

Servo Pack

THE ELECTRIC VEHICLE CHARGING Solution For Road Houses and Service Stations

Electric Vehicle Charging Solution For Road Houses and Service Stations

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CHARGING STATION

ABOUT CHARGESTAR

Chargestar is an MSP (Managed Services Provider) that supplies, installs and maintains charging stations and provides network management services for charging station networks.

Chargestar creates charging station infrastructure solutions designed to help our clients transition to a zero emissions transport future and optimise revenue from commercial electric vehicle charging operations. Chargestar is not aligned to any charging station manufacturer or network management system software platform. Chargestar avoids vendor lock in by choosing products and services that are interoperable and compliant with open standards. Chargestar designs optimal solutions for its clients using a variety of hardware suppliers and software platforms

CORE SERVICES

- **DESIGN AND CONSULT** Our electrical engineers will design a cost effective solution that minimises the upfront capital expenditure required to install the electrical infrastructure needed to support electric vehicle charging stations.
- SUPPLY Charge Star provides a variety of AC and DC charging stations from various manufacturers designed to suit the specific requirements of the customer. Decisions about the choice of hardware suppliers are made objectively.
- **INSTALLATION** Charge Star only utilises a team of highly experienced electrical contractors that have received training provided by the charging station manufacturers.
- NETWORK MANAGEMENT Network management and driver management services for charging station providers either on the Charge Star Network or as a managed service on the customer's network with customer branding.
- LOAD BALANCING Cross platform load balancing solutions for both AC and DC charging stations. Compatible with all OCPP smart charging complaint charging stations.
- **BILLING AND ACCESS CONTROL** Billing solutions for public and private charging. APIs for integration with existing third party billing solutions and embedded metering systems in commercial developments and apartment blocks. Complex tariff models including time of day charging, peak time charging and charging by driver group. All charging stations come with a credit card option.
- WHITE-LABEL OPTIONS White labelling of smart phone payment systems for own brand marketing is available with a variety of different platforms to choose from.
- FLEET CHARGING Our Fleet Manager Portal empowers you to manage and control all aspects of your EV fleet charging operations from roaming across networks using the Chargestar fuel card (Hubject) to reimbursement of employees for home charging. Monitor power consumption and help keep power consumption costs down. Take vehicle tracking data from fleet tracking apps and combine it with fuel card usage to help detect fraud. Use the APIs to integrate existing fleet management systems with the Fleet Manager Portal".



Servo Pack is an integrated electric vehicle charging station solution designed for road houses and service stations. Servo Pack provides the hardware and software required to install and operate electric vehicle charging facilities in service stations. Servo Pack is suitable for locations where cars charge for 15 minutes to half an hour and drivers stay with the car. Servo Pack reduces capital expenditure by monitoring and load balancing charging stations so that the requirement for expensive grid upgrades is minimised or eliminated. Servo Pack ensures that the charging load does not exceed the power capacity of the site.

Servo Pack Components

CHARGING STATIONS

- DC charging stations ranging from 25 kw to 350 kW.
- Expandable power modules. Upgrade the same station from 50kW to 100 kW to 200 kW.
- Combo CCS only or Combo CCS and CHAdeMO.
- Factory fitted credit card reader/EFTPOS option.
- DC Charging stations that charge two to eight cars at a time.
- Built in load management.
- OCPP network management and OCPP smart charging.
- Liquid cooled cables for HPC charging stations

• PAYMENT SYSTEMS

- Credit Card/EFTPOS/NFC.
- RFID card/smart phone app.
- Integration with existing embedded network metering systems.
- APIs for integration with third party payment systems on request.
- · Charge per kWh, per minute or any combination of the two.
- Dwell time charges.
- Time of day differential pricing for peak demand periods.
- Group tariffs for customers such as taxi drivers, sales people, etc.
- Fuel card option for fleet managers. Charge on any Hubject enabled network.
- 24 hour hour payment cycle. Funds paid directly to the charging station owner.
- Parking meter model. The charging station owner is the electricity retailer.
- · GST receipts issued with charging station owner ABN contact details.

• NETWORK MANAGEMENT

- · Monitoring and reporting.
- Firmware and software updates.
- Remote control of charging stations.
- Telephone support for drivers.
- · Web based network management and administration portal.
- Sub portals with granular permissions can be created for charging station owners.
- · Dashboard overview with network map.
- APIs for integration with solar and battery systems.
- APIs for load control and demand response signaling by grid operator.
- · Interoperability with Other networks via Hubject.
- · ISO 15118 Plug & Go Charging capable.
- · Supported out of Melbourne and Perth.

LOAD BALANCING

- Proprietary or cross-platform.
- Static across charging stations where the charging stations use a dedicated power supply.
- Dynamic across charging stations where the charging stations use a shared power supply.
- APIs for integration with third party control systems such as building management systems.
- AC and DC capable. Load management of AC and DC charging stations in the same cluster.
- On-site appliance or cloud based load management.
- GDPR compliant and ISO 27001 certified.
- Integrates with solar and battery systems.
- APIs for orchestrated charging in response to signals issued by the grid operator.



Evolve Rapid 25 kW DC

The EVolve Rapid is a 25 kW DC charging solution consisting of bollard mounted and wall mounted DC charging stations rated to 25 kW each connected to a standard 400 V 40 amp AC three phase power supply. All electric vehicles capable of DC charging can take advantage of the full 25 kW and charge around twice as fast compared to charging on an AC station.

The Rapid is suitable for locations where the service station owner wants to encourage dwell time or there is only enough power for one three phase 32 amp charging station. Some locations such as shopping centres may want to encourage dwell times of one hour or more so that drivers are not required to stay with and then move the car after half an hour of charging. This helps to increase utilisation of the charging stations



CHARGESTAR +

Credit Reader/EFTPOS Terminal

• The master version of the Rapid bollard can be fitted with a credit card reader/EFTPOS payment terminal. A credit card reader/EFTPOS payment terminal is not available for the master Rapid wall mounted station at this point in time. Wall mounted slaves can be connected to a bollard mounted master. The EFTPOS payment system is provided by Ingenico/Advam and is certified for use in Australia.

Clustered solution for multiple charging stations

- Up to 6 slave Rapid DC wall boxes and bollards can be connected to a bollard mounted or wall mounted master Rapid. The slaves are connected to the master by ethernet CAT 6 cables routed to a factory fitted network hub in the master. There is an option to connect the master and slaves by wi-fi using a factory fitted access point installed in the Master.
- The slave stations are displayed on the screen of the master charging station. Charging sessions on the slave stations are activated by selecting the appropriate socket from the screen on the master and authorising payment using the EFTPOS payment terminal on the master. All communication back to the OCPP network management system is via the master.
- Existing Evolve Smart AC Stations can be incorporated as slaves into a Rapid DC charging cluster. Any Circontrol Raption DC charging station of 50 kW or more can operate as a master station to Rapid DC charging station slaves. Charging sessions on the slave stations are activated from the screen on the Raption master.



Raption DC Charging Station 50 kW to 150 kW

Charges 1 to 2 cars at the same time

RAPTION 50

The Raption range of slimline DC fast charging stations are designed with a small footprint and can be installed adjacent to walls and other structures. Servicing is quick and easy as access is provided by the lockable fridge like front door. The stations can be ordered in 50 kW, 100 kW and 150 kW configurations. The 50 kW station can be upgraded to 100 kW. The 100 kW and 150 kW stations can be ordered in 50 kW and 100 kW configurations and upgraded later. The 150 kW station can charge two cars at the same time, 50 kW each when configured for 100 kW and 75 kW each when configured for 150 kW. Alternatively, the stations can be dialled down via a software config change if the power supply is insufficient. E.G, the 150kW station can be dialled down to 100 kW.



All the Raption stations come with an optional factory fitted credit card reader/EFTPOS solution that does not require connection to a network management system.

All Raption stations have a MiFare compatible RFID credit card reader for fuel cards and motoring organisation membership cards.

- Raption DC charging stations with credit card reader/EFTPOS can operate without the need for back end OCPP network management systems.
- Power can be scaled from 50kW to 150 kW.
- 2 DC cables (2 * CCS or CCS + CHAdeMO).
- Raption 100 kW+ charges two cars at the same time.
- High availability modular power technology ensure continuous operation even if one power module fails.
- Modular architecture allows scaling from 50 kW to 150 kW over time.
- The lockable double door at the front facilitates access for maintenance and repairs and facilitates installation next to walls and other structures.

- Fully OCPP 2.0+ compatible.
- Built-in courtesy light at the top of the station for improved user experience.
- All Raptions can be used as masters in master-slave configurations where the slave stations are controlled and load balanced from the master.
- Optional EMC Class B device for use in residential areas.
- Designed with consideration for accessibility by the disabled, complying with international standards regarding the height of connectors.
- 8 inch colour anti-vandal touch screen readable in bright daylight.
- Optional Credit Card/EFTPOS Payment System.



Raption 350 HPC Charging Station

Liquid cooled charging cable Charges 1 to 2 cars at the same time

Raption 350 HPC

The Raption 350 HPC is a high powered charging station rated up to 350 kW designed to provide a 50 kWh charge in around eight and a half minutes. The station consists of a separate power cabinet and a dispenser. The dispenser is equipped with two CCS 2 cables. The dispenser can charge one car at a time at up to 350 kW and two cars at a time at up to 175 kW each. The dispenser is limited to one cable when equipped with a liquid cooled cable. Liquid cooling maintains the 350 kW charging rate in hot conditions.

The HPC can be supplied in a 175 kW configuration which will charge one car at 175 kW and two cars at 87.5 kW each. The dispenser is limited to one cable when equipped with a liquid cooled cable.

FEATURES

FOR THE OPERATOR / OWNER

- The Raption 350 HPC is designed to charge an electric car from empty to full in eight and a half minutes. A full charge for most cars is 50 kWh.
- The HPC 350 can charge two EVs at the same time, splitting the available power (175 kW + 175 kW).The HPC 175 can charge two EVs at the same time, splitting the available power (87.5 kW + 87.5 kW). The dispenser is limited to one cable if liquid cooling is used
- This system is capable of maintaining a consistent level of efficiency and lowering energy consumption since its power modules can be shut down when vehicles require less power.
- It achieves higher uptime and lower operating costs thanks to its unique connector protection concept. The connector locking function (optional) and floating cable design reduce the risk of connector and plug breakage.
- The lockable double door at the front facilitates maintenance and repairs access, and allows to be installed next to a wall.
- The system can be set as a master in the master-satellite solution that includes AC and DC charging stations. The master provides network comms, OCPP capability, load balancing and credit card payment/EFTPOS for the slaves.
- The HPC comes with an optional credit card reader for EFTPOS. Payment for charging sessions is processed without the need for connection to an OCPP network management system and smart phone app



FOR THE USER

- Its 8-inch anti-vandal colour touchscreen can be read in daylight, not only displaying clear charging instructions and the operational status of the charger, but it also allows users to select their language.
- Its courtesy light makes it easier to find the charging station and the operating instructions in dark areas.
- The height of the connectors and the screen are in compliance with international disability standards.
- The payment terminal accepts credit cards, debit cards and NFC enabled mobile devices. The driver can select a slave station from the screen on the master and use the master payment terminal to initiate a charging session on the slave.

Kempower C-Station 50 kW to 320 kW

Charges 2 cars at the same time

The Kempower C-Station is a compact and modular fast-charging station designed to charge two cars at the same time via two DC charging cables attached to the cabinet". The station can be configured with power modules ranging in output from 50 kW to 320 kW. The C-Station can charge two cars at the same time and power is split dynamically between the cars. E.G. one car can charge at 50 kW while the other car can charge at 150 kW on a station configured for 200 kW. All available power is used.

Typically, the C-Station has either 1 or 2 CPU cabinets that offer power from 40 to 320 kW and it can have 1 – 2 DC charging outlets fixed on one or both sides. The cable length can be extended to 6 meters via the advanced cable handling with spring support. Two S-Series satellites can be added to the C-Station to enable simultaneous charging for 4 cars.



- 3G/4G/LTE, WiFi.
- OCPP 1.6/2.0, cloud based back-end.
- Service and management dashboard.
- Easy power up of power modules.
- Touch screen UX.
- Welcome light, LED-status lights.
- Advanced cable support system.
- RFID-reader.
- Operating Temperature -40 to +55 °C (with derating).
- Enclosure class IP54, IK10.
- Operational noise level < 55 dBA.







Kempower C-Series Cabinet with S-Series satellites

Charges up to 8 cars at the same time

Raption 350 HPC

The S-Series charging satellite system consists of a C-Series charging power unit and up to 8 satellite posts providing up to 8 charging spots. Inside the cabinet, there are 50 kW Kempower power modules. One charging power unit can have 1 to 3 cabinets (200 kW – 600 kW). You can start with one module and acquire more when needed. The charging power is distributed dynamically into each charging post so that all the available power is used.



- The S-Series charging satellite system consists of a C-Series charging power unit and up to 8 satellite posts providing up to 8 charging spots. Inside the cabinet, there are Kempower power modules that each provide 50 kW of charging power. One charging power unit can have 1 to 3 cabinets (200 kW 600 kW). All in all up to 12 modules (600 kW) can be installed in a charging power unit. You can start with one module and acquire more when needed. The charging power can be distributed dynamically into each charging output.
- The Kempower S-Series charging satellite posts have the best power vs. footprint ratio in the fast charging market. due to the slim design.
- The posts can be arranged so as to optimise the use of the available parking spaces.
- Each post can charge at up to 200 kw which is far in excess of the charging capacity of most cars.
- Optional liquid cooling is available for satellite posts.
- Dynamic power sharing ensures that all available power is used by cars charging at different rates.
- A single C-Series cabinet offers power from 50 kW to 200 kW shared out over 8 charging posts depending on the number of power modules installed.
- Up to three cabinets can be added to a charging station cluster providing 600 kW shared out over 24 charging spots.



Credit Card Payment

Charging stations with on-board EFTPOS/tap and go payment systems compatible with credit/debit cards and NFC enabled phones are the most convenient and efficient method of paying for charging sessions. EFTPOS/Tap and go payment is the most widely used and ubiquitous payment system in Australia. All electric car drivers are thoroughly familiar with tap and go.

The driver starts the charging process by presenting the card or NFC enabled phone to the card reader for identification and payment authorisation. The payment system calculates the total kWh used at the end of the charging session and debits the card used by the driver to start the charging session.

Charging session fees are transferred directly to the merchant account of the charging station provider by a payment processor such as ADVAM or NAYAX. No transaction fees are levied by the charging station network manager. The charging station network manager has no involvement in payment processing.



Contactless Payment

- Payment via debit / credit card and NFC
- Payment with pre authorization (gas station type)
- Pay by credit card, debit card and NFC enabled mobile phones and smart watches.
- Charging session fees are paid direct to the merchant account of the charging station owner within 24 hours.
- Charging stations operating with credit card/EFTPOS readers do not require a connection to a backend OCPP network management system in order to process payments.
- No smart phone app required to initiate charging sessions.
- No deductions from charging session fees apart from the standard credit card charges.



Public Charging Stations with Credit Card Payment System



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User interface at end of charging session

Payment Terminal

chargecloud The B2B software solution for e-mobility

Chargecloud controls, networks and manages your charging infrastructure for electric vehicles. Chargecloud is compatible with all OCPP compliant charging stations. Use Chargecloud to manage your customers, determine rates for charging sessions and take care of billing.

Chargecloud is an enterprise level charging station network management system developed in Germany. It is designed for large scale charging station network operators such as utilities, energy companies, service station owners and any enterprise that wishes to operate a charging station network.

Chargestar provides network management services using the Chargecloud platform on a managed service basis. The client engages Chargestar to provide software and hardware solutions and then outsources management of the network to Chargestar. The client buys the software licenses direct from Chargecloud. The client retains control of the Chargecloud platform and all customer data even if it changes the network manager at a later stage. This arrangement avoids vendor lock-in whereby the network management software provider is also the network manager.

Chargecloud gives your company access to the applications you need at any time: from monitoring to administration and billing of charging stations for e-cars, e-buses and even for the shore-side electricity supply of ships. We are partners and solution providers. Always available and independent – we make e-mobility easy for you.

charge.monitor - network management

Our e-mobility module charge.monitor is the ideal entry point to a networked electromobility for fleet operators and companies from industry, trade and commerce. As a CPO, it offers you all the functions you need to successfully manage your e-mobility business.

charge.app - smart phone app

This user-friendly app will make charging easy for your customers. It can be expanded with any functions of the chargecloud catalogue and is available in your personalised design. We do the work in the background.

charge.roaming - network interoperability (Hubject)

The charging current should be independent of the provider and available everywhere. chargecloud ensures that your charging stations are also open to customers of other providers – and vice versa.

charge.fleet - fleet management and employee reimbursement

With chargecloud you are always on the safe side. Thanks to German data security, regular updates and an independent partner at your side.

charge.billing - public charging and billing. Payment via Stripe

Customers and contract management are essential for EMPs. Our customer relationship management helps you manage customers, determine individual rates for various charging processes and takes care of billing.

charge.direct - adhoc charging. No app signup required

Ad-hoc charging available via QR code stickers. Just scan with a mobile phone. No smart phone app required

charge.partner - own brand and white labeled networks

Do you want to go a step further? Our module charge.direct enables you to build up your own business segments. Become a service provider for businesses and end customers – we will support you.

Hosted in Australia. GDPR complaint

Your dedicated or shared instance of Chargecloud is hosted in Australia. The Chargecloud platform is designed to comply with German and GDPR data security standards.

Coneva Dynamic Load Management System

The Coneva Smartbox is an on-site appliance based dynamic load balancing system for electric vehicle charging stations. Smartbox can load manage mixed clusters of AC and DC charging stations that share the same power supply. On-site appliance based load balancing provides faster response times in comparison to cloud based load management. On-site load balancing continues to operate normally during network outages as there is no dependency on a remote system for load balancing.

Coneva Charging is developed by Coneva GmbH, a wholly owned subsidiary of SMA Solar Technology AG, a leading global specialist in photovoltaic system technology.

Coneva Smartbox is interoperable with all OCPP network management systems. All non load management OCPP commands are passed between the charging stations and the NMS through Coneva

KEY FEATURES

- Dynamic load management of AC and DC stations in the same charging node or cluster.
- On-premises appliance. Can operate without an internet connection.
- Cross platform. The Smartbox appliance load balances any compliant OCPP 1.6/2.0 charging stations enabled for smart charging.
- Smartbox operates in tandem with OCPP compliant network management systems for network management and billing.
- Support for an unlimited number of charging stations.
- Can be configured to incorporate power sources such as solar PV, battery storage and wind power.
- Can be integrated with building management systems and other SCADA control systems.
- Supports orchestrates charging. Can respond to signals from the grid operator.

DYNAMIC LOAD MANAGEMENT

Coneva Charging is designed to reduce the charging rate of electric vehicle charging stations when there is insufficient power to allow charging at the full rated capacity. This can occur where the power supply used by the charging stations is shared with other devices in the building/site and power usage varies during the day or there is a power shortage.

Coneva charging avoids the need for costly grid upgrades needed to facilitate electric vehicle charging by ensuring peak demand never exceeds the capacity of the site grid connection.



