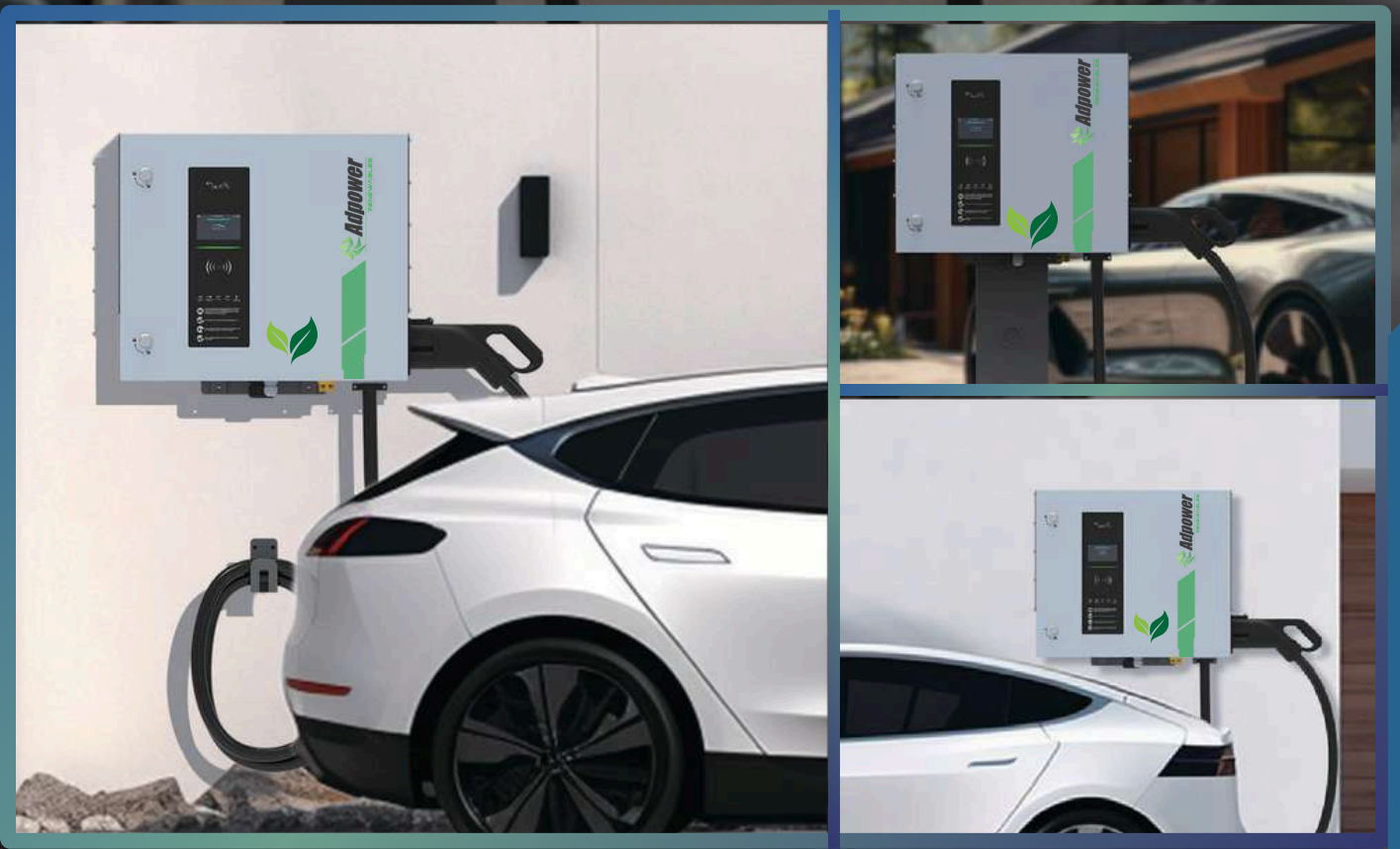
Fast DC EV Charger

ADEVC3401E is a space saving and high cost-effective DC Charger

- PEVC2201E has got the TUV certification
- Ideal choice for residential and commercial EV charging
- MID meter makes measurement precise
- Stylish, ergonomic and customizable design
- IP55 rated for indoor/outdoor applications
- Multiple protection to ensure users' safety
- Optional RFID/App etc. for user identification and management
- Charger Connector: SAE J1772 (Type 1)/IEC 62196-2 (Type 2)
- Optional wall-mount and stand-mount to save installation space for both indoor & outdoor applications

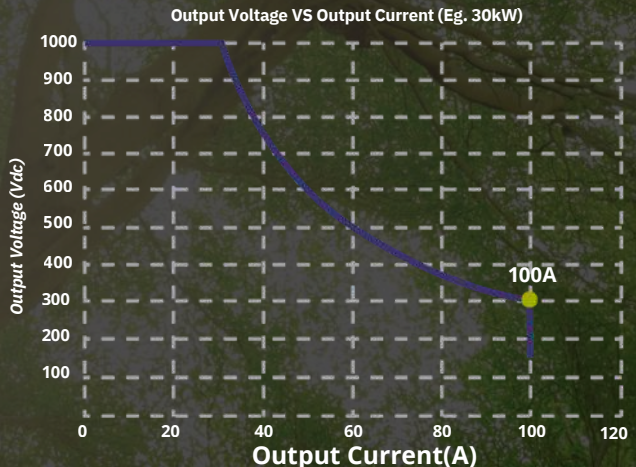
APPLICATIONS

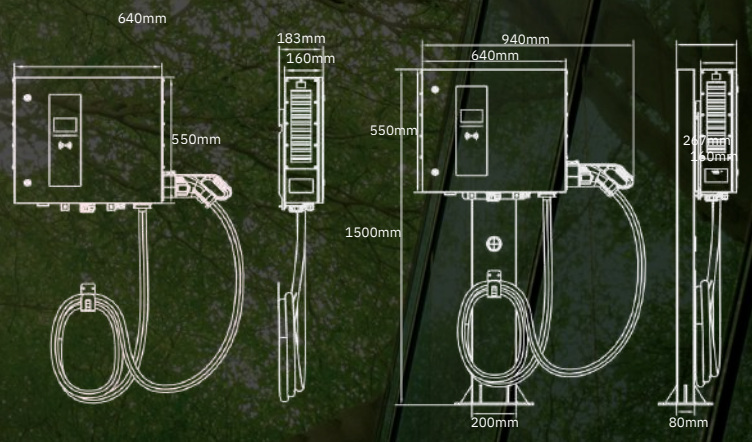
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV dealer workshops
- EV infrastructure operators and service providers



Power Specifications

Input Connection	3-Phase : 3P+N+PE
Input Voltage	400Vac ±10%
Frequency	50Hz or 60Hz
THDi	≤5%
Power Factor	≥0.98
Output Voltage	150Vdc - 1000Vdc
Max. Output Current	100A(125A CHAdeMO)
Rated Power	30kW
USER INTERFACE & CONTROL	
LCD Display	4.3" Color Touch Screen
User Authentication	RFID(ISO/IEC 14443)(APP/ Credit Card Customization)
LED Indicator	Green/Blue/Red
Charger Connector	CCS2 (CCS1 / CHAdeMO Optional)
Energy Measuring	DC meter, with 1% accuracy
COMMUNICATION	
Backend	Ethernet / Bluetooth / Wi-Fi (4G Optional) ISO
Charging Protocol	15118 , DIN 70121 OCPP 1.6 J (OCPP2.x Coming soon)
Backend Protocol	
PROTECTION	
Residual Current Device	Yes
Internal Fuse Electrical	Yes
Protection	Over/Under Voltage Protection, Over Current Protection, Short Circuit Protection, Over/Under Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating Temperature	-30°C - +50°C
Storage Temperature	-40°C - +75°C
Operating Humidity	Max. 93% RH, Non-Condensing
Operating Altitude	≤ 2000m
IP, IK Level	IP54, IK10
Cooling Method	Fan Cooling
MECHANICAL	
Product Dimension	300mm*154mm*420mm(W*D*H)
Package Dimension	395mm*285mm*500mm(W*D*H)
Weight	5.9kg(Net) / 7.7kg(Gross)
Charging Cable Length	5m (Customizable)
Mounting	Wall-mount and Stand-mount
CERTIFICATIONS	
Certificate	EN 61851-1 2019, IEC 62955 2018, IEC 61008-1 2010, IEC/EN 62196-1 CE
Safety	





ADEVC3106E (60kW)

Fast DC Charger

ADEVC3106E is high efficient but thinner than common EV DC charger

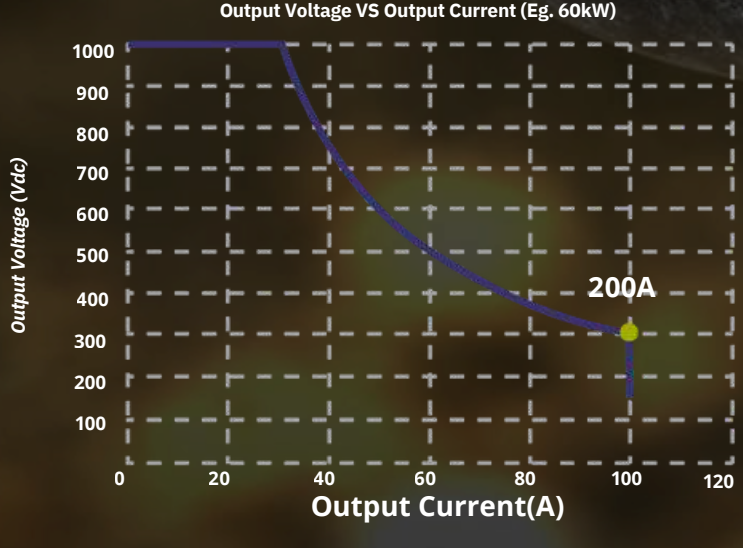
- Multi-standard: CCS1, CCS2, CHAdeMO
- Network or standalone operation
- Optional RFID/App etc. for user identification and management
- Support smart charging and load balancing
- Efficiency > 95%, Power Factor ≥ 0.98
- Multiple protection to ensure users' safety
- 7 inches color touch screen with user friendly interface
- IK10& IP54, for indoor and outdoor applications
- Customization available

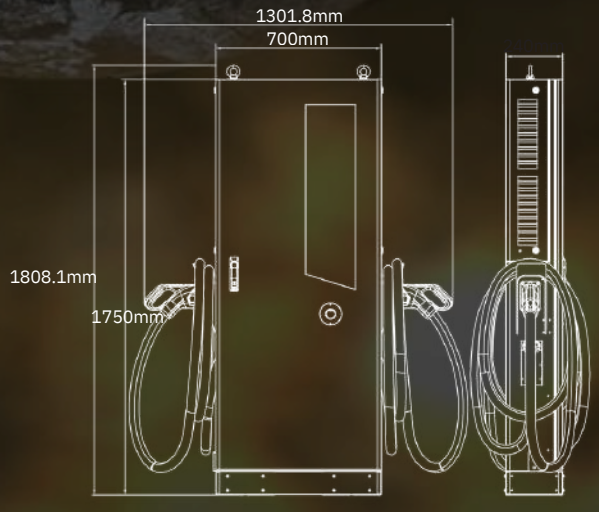
APPLICATIONS

- EV bus station
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV infrastructure operators and service providers
- EV dealer workshops

Power Specifications

Input Connection	3-Phase : 3P+N+PE
Input Voltage	400Vac ±10%
Frequency	50Hz or 60Hz
THDi	≤5%
Power Factor	≥0.98
Output Voltage	150Vdc - 1000Vdc
Max. Output Current	200A(250A Optional)
Rated Power	60kW - 160kW
USER INTERFACE & CONTROL	
LCD Display	7" Color Touch Screen(12" Customization)
User Authentication	RFID(ISO/IEC 14443)(APP/ Credit Card Customization)
LED Indicator	Green/Blue/Red
Charger Connector	CCS2 (CCS1 / CHAdeMO Optional)
Energy Measuring	1 or 2
	DC meter, with 1% accuracy
COMMUNICATION	
Backend	Ethernet (4G Optional)
Charging Protocol	ISO 15118 , DIN 70121
Backend Protocol	OCPP 1.6 J (OCPP2.x Coming soon)
PROTECTION	
Residual Current Device	Yes
Internal Fuse Electrical	Yes
Protection	Over/Under Voltage Protection, Over Current Protection, Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating Temperature	-30°C - +50°C
Storage Temperature	-40°C - +75°C
Operating Humidity	Max. 93% RH, Non-Condensing
Operating Altitude	≤ 2000m
IP, IK Level	IP54, IK10
Cooling Method	Fan Cooling
MECHANICAL	
Product Dimension	700mm*550mm*1800mm(W*D*H)
Package Dimension	950mm*720mm*1950mm(W*D*H)
Charging Cable Length	5m (Customizable)
Weight	363kg(Net) / 380kg(Gross)
Mounting	Free Standing
CERTIFICATIONS	
Certificate	IEC62196-1, IEC62196-3, IEC 61851-1, IEC61851-23, IEC61851-24 CE
Safety	





ADEVC3107E (60kW - 160kW)

PEVC3107E (60kW - 160kW)

ADEVC3107E is up to 160kW output with CE certifications.

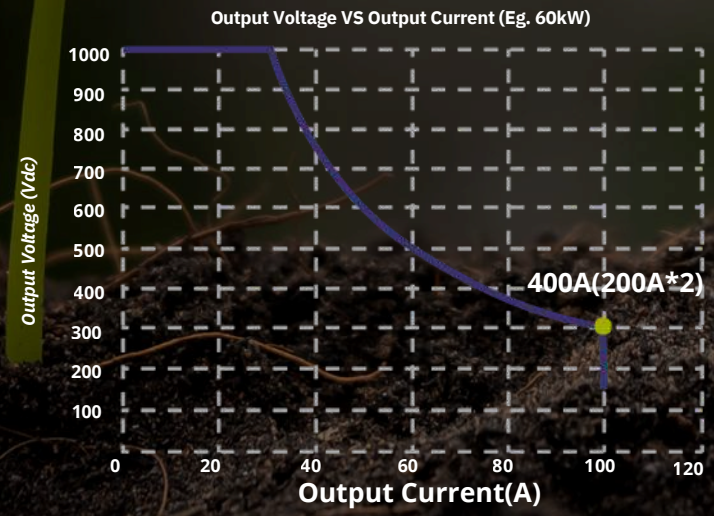
- Multi-standard: CCS1, CCS2, CHAdeMO
- Network or standalone operation
- Optional RFID/App etc. for user identification and management
- Support smart charging and load balancing
- Efficiency > 95%, Power Factor ≥ 0.98
- Multiple protection to ensure users' safety
- 7 inches color touch screen with user friendly interface
- IK10& IP54, for indoor and outdoor applications
- Customization available

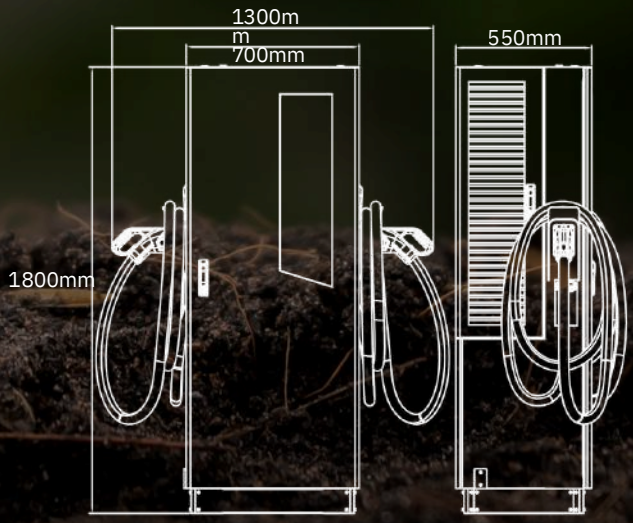
APPLICATIONS

- EV bus station
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV infrastructure operators and service providers
- EV dealer workshops

Power Specifications

Input Connection	3-Phase : 3P+N+PE
Input Voltage	400Vac ±10%
Frequency	50Hz or 60Hz
THDi	≤5%
Power Factor	≥0.98
Output Voltage	150Vdc - 1000Vdc
Max. Output Current	200A（250A Optional）
Rated Power	120kW - 240kW
USER INTERFACE & CONTROL	
LCD Display	7" Color Touch Screen(12" Customization)
User Authentication	RFID(ISO/IEC 14443)(APP/ Credit Card Customization)
LED Indicator	Green/Blue/Red
Charger Connector	CCS2 (CCS1 / CHAdeMO Optional)
Energy Measuring	1 or 2
COMMUNICATION	DC meter, with 1% accuracy
Backend	Ethernet (4G Optional)
Charging Protocol	ISO 15118 , DIN 70121
Backend Protocol	OCPP 1.6 J (OCPP2.x Coming soon)
PROTECTION	
Residual Current Device	Yes
Internal Fuse Electrical	Yes
Protection	Over/Under Voltage Protection, Over Current Protection, Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating Temperature	-30℃ - +50℃
Storage Temperature	-40℃ - +75℃
Operating Humidity	Max. 93% RH, Non-Condensing
Operating Altitude	≤ 2000m
IP, IK Level	IP54, IK10
Cooling Method	Fan Cooling
MECHANICAL	
Product Dimension	750mm*750mm*1900mm(W*D*H)
Package Dimension	1000mm*920mm*2050mm(W*D*H
Charging Cable Length	)
Weight	5m (Customizable)
Mounting	411kg(Net) / 428kg(Gross)
CERTIFICATIONS	Free Standing
Certificate	IEC62196-1, IEC62196-3, IEC 61851-1, IEC61851-23, IEC61851-24 TUV,
Safety	CE, CB





ADEVC3108E (120kW - 240kW)

Ultra Fast DC Charger

ADEVC3108E series is up to 240kW output with CE and TUV certifications.

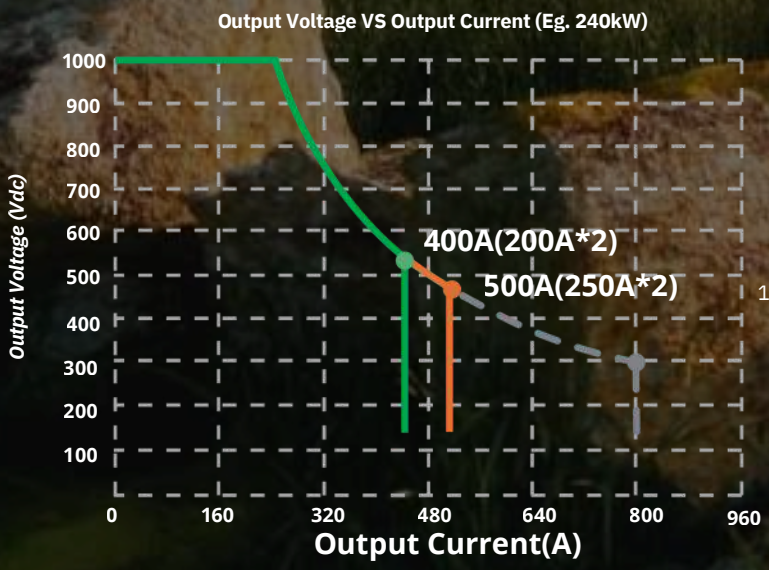
- Multi-standard: CCS1, CCS2, CHAdeMO
- Network or standalone operation
- Optional RFID/App etc. for user identification and management
- Support smart charging and load balancing
- Efficiency > 95%, Power Factor ≥ 0.98
- Multiple protection to ensure users' safety
- 7 inches color touchscreen with user friendly interface
- IK10& IP54, for indoor and outdoor applications
- Customization available

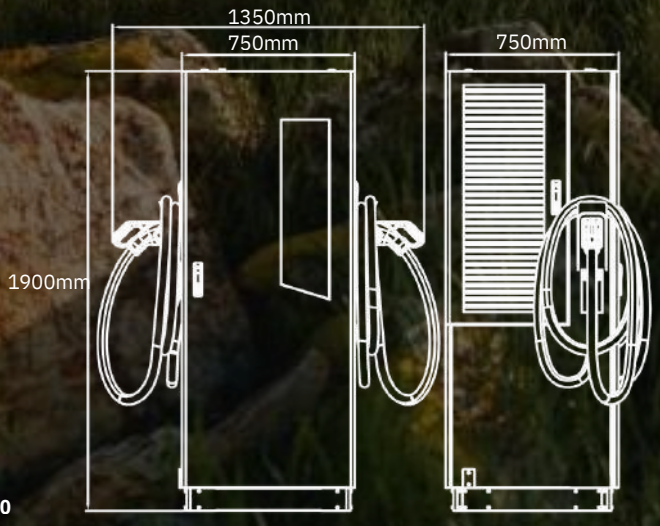
APPLICATIONS

- EV bus station
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV infrastructure operators and service providers
- EV dealer workshops

Power Specifications

Input Connection	3-Phase : 3P+N+PE
Input Voltage	400Vac ±10%
Frequency	50Hz or 60Hz
THDi	≤5%
Power Factor	≥0.98
Output Voltage	150Vdc - 1000Vdc
Max. Output Current	200A（250A Optional）
Rated Power	120kW - 240kW
USER INTERFACE & CONTROL	
LCD Display	7" Color Touch Screen(12" Customization)
User Authentication	RFID(ISO/IEC 14443)(APP/ Credit Card Customization)
LED Indicator	Green/Blue/Red
Charger Connector	CCS2 (CCS1 / CHAdeMO Optional)
Energy Measuring	1 or 2 DC meter, with 1% accuracy
COMMUNICATION	
Backend	Ethernet (4G Optional)
Charging Protocol	ISO 15118 , DIN 70121
Backend Protocol	OCPP 1.6 J (OCPP2.x Coming soon)
PROTECTION	
Residual Current Device	Yes
Internal Fuse Electrical	Yes
Protection	Over/Under Voltage Protection, Over Current Protection, Short Circuit Protection, Over Temperature Protection, Lightning Protection, Ground Fault, Surge Protection
ENVIRONMENTAL	
Operating	-30℃ - +50℃
Temperature Storage	-40℃ - +75℃
Temperature	Max. 93% RH, Non-Condensing
Operating Humidity	≤ 2000m
Operating Altitude	IP54, IK10
IP, IK Level	Fan Cooling
Cooling Method	
MECHANICAL	
Product Dimension	750mm*750mm*1900mm(
Package Dimension	W*D*H)
Charging Cable	1000mm*920mm*2050mm(
Length	W*D*H)
Weight	5m (Customizable)
Mounting	411kg(Net) / 428kg(Gross)
	Free Standing
CERTIFICATIONS	
Certificate	IEC62196-1, IEC62196-3, IEC 61851-1, IEC61851-23, IEC61851-
Safety	24 TUV, CE, CB





ADEVC3302E (240kW/360kW/480kW)

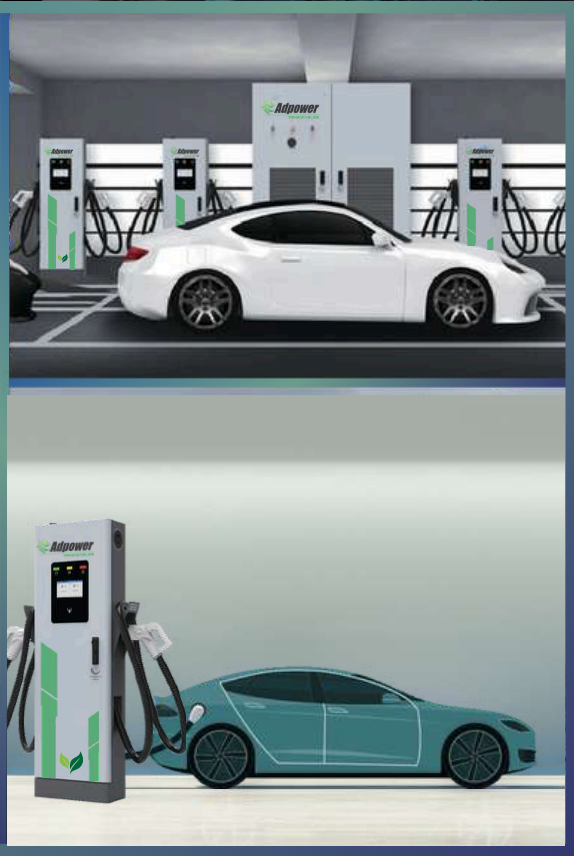
Dynamic Split Charging System

ADEVC3302E (240kW/360kW/480kW)

- Supports full flexible dynamic allocation, maximizing the efficiency of power module utilization.
- Supports Boost Mode, enabling higher charging efficiency.
- Supports liquid-cooled charging gun, allowing for faster charging speeds.
- Keeps noise away from vehicle users

APPLICATIONS

- EV bus station
- Highway gas/service station
- Parking garage
- Commercial fleet operators
- EV infrastructure operators and service providers
- EV dealer workshops



General Electric Specifications

DC charging plug options Voltage	CCS2 (CCS1 / CHAdeMO Optional) Max. 1000 VDC
Standby power	25 W

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Storage	-30°C - +50°C
Temperature Operating Humidity	-40°C - +75°C
Operating Altitude	5%-95% RH, Non-Condensing ≤ 2000m
IP, IK Level	IP54, IK10
Lightning protection	Level C

CONNECTIONS

Backend	Ethernet (4G Optional)
Charging Protoco OCPP	ISO 15118 , DIN 70121
Electrical protections	OCPP 1.6 J (OCPP2.x Coming soon)
	Charging cable temperature monitoring, Earth leakage monitoring

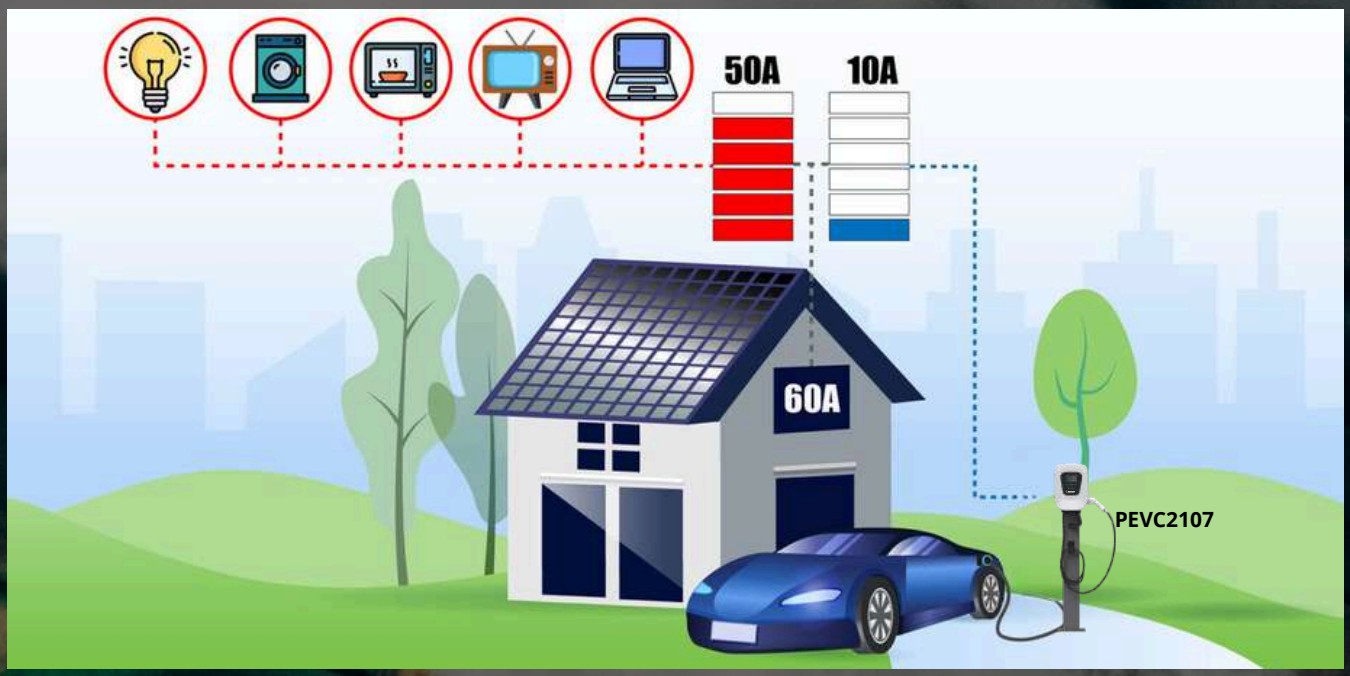
COMPLIANCE TO STANDARDS

Electrical safety EMC, Harmonics	IEC 61851-1, IEC 61851-23 IEC 61851-21-2

CHARGING OUTPUTS	CONNECT OR LIQUID OR AIR	CHARGING CURRENT	OUTPUT MODE	CHARGING POWER
4*CCS2	Air Cool	4*250A	Continous Mode	480kW Max
8*CCS2	Air Cool	8*250A	Continous Mode	480kW Max
4*CCS2	Air Cool	4*350A	Boost Mode 10 min	480kW Max
8*CCS2	Air Cool	8*350A	Boost Mode 10 min	480kW Max
4*CCS2	Liquid Cool	4*500A	Continous Mode	480kW Max
8*CCS2	Liquid Cool	8*500A	Continous Mode	480kW Max

WHAT IS DYNAMIC LOAD BALANCING FOR EV CHARGING?

Electric vehicles can consume half of your home's electrical capacity or at least a considerable portion of it. Simply adding a charger can easily cause overload for familles that do not have a large amount of unused power capacity left. Increasing the power capacity for your home is expensive. Using a smart Dynamic Load Balancing system can help avoid that cost and still charge your electric vehicle at the maximum possible speed. Dynamic Load Balancing (DLB) is a smart solution that allows you to safely balance the power consumption between your electric vehicle and your other electrical home appliances. The remaining available energy will be used to charge your car in the most efficient way.



SUPER POWER SOLUTION

Cluster DC charging heap solution integrates power distribution, power transformation and charging cabinet, with an external charging terminal. When charging electric vehicles, the system can flexibly and dynamically allocate output power according to different models and quantities.

Adpower
RENEWABLES

Ultra FAST

Portability

Sustainable

Emergency
Roadside Assistance

Future of Charging

ULTR FAST CHARGING

MOBILE EV CHARGING

SOLUTION FOR ROAD ASSISTENCE

+971-4-8833456

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XA04, JEBEL ALIFREEZONE,

Integrated Hybrid Super-cap Based Energy Storage EV Charging System for Road Assistance & Char

Introduction:

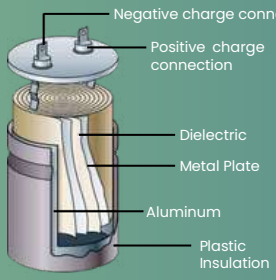
Mobile EV charging, featuring hybrid supercapacitor-based energy storage, introduces an innovative alternative to the traditional fixed charging infrastructure. Instead of requiring electric vehicle (EV) drivers to search for charging stations, mobile chargers equipped with hybrid supercapacitors bring the charging service directly to the vehicle. This approach enables charging operators to swiftly establish infrastructure or assess optimal locations, with the added advantage of easy relocation at no extra cost.

The utilization of hybrid supercapacitor-based energy storage for charging not only enhances the flexibility of the system but also contributes to a significant reduction carbon footprints, cost and complexity of the charging infrastructure due to their high cycle life and durability. This is particularly beneficial in areas with limited parking spaces. Moreover, the integration of supercapacitors provides a versatile charging solution for large-scale events where a temporary charging infrastructure is required, showcasing the adaptability of this technology in the absence of fixed charging points.

Technology Insights

What are Supercapacitors?

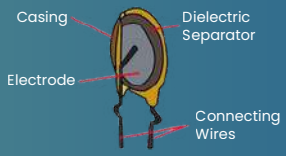
Cylinder

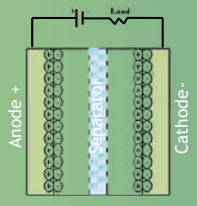


TYPICALCAPACITOR
(FOUND IN MOST ELECTRONICS)

- Anode and Cathode of same material
- Aluminum foils typical
- Paper or plastic Dielectric Separator
- Uses Non-Faradic Capacitance "Electrostatic"
  Anode and Cathode are separated
  internally No parasitic reactance or thermal runaway
  Electrostatic

Ceramic





ELECTRIC DOUBLE LAYER SUPERCAPACITOR
(EDLC)

- AnodeandCathode ofsame material
  Graphene and Metal
- Uses Non-Faradic Capacitance "Electrostatic"
  Anode and Cathode are separated internally
  No parasitic reactance or thermal runaway
  Electrostatic

- 94% Graphene with 6% Lithium doping
  Lithium is used in trace amounts in diffuse layer
  Graphene adds surface area to the Anode and Cathode to increase stored charge
  Lithium adds weak covalent bonded electrons for improved energy charge & discharge

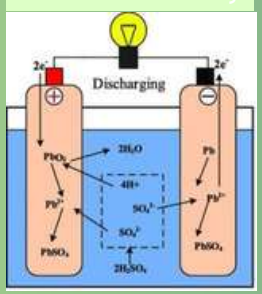
During the charging process, positive ions migrate internally while negative electrons migrate externally to 2the Anode (-).

What is a Hybrid Supercapacitor ?

COMBINING THE OPTIMAL ATTRIBUTES OF BATTERIES AND CAPACITORS.

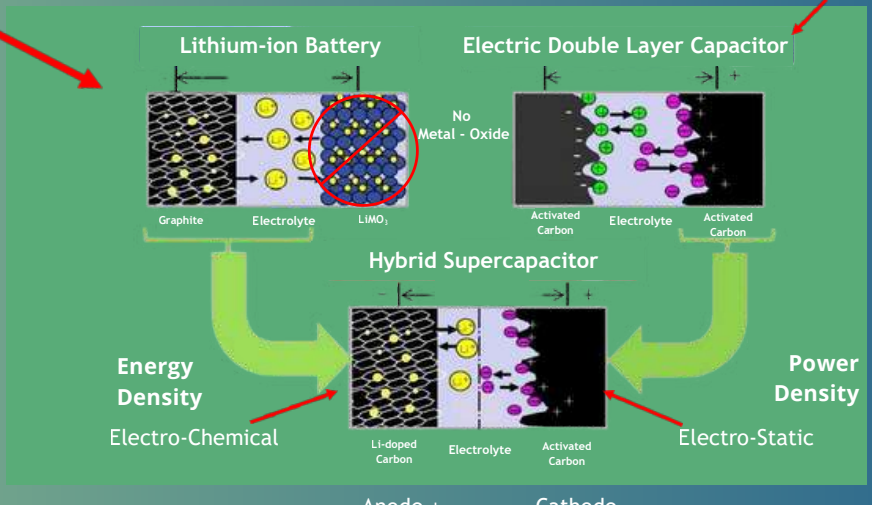
Electro-Chemical

Lead Acid Battery



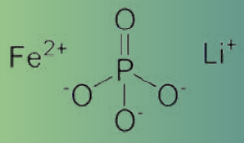
No Thermal Runaway

Electro-Static



Elimination of Thermal Runaway

LFP04 Metal Oxide

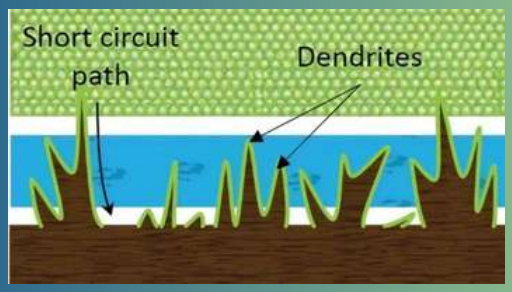


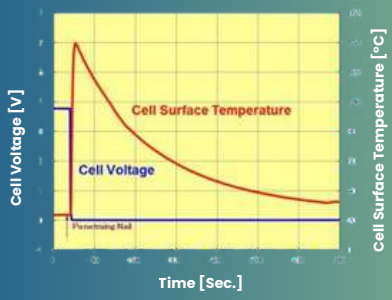
Lithium Ion Battery

Dendrites growin stressed battery cellAnode (+)
Dendrite shortcircuit or damage
Rapid temp rise proportional to current release
Release of oxygen in Cathode Metal Oxide
Self-sustaining fire

Hybrid Supercapacitor

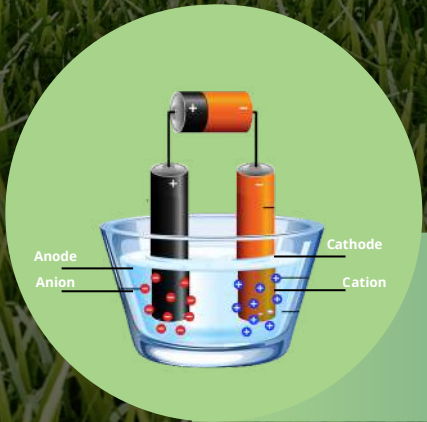
Eliminates the Metal Oxide from the chemistry
Cannot achieve harmful temperatures
Does not provide internal oxygen catalyst
NoThermal Runaway



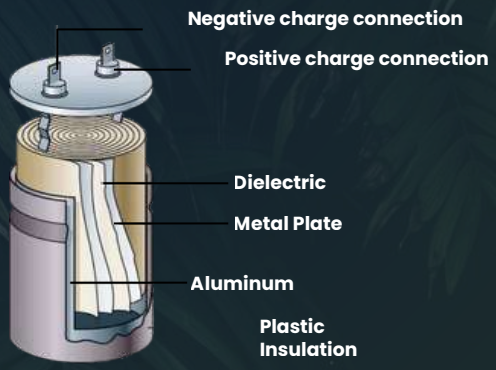


Anode & Cathode Polarity

Anode	Cathode
In anode oxidation takes place.	In reduction reaction take place.
The charge of anode is positive in an electrolytic cell.	The charge of cathode is negative in an electrolytic cell.
Electricity moves into the anode.	Electricity gives out from cathode.
The anode is usually the positive side of a cell.	The cathode is usually the negative side of a cell.
In the galvanic cell charge of anode is negative.	In the galvanic cell charge of cathode is negative.



Electrolytic vs Galvanic Reaction



- **Supercaps can be both galvanic and electrolytic cells**
- **When discharging cell is galvanic**
- **Anode is negative**
- **Cathode is positive**
- **When charging cell is electrolytic**
- **Anode is positive**
- **Cathode is negative**

Any rechargeable battery acts as a galvanic cell when discharging and an electrolytic cell when being charged.

Electrodes & Charge

The anode of an electrolytic cell is positive (cathode is negative) since the anode attracts anions from the solution. However, the anode of a galvanic cell is negatively charged, since the spontaneous oxidation at the anode is the source of the cell's electrons or negative charge. The cathode of a galvanic cell is its positive terminal. In both galvanic and electrolytic cells, oxidation takes place at the anode and electrons flow from the anode to the cathode.

Batteries can be both galvanic and electrolytic cells, depending on whether they are being charged or discharging 1 2 3. When supplying current, the battery functions as a galvanic cell, which contains all the reactants needed to produce electricity ". When being charged, the half-reactions are inverted and voltage has to be supplied, thus, acting as an electrolytic cell 2 A rechargeable battery acts as a galvanic cell when discharging and an electrolytic cell when being charged 3

Hybrid Supercapacitor vs. Chemical Battery

HIGHER CYCLE LIFE, GREATER EFFICIENCY, BETTER PERFORMANCE, GREEN

Supercapacitor / Chemical Battery Comparison		
CHARACTERISTIC	**HYBRID SUPERCAPACITORS**	**CHEMICAL BATTERIES**
Cycle Life	20,000– 50,000 Cycles	1,500– 5,000 Cycles
Calendar Life	25 Years	4-10 years
DC toDC efficiency (@25°C)1	98%	70% to 95%
Useable Capacity (% of rated capacity) °radation over time	100% (degrade 15% over life)	50% to 90% (degrade 30% over life)
Temperature Range	-400C to +700C	-200C to +550C
Max. Safe Rate of Charge/Discharge	0.1C– 5.0 C-Rate	0.1C to 1.0 C-Rate
Toxicity	Non-Toxic / Non-Hazardous	Highly Toxic / Hazardous
Volatility	Non-Volatile	Highly Volatile
Self-Discharge Rate in Storage	2% /Month	5% /Month
Daily cycling Life Expectancy	25 to 40 Years	3 Years to 8 Years

Cycles

Calendar life

DC to DC Efficiency

Green

Life Cycles vs Ambient Temperature

Cycle Life @ Ambient Temperature °C

Supercapacitor / Chemical Battery Comparison							
% DoD	25	30	35	40	45	50	55
100	25,682	18,957	16,895	15,682	12,650	10,125	8,652
90	36,845	28,956	25,652	23,652	21,565	18,652	11,250
80	85.685	68,954	55,862	52,652	48,652	38.562	31,562
70	95,472	85,625	69,855	61,253	56.825	52,460	45,862
60	98.568	95,246	86,569	80.652	75,869	68,565	62,582
50	150,188	125,623	116,505	106.523	95,862	86,598	72,586
40	258,810	225,601	205,698	186,523	168,952	125,620	105,620
30	496,505	456,825	425,685	386,521	326,521	268,532	186,523
20	1,000,500	856,925	786,952	756,231	725.622	658,216	558,641
10	1,600,292	1,280,215	1,026,505	1,001,650	986.588	886,525	768,523

Two 80% Cycle Daily @ 40 °C = 72 Years

SUPER-CAP ENERGY STORAGE

CHARACTERISTIC COMPARISON BETWEEN CHEMICAL BATTERIES AND SUPER-CAPS

Attributes	Li-ion	Lead Acid	Super-Cap
Warranty	Limited Warranty Up to 10 years	Up to 3 years	Up to 10Yrs - No EOL degradation
DC Roundtrip Efficiency	90-80%	70%	Up to 99.1%
Depth of Discharge (DOD)	70-80%	50-60%	100%
Operating Temperature	<50°C	<27°C	<85°C
Charge Current	Limited	Limited	1C – 2C (Up to 10C)

Adpower implements an innovative supercapacitor-based energy storage solution, utilizing patented power electronics control technology. This groundbreaking approach not only establishes Adpower as an environmentally friendly alternative to traditional chemical batteries but also provides significantly enhanced performance characteristics.

Our energy storage system harnesses the power of electrostatic energy, while conventional batteries rely on electrochemical processes to store energy.

The supercapacitor energy storage solution is entirely free from chemicals, resulting in zero carbon footprints. It boasts the following essential characteristics:

- 100% Depth of Discharge
- Ambient Op. Temperature -30 to 850C
- 1M Cycles (at Cell Level)
- Super fast charging rates
- No Risk of Thermal Runaway
- No Energy produced during Cycling
- No Cooling required

Adpower's Super-cap stores Energy Electrostatically

Conventional batteries store Energy Electro Chemically

Mobile EV Charging Station -Product Insights

Adpower has developed Fast EV DC Charging Station by using the unique technology of Hybrid Supercapacitors for Emergency EV Road Assistance. The Charging Station can charge an electric vehicle in a short time, to improve efficiency and response time the solution itself can be charged in a very short time on a very high charging rates charging rates.

Product Type:

Road Assistance EV Charging Station« 65kWh / 60kW single Gun Output

- Energy Storage: 65kwh Hybrid Supercapacitor
- Output 60kW – Single Gun Output (DC)
- Screen Display: 7 Inch display
- Charging Connector Option: CCS1 / CCS2 / CHAdeMO / GB/T / Tesla
- Size： 925*1339*1050mm Approx.
- Weight： 800kg Approx.
- Recharge mode: AC 380V/ DC charging Socket
- Application scenarios: Mobile charging Road Assistance
- Charging Time: 20Min – 30kWh
- Payment System: VPOS/VISA/ MASTER/OCPP1.6J

Mobile EV Charging Station -Product Insights

Product Type: Road Assistance EV Charging for Commercial Vehicles & Commercial Charging 160kWh / 120kW Single Gun Output

- Energy Storage: 160kwh Hybrid Supercapacitor
- Output 120kW – Single Gun Output (DC)
- Screen Display: 7 Inch display
- Charging Connector Option: CCS1 / CCS2 / CHA de Mo / GB/T / Tesla • Size ： 925*1339*1050mm Approx.
- Weight： 800kg Approx.
- Recharge mode: AC 380V/ DC charging Socket
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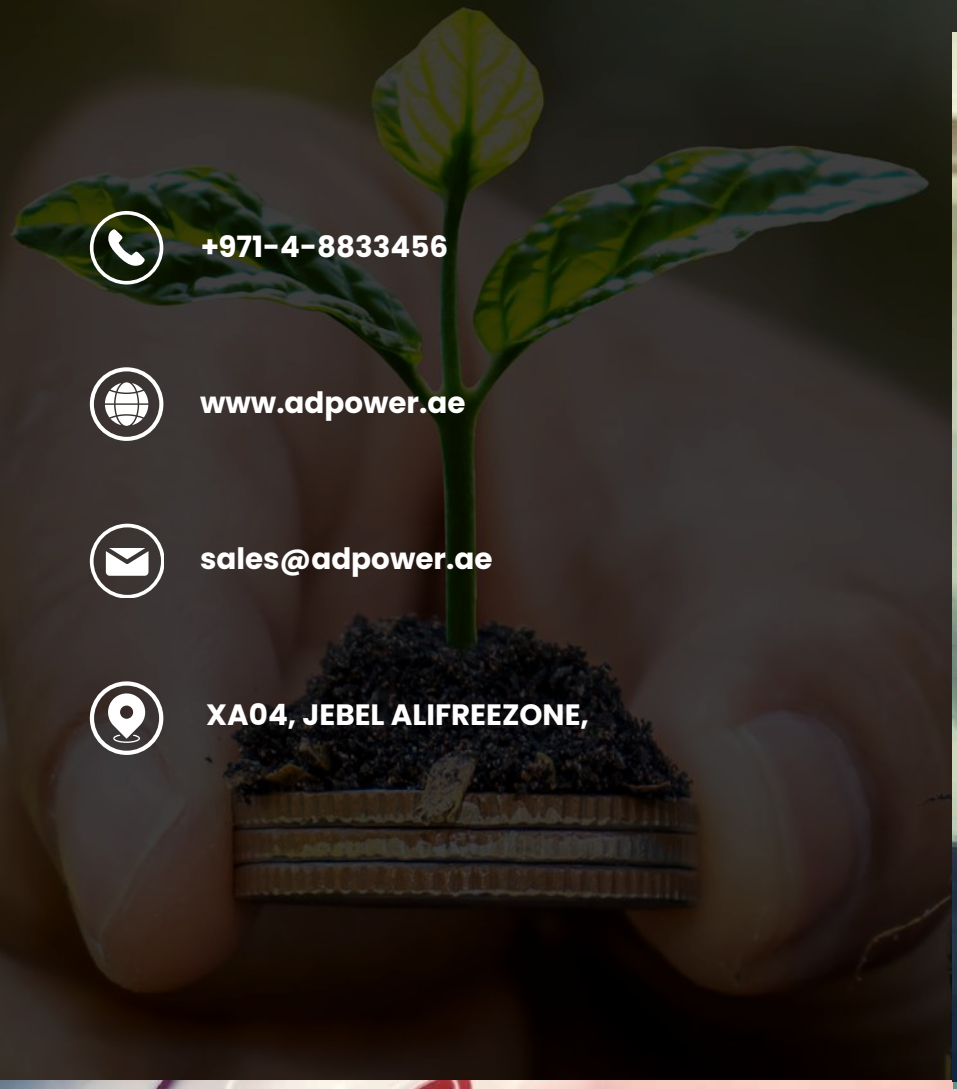
Adpower
RENEWABLES



+971-4-8833456

www.adpower.ae

sales@adpower.ae

XA04, JEBEL ALIFREEZONE,