



Ultra Fast Charger

Future-ready infrastructure for fast charging of electrical cars.

charge-ultra-fast.com

 **DELTA**
Smarter. Greener. Together.



Get ready for ultra fast charging of electric cars today.

E-Mobility is a central part of a smart, decarbonized, environmental friendly urban lifestyle.

Cars are responsible for around 12% of total EU emissions of carbon dioxide (CO₂), the main greenhouse gas. Europe's answer to this challenge is an irreversible shift to low-emission mobility in terms of carbon and air pollutants.

In order to achieve mass acceptance and deployment of electric vehicles, charging and maintenance infrastructure needs to become widely available throughout Europe.

The ultimate objective is to allow a car journey across Europe, making electric vehicle charging as easy as filling the tank.

The users expect to find and use a charging station easily. From users perspective an easy operation and payment process is as important as the fast charging of their cars. Users are worried that a charging station could be occupied on arrival and that they have to wait in a queue. Users expect future cars to have an extended range. For long distance journeys fast charging is a must and the user is willing to pay extra.

Today there are various viable business models for charge point operators. Their target is to make a profit by offering a fast charging service. Either by the charging itself or with additional offered services. Therefore the availability of the charging service for their customers is one aspect, besides uptime of the charger and a low total cost of ownership over the complete product lifetime.

A future-proof technology has to support upcoming cars that offer high power charging above 100 kilowatt, have an extended driving range with higher battery capacity and even can be charged faster with 1000 volt technology.

The key for creating a climate-friendly mobility.





Ultra Fast Charger from Delta.

Set the mark for the future.



Ultra Fast Charger is Delta's latest EV charging infrastructure for charge point operators considering long term economic solutions.

With 150kW output power it features the highest commercially available DC charging power on the market with a modular and future-proofed system design that can be easily upgraded later. That secures operators and investors of today the compability with tomorrow's requirements and minimize the total cost of ownership over the years to come. Combined with a minimum installation effort compared to other available systems, a versatility in station design and user-friendliness, the Ultra Fast Charger from Delta sets the mark for the future of EV Charging Stations.

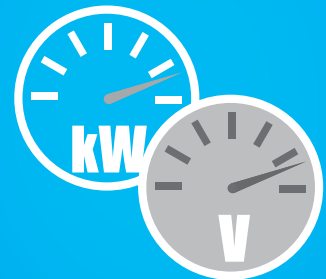


Delta's Ultra Fast Charger is a multi-standard, non-discriminative charger suitable for all available electric cars today and in the foreseeable future. It can already help the car manufacturers today to charge their new prototypes in the field.

It offers simultaneous charging for four cars in total; two cars with dynamic DC charging and two cars with AC charging. With 150kW DC charging power and due to its upgradability to 1000V charging technology the system is prepared for the fast charging of the electrical vehicles of tomorrow.

The System Design for DC charging is modular consisting of efficient power modules. That enables the operator to start today with lower power at lower cost and add on more power when required in the future.

High Power. High Voltage.



Now is the time to invest.

The upgradeable and modular system design enables a strategic deployment of charging infrastructure inline with the market development while the investment is protected for the future.

Reduced capital expenditure.

Save initial investment costs and start smart, with one non discriminative charging station, by sharing 100 - 120 kW DC power capacity for two electric vehicles and simply scale up later with minimized processes and cost.

Instead of investing in multiple charging stations to avoid queuing and to handle more than one charging process simultaneously, one Ultra Fast Charger can serve up to four customers at the same time. That reduces not only the investment in charging stations but also installation costs like the connection to transformer substations, cabling, construction material and labour cost.

Due to the small footprint of 90cm x 90cm and a low weight in comparrison with other multi-standard high power chargers on the market, a minimal effort to embed the standardized base in concrete is needed. The installation and configuration is as easy as "plug and play".

The dynamic AC grid current management of Delta's Ultra Fast Charger allows operation of the charger even with a reduced grid connection (substation and cabling) that is not able to deliver the full power for all four charge points at the same time. The Ultra Fast Charger dynamically limits the charging power to the connected vehicles to avoid an overload of the substation. Smart investors plan for a substation upgrade in the future inline with a forthcoming increased charging demand.

Reduce the total cost of ownership.



Economized operating costs.

Delta's Ultra Fast Charger needs minimum maintenance to ensure continuous operation.

In a rare case that service is needed, the Ultra Fast Charger can be opened on three sites that enables one service technician to easily exchange parts. The modular system design ensures availability. Even if one of the up to 15 power modules fail, the charger can still provide charging service at slightly reduced power capacity. In addition the AC charging points are available as additional backup solution, in case a connector is damaged, where the end user can charge needed distance to reach the next available DC quick charging station.

The light weight of the 10kW power modules can be handled by one single technician while most other market players feature very heavy power modules that are nearly impossible to be handled in the field without special equipment and require more than one technician.

Therefore the maintenance time is reduced and the access to all vital components of the Ultra Fast Charger is easy, allowing rapid and economic on-site service.

Charge Point Operators Choice.

Upgradability features to protect your investment for the years to come.

Delta is continuously following the electric vehicle technology and is committed to enhance the Ultra Fast Charger platform proactively with innovative features and improvements.

Connectors, cables and power modules are upgradable directly in the field at the charger location. This ensures that upcoming higher power technologies can be applied when ready.

System firmware updates can be done remotely to guarantee hassle free and efficient deployment of the latest system software updates and features.

Optional 1000 V DC charging.

This option is able to charge EV's with a battery voltage below 500 V and with battery voltage between 500 ... 1000 V. The charger recognizes the connected battery system automatically and controls the internal power modules accordingly.

This feature is recommended for charge point operators who have the intention to provide a premium charging service to Porsche Mission-E platform or to setup a charging infrastructure for logistic vehicles, e-bus & special vehicles e.g. municipals vehicles

It will be able to charge 100km additional range for a Porsche Mission-E offering 1000V in 8 minutes only.

Ultra Fast Charger fits to your charge traffic concept.

Delta's Ultra Fast Charger is available in different configurations to match the requirements of your location. The standard system is equipped on the frontside with a CCS Plug supporting up to 150 kW, a CHAdeMO plug supporting up to 63 kW, an AC type 2 plug supporting 43 kW and an AC type 2 socket supporting 22 kW.

The Ultra Fast Charger can be optionally equipped with different charge connection configurations and is also available as two-sided version with plugs, sockets and user interface on the front and backside.

This flexibility ensures that different station layout

Charge point operators choice.



concepts such as “drive through islands”, star charging-lot arrangements and various parking scenarios can be realized.

Compatible to common e-mobility platforms.

Delta's Ultra Fast Charger features non proprietary architecture interfaces according to open standards. Therefore the charger is compatible with the major charge point operator, e-mobility service provider and roaming platforms. Integration into existing backends can be realized due to the compliance with the open charge point protocol (OCPP). Connectivity is realized through Ethernet, GPRS, 3G and 4G .

Automatic dynamic charging.

The dynamic power-split function of the Ultra Fast Charger will provide all available power (up to 150 kW) to the first car that charges.

As soon as additional electric vehicles are plugged in, the power of the charger is automatically and dynamically split among all the charging vehicles. Some versions of the Ultra Fast Charger can even serve up to six electric cars, while charging up to four in parallel.

E-car drivers love it.

The Ultra Fast Charger Platform is recognized as very user friendly throughout Europe. The charging station in Rättvik, Sweden received the award “Swedens Charging station of the year 2016”.

The Ultra Fast Charger has been operating successfully in many sites during all seasons in Germany, Switzerland, Spain, Finland, Norway, Sweden and many more European countries demonstrating its reliability under very different climatic conditions.

Instead of waiting, fast charging.

A dynamic and efficient charge management that allows you to charge four cars simultaneously and eliminates queuing and waiting time for a free slot. At 150 kW DC Power the upcoming SUV's can charge a reach of 100 km in less than 10 Minutes.

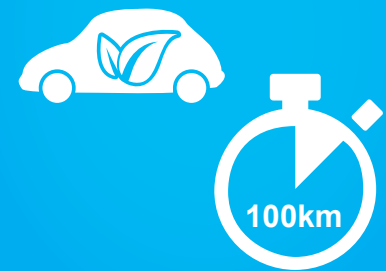
Easy to use.

The charging process is simple and easy in just two steps. Connection of the charge plug with the car and authentication through RFID or a whitelist. The charging will start automatically.

Low noise level during charge.

Thanks to its high frequency power converter the Ultra Fast Charger not only offers a high efficiency on all power loads and charging conditions, but also requires a smaller cooling need and therefore offers a much more quiet operation under all power conditions. Particularly when using a fast charger in warm conditions on full power, while some other products on the market are extremely loud and therefore cannot be installed in the proximity of a hotel or a restaurant.

Charging speed and availability is the key to satisfied customers.



All weather buttons and display.

Ultra Fast Charger has been designed to improve the user experience during the charging process. Imagine what happens in a very cold weather using a charger with touch screen display: The e-car driver takes off the gloves, grabs the cold plugs, plugs in, touches the cold display and feels uncomfortable.

Delta's solution is a anti reflection all-weather, high definition, colored display and separate glove-compatible buttons for operating the charging process. The display is perfectly legible, even under direct sunlight.





Technical Data

Input	
AC connection	3 phases + N + PE
AC voltage	400 V _{RMS} (L-L) ± 10 %
Frequency	50/60 Hz
Nominal current	312 A _{RMS} at maximum power (150 kW DC + 65 kW AC)
Power factor	0.99
Mains terminal	Terminal blocks
Transient OVP	Class II/C protection

DC charging points: CCS + CHAdeMO	
DC output voltage range	170 to 550 V _{DC} 170 to 1000 V _{DC} optional
Maximum charging current	300 A _{DC}
Maximum charging power	150 kW _{DC}
Cable / access length	3.5 m / 2.5 m
Protections	Overcurrent circuit breaker Short circuit protection Overvoltage protection Undervoltage protection Isolation monitoring Ground monitoring

DC charge points: CCS	
Rating cable and gun	200 A _{DC} / 850 V _{DC}
Compliance	IEC 61851-23 / -24 IEC 62198-3 DIN 70121

DC charge points: CHAdeMO	
Rating cable and gun	125 A _{DC} / 500 V _{DC}
Compliance	IEC 61851-23 / -24 JEVS G 105 Rev. 1.0.1 compliant

AC charging points	
Compliance	IEC 61851-22
AC plug at 43 kW charging point	IEC 62196-2 Mode 3, Type 2
AC socket at 22 kW charging point	IEC 62196-2 Mode 3, Type 2
Nominal AC voltage	400 V _{RMS}
Maximum charging current	
at 43 kW charging point	3 x 63 A _{RMS} at 43 kW
at 22 kW charging point	3 x 32 A _{RMS} at 22 kW
Cable / access length	3.5 m / 2.5 m
Protections	RCD Type B Overcurrent circuit breaker Ground monitoring

User interface	
Display	7" graphical color display
Keypad	5 buttons, backlit
Local authentication	RFID reader

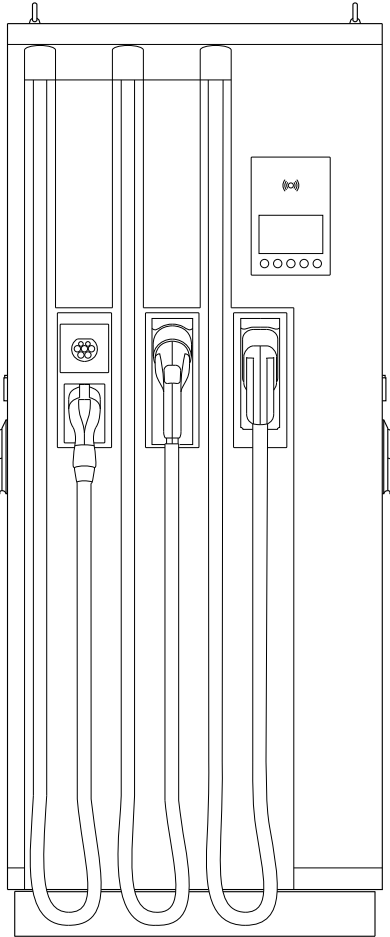
General	
Height (overall)	2079 mm
Width (body)	852 mm
Depth (overall)	998 mm
Weight (System)	400 kg
Protection degree	IP 55
Enclosure protection	IK 10
Efficiency rectifier	94 %
Operating temperature range	-25 °C to +45 °C
Maximum relative humidity	95 %, non-condensing
Compliance and safety	RoHS: EN 50581 CE compliance IEC 61851-1
EMC	IEC 61851-21-2 EN 61000-6-1 / -2 / -4

Available options

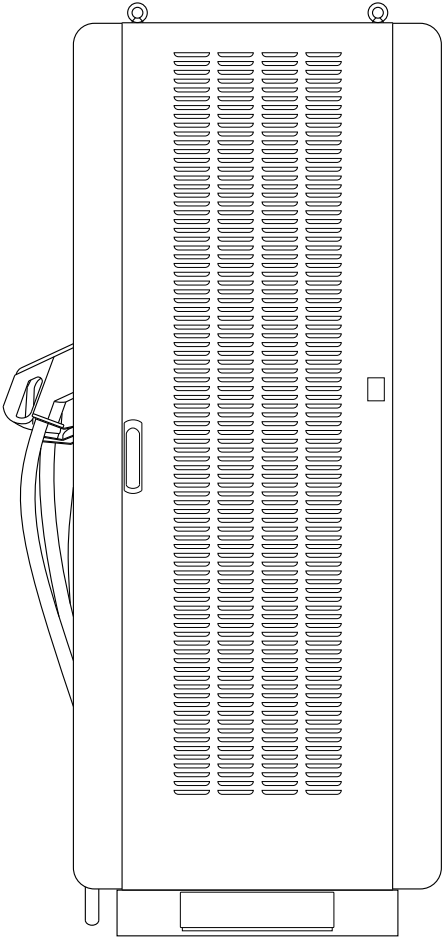
Number of Charge Points	DC out Plug configuration	AC out configuration	Standard power configuration	Communication
3 (2x DC, 1x AC)	CCS and CHAdeMO	Type 2 plug	50 kW	LAN
4 (2x DC, 2x AC)	2 x CCS	Type 2 socket	100 kW	Wireless GPRS / 3G
6 (4x DC, 2x AC)	2 x CHAdeMO	Type 2 plug and Type 2 socket No AC	150 kW	Tosibox (WLAN + 3G)

Customized configurations on request

Front View



Side View



Top View

