



# Design And Solution Guideline

—  
For E-mobility



# HALLO!

Greatenergy wurde von einer Gruppe visionärer und innovativer Fachleute gegründet. Wir sind voll und ganz darauf bedacht, die höchste Qualität und Integrität der EV-Komponenten zu gewährleisten. Und mit einem äußerst vielseitigen Portfolio, einschließlich Kabelmontage, Ladestecker, Steckverbinder, EV-Ladegerät, etc. Unsere unerschütterliche Leidenschaft und Expertise, die intrinsischen Wert für unsere Kunden schaffen, haben uns seit mehr als 10 Jahren zu Erfolg geführt, und wir bleiben stark.

Wir halten uns strikt an Qualitätsstandards, von der Beschaffung der Rohmaterialien über den Produktionsprozess bis hin zur





# ABOUT US

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Greatenergy was founded by a group of visionary and innovative professionals. We are fully committed to ensure the highest quality and integrity of EV components. And with a highly versatile portfolio, including cable assembly, charger plug, connector, ev charger, etc. Our unwavering passion and expertise, adding intrinsic value to our clientele, have driven us for more than 10 years of success, and going strong.

We strictly adhere to quality standards, from raw material procurement, production

process, and final inspection. While obtained various serious tests for the quality management system certification, to ensure our products are in compliance to international standards and customer requirements.

We highly valued the bond between our clients, as we uphold the principal for streamline communication and honest operation, to the fundamental of our business philosophy and customer service. Building success to our customers, equivalent success to Greatenergy.

# Business Service

Part of the Greatenergy portfolio, our EV components are modular in order to meet the increasing prevalence of EVs, you can customize the product to your specific requirements. With various cable exits directions available, these connectors adapt to your design, not the other way around.



## Idea Generation and Conceptualization

We help find out the best approach and solutions for our customer and can then be further developed into various formats.



## Product Design and Development

After the research and concept summarized, we directly design the best solution in case of the function and the appearance.



## Design Validation and Testing

In the session, we prove that the design works properly for the end user as intended in real life scenario.



## Prototyping and Pilot Production

Prototypes being major part of the design process, in the stage we have better understanding the flaws in real life and by chance to improve them.



## Tooling and Equipment Setup

Creating the molds required for manufacturing is the first step. we are experienced, from low-volume series without tooling to mass production requiring complex molds.



## Manufacturing and Assembly

With our trusted partner and manufactures, we can guide the mold making process, setup assembly procedures and draft your quality control documentation.



AEROSPACE  
AS 9100

# OUR PROMISE

At Greatenergy, quality isn't just a buzzword; it's ingrained in every fiber of the company's culture. From sourcing the finest raw materials to employing skilled artisans, every step of the production process is meticulously crafted to ensure that only the best reaches the hands of their customers.

In the heart of their manufacturing facility, rows of engineers and technicians work tirelessly, testing and retesting each product to meet the highest standards. No detail is too small to escape their scrutiny, for they understand that it's the little things that make all the difference.



MEDICAL  
ISO 13485

AUTOMOTIVE  
IATF 16949



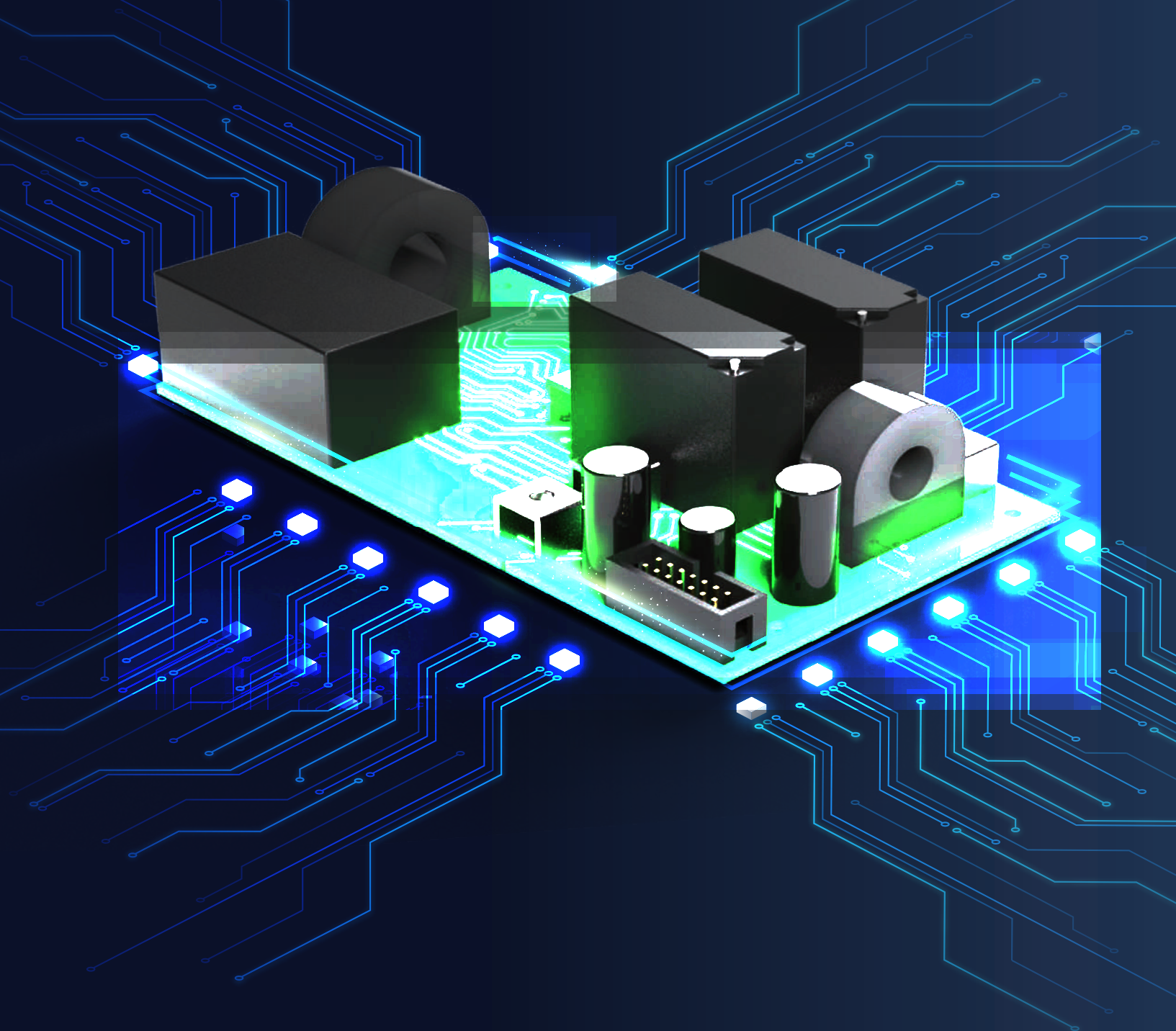
MANAGEMENT  
ISO 9001

ENVIRONMENT  
ISO 14001

But Greatenergy's commitment to quality extends beyond the confines of its factory walls. The company's dedication to sustainability and environmental responsibility sets it apart in an industry often marred by shortcuts and disregard for the planet. From using renewable energy sources to reducing waste, Greatenergy strives to leave a positive impact on the world for generations to come.

Customers who choose Greatenergy products aren't just buying a product; they're investing in a promise. A promise of reliability, durability, and uncompromising quality. Whether it's lighting up homes, offices, or entire communities, Greatenergy's products shine brightly, illuminating the path to a brighter future.

In a world where shortcuts abound and mediocrity is often accepted, Greatenergy stands tall as a beacon of excellence. For them, quality isn't just a goal to achieve; it's a standard to uphold, a legacy to be proud of. And as long as there are lives to be illuminated, Greatenergy will continue to shine, one meticulously crafted product at a time.



Greatenergy's customized services can provide ideal solutions. Through our design, core technical ability, strong RD team, flexible manufacturing, quality control, and global service, to provide customers and partners with high-quality products.

We have deep plowed in various vertical markets and applications for over 10 years, including cable assemblies, connectors, and other E-mobility components, etc., and have powerful thermal design know-how and patent expansion module technology, which can fulfill diverse customization demands.

You can work with our RD team to plan and develop new products or re-develop product specifications to improve performance or achieve cost savings.



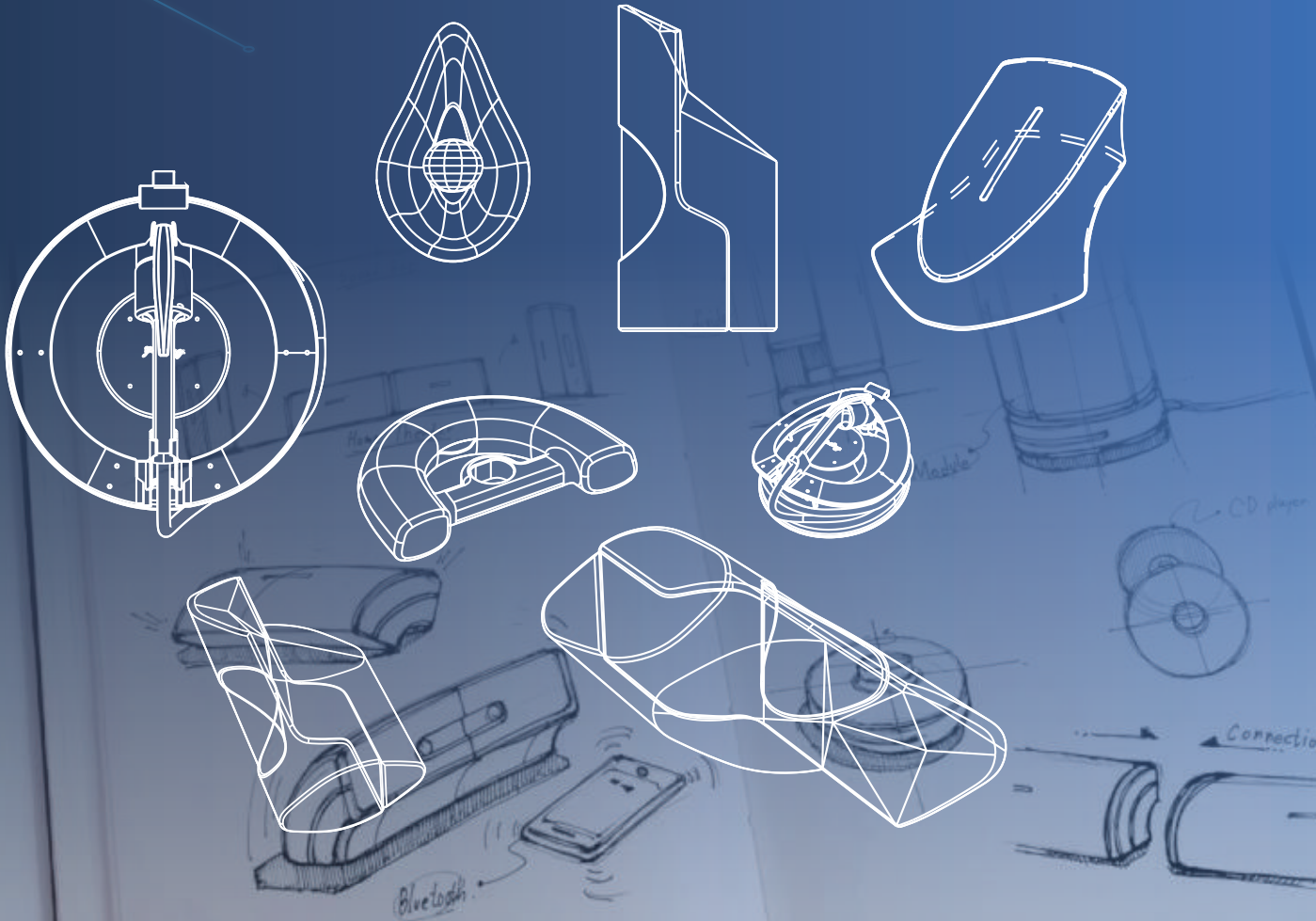
# DESIGN SOLUTION

We can help you design and build DC chargers, AC chargers, charger plug, and wire assemblies, etc. The team is built with creative RD and designers, the customization to fit your business needs. Each person is selected for subject matter expertise and supposed to be a team player.

By understanding the users' needs, the design team allows to develop tailor made solutions by involving the human perspective in all steps

of the problem-solving process in case of the appearance and material selection.

Greatenergy develops solutions for integrating components, mounting, packaging, and prototyping, as well as specialized tooling for assembly or testing. We take pride in being easy to work with, delivering high quality solutions, and building valuable relationships with our clients.



# SOLAR ENERGY

## Storage System

Solar power is available anywhere in the world in enormous quantities. With more and more homes coming with solar PV panels, we have completed the conversion to charging system in a relatively easy way.

### STORAGE BANK



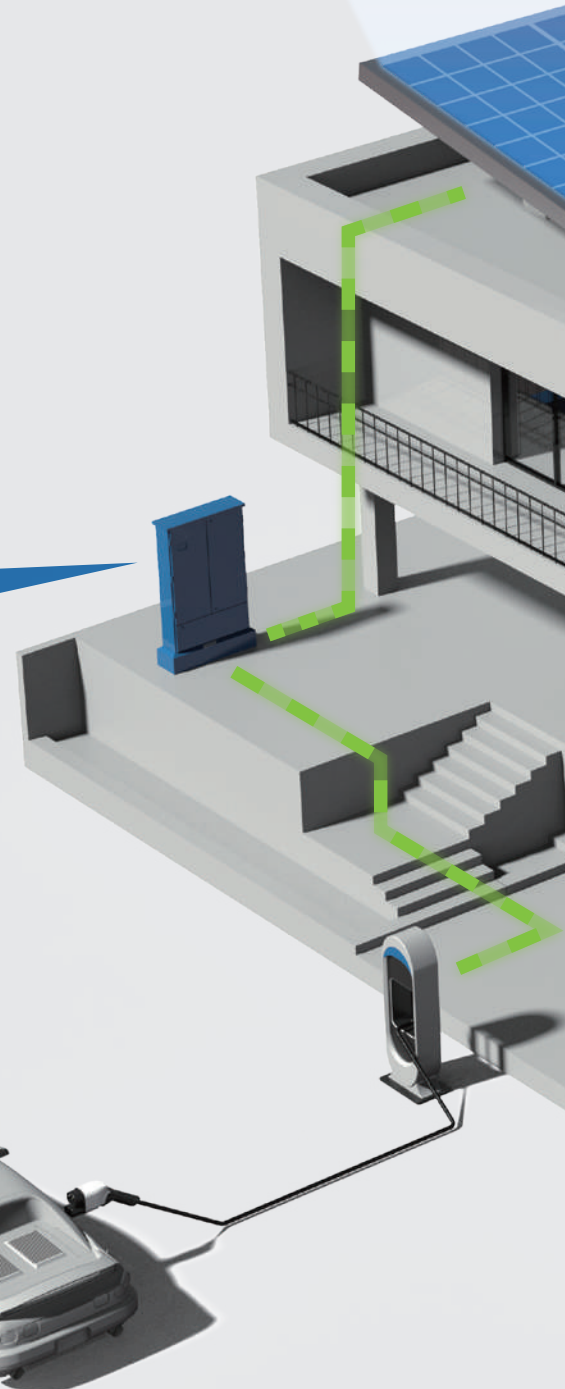
#### ES Connector

ES connectors are mainly used to connect battery modules of energy storage systems in series, making it safer for workers to install energy storage systems (ESS).

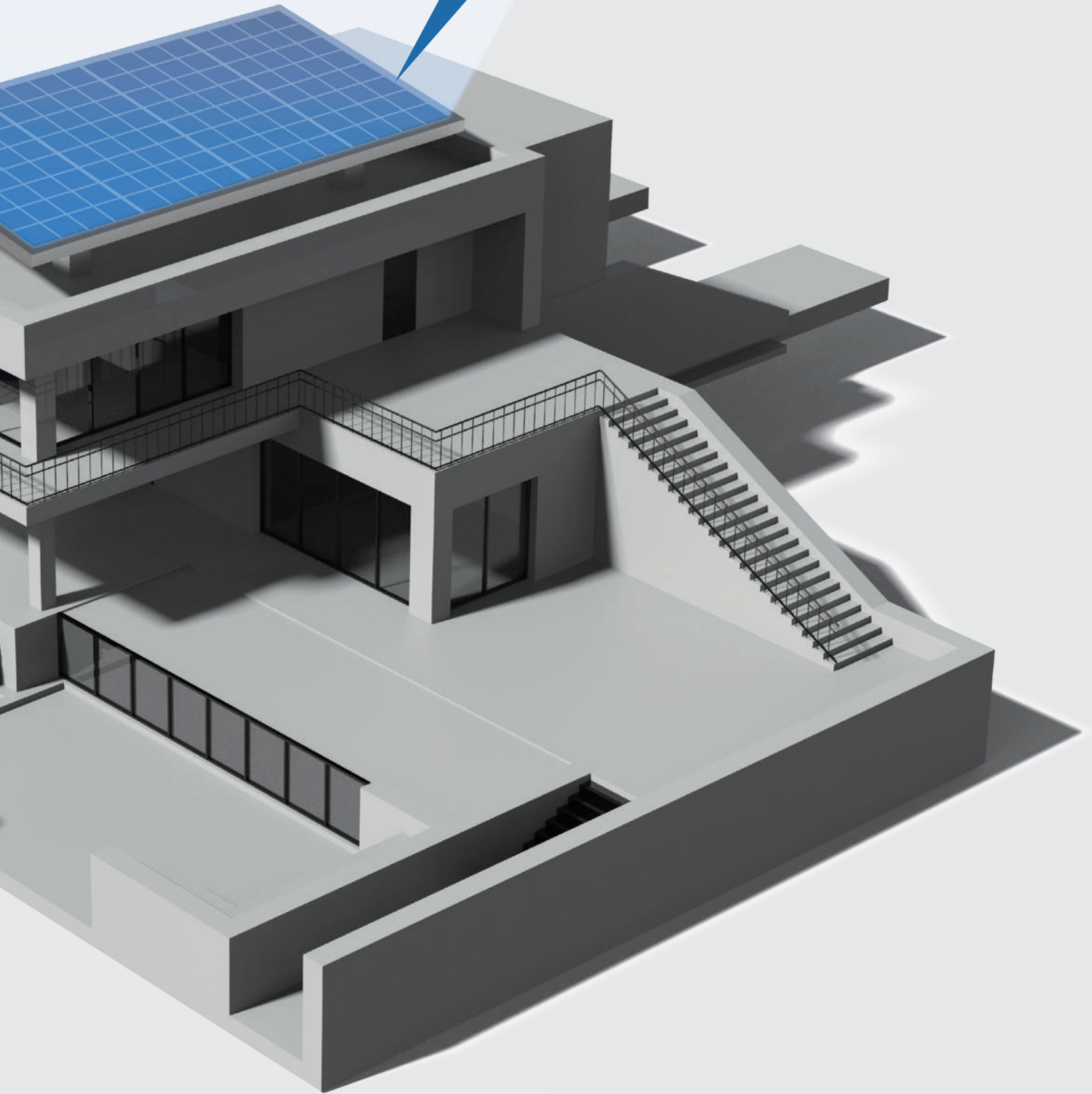


#### Busbar

Busbars provide a safe HV connection on shorter distances. Especially in the limited space, like storage bank or any other HV system.



**SOLAR PANEL**



# HV harness & fields

The automobile wiring harness is the carrier of electric vehicle power transmission and signal transmission, which is very important for the driving of electric vehicles. Among the automotive wiring harnesses, automotive high-voltage wiring harnesses are the most critical.

And we provide all kinds of assemblies which is 100% customizable, to meet the various demand in different fields, such as Heavy industries, Aerospace, EV-car, marine and etc.



HEAVY INDUSTRY



TRANSPORTATION



GREEN ENERGY



## ► Business Line



✓ Electromagnetic shielding design

✓ HV interlocking HVIL design

✓ HV wiring harness protection and identification design

✓ HV connector selection

✓ Wiring harness design

✓ Wire diameter design





# EDGE

## SERIES

## EDGE SERIES

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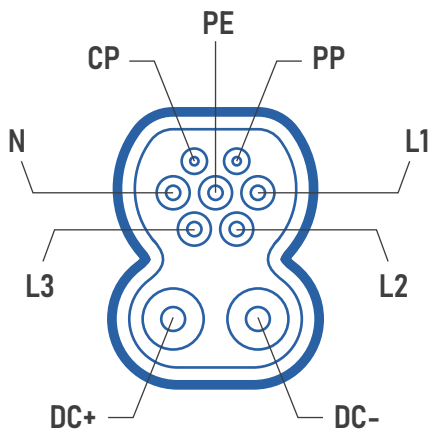
Edge series have a highly wide-range portfolio, including IEC 62196 and SAE J1772 plugs and connectors. By creating a sleek and stylish design which establish a strong identity of Greatenergy' s DNA. This is the ideal solution that is impeccably suited for commercial, fleet, and large residential uses.



## CCS2 (DC)

IEC-62196-3(Female)

Rated voltage	1000V
Withstand voltage	3000V
Rated current	200A
Connection	CCS2
Dimension (W/H/D)	314 / 163.6 / 72 mm



PE : Protective Earth	L1 : Line 1	N : Neutral Pin
CP : Control Pilot	L2 : Line 2	DC+ : Direct Current
PP : Proximity Pin	L3 : Line 3	DC- : Direct Current



CCS2 is the European standard plug and socket type used for connecting EV-vehicles to a DC rapid charger.

It consists of a nine-pin input that's split into two sections; the upper, seven-pin section is also the same as Type 2 plug. With the two larger, lower pins on the plug enable the Direct Current connection that forces more electricity into your batteries in less time.

Material			
Conductor	Copper alloy Silver plating (Surface)	Cap	Rubber
Housing	Thermoplastic	Cable length	5m
Working Environment			
Fire rating (Housing)	UL94 V-0	Operating temperature	-30°C~+50°C
Insulation resistance	>100mΩ (DC1000V)	Contact Resistance	0.5mΩ Max.
Product plug force	<100N	Altitude	<2000m

# REPLACEABLE COMPONENTS

All component of the head can be quickly replaced, Thanks to the removable assembly parts, there are more flexibility on shipping and storage. It can shorten the working hours and reduce the maintenance costs at the same time.



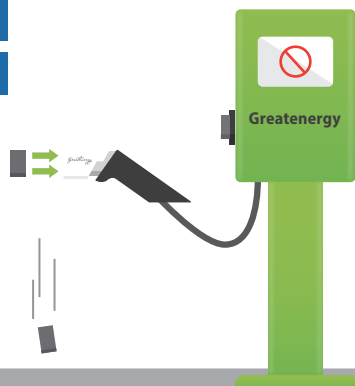




Key Features	Greatenergy	Others
<b>Connector Replacement</b> ( Easy to construct or cost reduction of head replacement )	Yes	No
<b>Shipment Costs</b> ( Allows more quantity to be stored in same space )	Low	High
<b>Time Costs</b> ( Reduce downtime or shortening the replacement work time )	Less	Simple project: 6-8hrs Complex engineering: 2D or more

### Maintenance Senario

- QUICK
- SAFE
- EASY



Only have to remove the damage contact and reinstall a new one instead

- EXPENSIVE
- BULKY
- TARDY



The whole station need to be changed, the maintainace might take longer and much more complicated



## TYPE 2 (AC)

IEC 62196-2 (Male)

Rated voltage	250 / 480V
Withstand voltage	2000V
Rated current	16 / 32 / 63A
Connection	TYPE 2
Dimension (W/H/D)	247 / 114 / 66 mm



## TYPE 2 (AC)

IEC 62196-2 (Female)

Rated voltage	250 / 480V
Withstand voltage	2000V
Rated current	16 / 32 / 63A
Connection	TYPE 2
Dimension (W/H/D)	238 / 125 / 72 mm



A Type 2 connector has 7 pins, can carry three-phase power and is widely used for electric cars across the EU. This connector comes with an in-built locking mechanism, so no one can easily remove or tamper with your charging cable without your permission.



Material			
Conductor	Copper alloy Silver plating (Surface)	Cap	Rubber
Housing	Thermoplastic	Cable length	5m
Working Environment			
Fire rating (Housing)	UL94 V-0	Operating temperature	-30°C~+50°C
Insulation resistance	>1000mΩ (DC500V)	Contact Resistance	0.5mΩ Max.
Product plug force	<80N	Altitude	<2000m



**63<sup>A</sup>**  
MAX  
FAST CHARGE STABLE CHARGE

# DUAL PLUG (AC)

Dual ac ev charger is designed and manufactured according to IEC 62196-2 international standard, which is used for the connection from the charging station end to the electric vehicle end. And Derka & Tuv certified. With the delicate and fine designed, to provide the best experience.



## CCS1 (DC)

SAE J1772 (Female)

Rated voltage	1000V
Withstand voltage	3000V
Rated current	80 / 150 / 200A
Connection	CCS1
Dimension (W/H/D)	281.7 / 178.8 / 72 mm



## NACS (AC / DC)

SAE J3400 (Female)

Rated voltage	240VAC / 1000VDC
Withstand voltage	2000V
Rated current	32 / 50 / 80A
Connection	NACS
Dimension (W/H/D)	205 / 51 / 47 mm



CCS1 connector has 7 pins, can carry three-phase power and is widely used for electric cars across the North America and some central Asia. Thus, it will remain the predominant standard for non-Tesla EVs and EV charging networks in North America (U.S. and Canada).



Material			
<b>Conductor</b>	Copper alloy Silver plating (Surface)	<b>Cap</b>	Rubber
<b>Housing</b>	Thermoplastic	<b>Cable length</b>	5m
Working Environment			
<b>Fire rating (Housing)</b>	UL94 V-0	<b>Operating temperature</b>	-30°C~+50°C
<b>Insulation resistance</b>	>100mΩ (DC1000V)	<b>Terminal Resistance</b>	<2Ω
<b>Product plug force</b>	<100N / <90N	<b>Altitude</b>	<2000m / <3000m



80<sub>A</sub>

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MAX

NACS network is the major standard interface in the North America. Our latest NACS charger provide the highest current in today's market. And come along with a super fast and stable charging performance.

# TYPE 6

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As electric vehicle adoption rates have tipped into the 1000k range. Especially in Asia, that has the highest scooter density in the world by far, Type 6 can be a good solution. The EV charger has a seven-pin design. And are commonly used for electric scooters in Asia.





## TYPE 1 (AC)

SAE J1772 (Female)

Rated voltage	120 / 240V
Withstand voltage	2000V
Rated current	16 / 32 / 40 / 80A
Connection	TYPE 1
Dimension (W/H/D)	228.7 / 110.8 / 59.7 mm



## TYPE 6 (DC)

IEC 62196-6 (Female)

Rated voltage	120V
Withstand voltage	2000V
Rated current	60 / 100A
Connection	TYPE 6
Dimension (W/H/D)	246.3 / 110.8 / 60 mm



Material			
Conductor	Copper alloy Silver plating (Surface)	Cap	Rubber
Housing	PBT	Cable length	5m
Working Environment			
Fire rating (Housing)	UL94 V-0	Operating temperature	-30°C~+50°C
Insulation resistance	>500mΩ	Terminal Resistance	<2Ω
Product plug force	<100N	Altitude	<2000m



## TYPE 2 (AC)

IEC 62196-2 (Female)

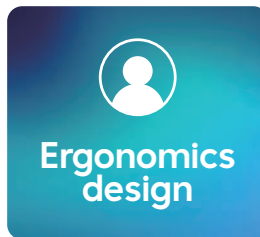
Rated voltage	250V
Withstand voltage	2000V
Rated current	16 / 32A
Connection	TYPE 2
Dimension (W/H/D)	256 / 88 / 57.2 mm



## TYPE 2 (AC)

IEC 62196-2 (Male)

Rated voltage	250V
Withstand voltage	2000V
Rated current	16 / 32A
Connection	TYPE 2
Dimension (W/H/D)	245 / 96 / 57.2 mm



Material			
Conductor	Copper alloy Silver plating (Surface)	Cap	Rubber
Housing	PBT	Cable length	5m
Working Environment			
Fire rating (Housing)	UL94 V-0	Operating temperature	-30°C~+50°C
Insulation resistance	>500mΩ	Terminal Resistance	<2Ω
Product plug force	<100N	Altitude	<2000m



- TYPE 2 (Station)



# STANDARD SERIES

Standard Series is our very first model type, It features incredible lightweight in combination with its ease of holding and maintenance, which makes it very appealing for daily and field use. More than that, type 6, which is rare to the market, is including in the series as well.



- TYPE 2 (Vehicle)



## CCS2 (DC)

IEC CCS2 DC INLET (Male)

Rated voltage	240 / 415VAC / 1000VDC	Plug Force	<100N
Withstand voltage	3000V	Waterproof level	IP54
Rated current	63 / 200A	Dimension (W/H)	90 / 130 mm
Connection	CCS2		



## TYPE 1 (AC)

SAE AC INLET (Male)

Rated voltage	120 / 240V
Withstand voltage	2000V
Rated current	16 / 32 / 80A
Connection	SAE J1772
Plug Force	<80N
Waterproof level	IP54
Dimension (W/H)	74 / 69.5 mm



## CCS1 (DC)

SAE CCS1 DC INLET (Male)

Rated voltage	240VAC / 1000VDC
Withstand voltage	3200V
Rated current	125 / 200 / 250A
Connection	CCS1
Plug Force	<100N
Waterproof level	IP54
Dimension (W/H)	90 / 135.33 mm



## NACS (AC / DC)

INLET (Male)

Rated voltage	240VAC / 1000 VDC
Withstand voltage	2000V
Rated current	32 / 50 / 80A
Connection	NACS
Plug Force	<80N
Waterproof level	IP67
Dimension (W/H)	72 / 72 mm



## TYPE 6 (DC)

IEC 62196-6 INLET (Male)

Rated voltage	120V
Withstand voltage	2000V
Rated current	60 / 100A
Connection	Type 6
Plug Force	<80N
Waterproof level	IP54
Dimension (W/H)	72 / 72 mm

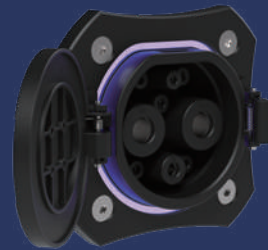


LED

## GB (AC)

GB/T 20234.2 INLET (Male)

Rated voltage	250V
Withstand voltage	2500V
Rated current	16 / 32A
Connection	GB/T
Plug Force	<100N
Waterproof level	IP55
Dimension (W/H)	87.7 / 87.7 mm



LED

## GB (DC)

GB/T 20234.3 INLET (Male)

Rated voltage	750 / 1000V
Withstand voltage	3000V
Rated current	80 / 125 / 200 / 250A
Connection	GB/T
Plug Force	<140N
Waterproof level	IP55
Dimension (W/H)	107.25 / 107.25 mm



# MAX SERIES

**RUGGED!!**

Max series was born to be tough, and is a stalwart in rough and rowdy conditions. The designed for use in the most serious senario. Come along with highest level of protection, to ensure the best user experience and giving the best selection for customer in fairly harsh environments.





SCHUKO



TYPE D



AU/NZ



NEMA 14-50

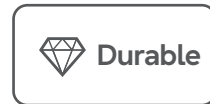
## OPTIONAL WALL END PLUG



## Max Protable

Type 2 socket

In/output voltage	220-240V
Withstand voltage	2000V
Output current	10 / 16 / 32A (ADJ)
Output power (Max.)	7.4kW
Connection	Type 2
Mechanical life	> 10000 times
Dimension (W/H/D)	104 / 198 / 67.5 mm



Material			
Housing	TPE / Silicon	Cable length	5m
Other spec			
Salt mist at +35°C	Pass	Cooling	Natural air cooling
Relative humidity	0%~95%	Operating temperature	-25°C~+50°C
Insulation resistance	>1000mΩ (DC500V)	Contact impedance	<5mΩ Max.
Crushing force	<5000N	Altitude	<2000m



## Safety Protection



LEAKAGE  
PROTECTION



FLAME  
RETARDANT



ELECTROSTATIC  
PROTECTION



OVERVOLTAGE  
PROTECTION



UNDERVOLTAGE  
PROTECTION



SHORT CIRCUIT  
PROTECTION



LIGHTNING  
PROTECTION



OVER-TEMP  
PROTECTION



OVER-LOAD  
PROTECTION



PE  
PROTECTION



SCHUKO



AU/NZ



Type 1



Type 2

**OPTIONAL**  
WALL END PLUG

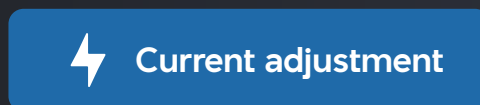
**OPTIONAL**  
VEHICLE END PLUG



## Light Portable

Type 2 socket

In/output voltage	110-220V
Input frequency	50 / 60Hz
Output current	16 / 32A
Output power (Max.)	3.7 / 7.4kW
Connection	Type 1 / 2
Mechanical life	> 10000 times
Dimension (W/H/D)	375 / 345 / 95 mm



Material			
Housing	ABS / PC	Cable length	5m
Other spec			
Standby power consumption	<6W	Cooling	Natural air cooling
Relative humidity	5%~95%	Operating temperature	-25°C~+50°C
Insulation resistance	>1000mΩ (DC500V)	Altitude	<2000m



## Max Wall-mount

Type 2 socket

In/output voltage	220-240V
Input frequency	50 / 60Hz
Output current	16 / 32A
Output power (Max.)	3.6 / 7 / 11 / 22kW
Connection	Type 1 / 2
Mechanical life	> 10000 times
Dimension (W/H/D)	500 / 385 / 200 mm



Material			
Housing	ABS / PC	Cable length	5m
Other spec			
Standby power consumption	<6W	Cooling	Natural air cooling
Relative humidity	5%~95%	Operating temperature	-25°C~+50°C
Insulation resistance	>1000mΩ (DC500V)	Contact impedance	<5mΩ Max.
Power adjustment	Opt	Altitude	<2000m



## ► Safty Protection



LEAKAGE  
PROTECTION



Ground  
Protection



ELECTROSTATIC  
PROTECTION



OVERVOLTAGE  
PROTECTION



UNDERVOLTAGE  
PROTECTION



SHORT CIRCUIT  
PROTECTION



LIGHTNING  
PROTECTION



OVER-TEMP  
PROTECTION



OVER-LOAD  
PROTECTION



UV  
PROTECTION



Rubust enclosure with a simple round shape will be suitable for daily use. Wall-mount portable is built in multiple tech control modules, such as bluetooth, wifi, RFID, OCCP std, which make it a immaculate option to the market. Thus, it available wall mount and floor stand, giving more flexilbty under different conditions.

# CERTIFICATION

## Buy safe - Charge safe

Greatenergy is leading the way, and are proud to announce that all products has been UL, Derka, Tuv certified. It is always a priority for our products to undergo rigorous testing conditions to ensure safe and reliable charging in real life challenge.





The product and its Type(s) are described in the documents therein referred to.

DEKRA hereby declares that the product is in accordance with a type test according to EN IEC 62196-1 and EN IEC 62196-2, an inspection of the factory location and the factory location with a DEKRA certification agreement with the DEKRA Mark.

DEKRA hereby grants the right to use the DEKRA Mark on the conditions of the DEKRA Mark certification agreement.

The DEKRA Mark may be applied to the product as specified in the conditions of the DEKRA Mark certification agreement.

This certificate is issued on 30 January 2024 and expires upon withdrawal of the product.

Certificate number: 31-136022

DEKRA Certification B.V.  
B.T.M. Holtus  
Managing Director

Miranda Zhou  
Certification Manager

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ACCREDITED BY THE DUTCH ACCREDITATION COUNCIL

DEKRA Certification B.V. Meander: 101, 6825 MJ Arnhem, P.O. Box 5185, 6802 ED Arnhem, Netherlands  
T +31 88 96 83000 F +31 88 96 83100 www.dekra-product-safety.com Company registration: 06085396

Prüfzeichen Test Mark  
Award granted for:  
- Design  
- Production  
- Use-Intention

Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Stecker (Plugs)

Bezeichnung (Type Designation)  
X1 steck für (stands für)  
X2 steck für (stands für)  
X3 steck für (stands für)  
Messungsspannung (Rated Voltage)  
Messungsstrom (Rated Current)  
Verachmungsstrom (Pollution bearing current)  
Schutzart (Protection)  
Anschlüsse (Connectors)

CERTIFICATE of Conformity

Registration No.: AK 50426452 0001  
Report No.: 50213157 001

Holder: Greatlink Electronics Taiwan Ltd.  
5F., No. 7, Lane 45, Baoxing Rd.,  
Xindian Dist., New Taipei City  
Taiwan, R.O.C. 23145

Product: EV-Cables (Cables for Electric Vehicle Conductive Charging Systems)

Identification: Type Designation: EV07EE 5G1-0+2X0-5 (Class 5 conductor used)  
Rated Voltage: AC Uo/U 450/750V; DC 1.0kV  
Ambient Temperature: -25°C to +50°C  
Max. Temperature at Conductor: 60°C  
Mark of Origin: GREATLINK  
2 FIG 1908/03.12

Tested acc. to: The certificate of conformity refers to the above mentioned product. This is to be in conformity with the assessment requirement mentioned above. This certificate assessment of the production of the product and does not permit the use of a conformity.

Date: 14.01.2019

TÜV Rheinland LGA Products GmbH - Tillystr.

CERTIFICATE

Issued to:  
Applicant:  
Greatenergy Inc.  
3F., No. 7, Ln. 45, Baoxing Rd., Xindian Dist.  
New Taipei City 231017, Taiwan

Product:  
Trade name(s)  
Type(s)/model(s)

Connector for Conductive Charging of Electric Vehicles  
C3A4X001, C3A5X001, C3A6X002, C3A7X001 and C3A8X001

Licensee:  
Greatenergy Inc.  
3F., No. 7, Ln. 45, Baoxing Rd., Xindian Dist.  
New Taipei City 231017, Taiwan

The product and any acceptable variation thereto as specified in the Annex to this certificate and the conditions therein referred to.

DEKRA hereby declares that the above-mentioned product has been certified on the basis of the conditions of the DEKRA Mark certification agreement with the DEKRA Mark.

The DEKRA Mark may be applied to the product as specified in the conditions of the DEKRA Mark certification agreement.

This certificate is issued on 30 January 2024 and expires upon withdrawal of the product.

Certificate number: 31-136022

DEKRA Certification B.V.  
B.T.M. Holtus  
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Miranda Zhou  
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T +31 88 96 83000 F +31 88 96 83100 www.dekra-product-safety.com Company registration: 06085396

Prüfzeichen Test Mark  
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Zertifiziertes Produkt (Geräteidentifikation)  
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X3 steck für (stands für)  
Messungsspannung (Rated Voltage)  
Messungsstrom (Rated Current)  
Verachmungsstrom (Pollution bearing current)  
Schutzart (Protection)  
Anschlüsse (Connectors)

CERTIFICATE

Certificate Number  
Report Reference  
Issue Date







*Greatenergy*



*3F., No. 7, Ln. 45, Baoxing Rd., Xindian Dist.,  
New Taipei City 231, Taiwan*

*E-mail: [info@g-energytech.com](mailto:info@g-energytech.com)*

*Phone: +886-2-2915-5279*