

eMobility Ecosystem From infrastructure to managed services

siemens.com/emobility

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Beginning of the eMobility transition

Annual global light duty vehicle sales



End-to-end solutions for your needs Portfolio



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AC and DC Charging



- Onboard inverter inside the EV
- Charging infrastructure has a small footprint and low investment cost
- Charging power rates depend on inverter and electrical supply (3.7 – 22 kW)

Perfect for long term dwelling locations

- Inverter in the charging infrastructure
- Lower investment cost in vehicle and larger footprint and investment in charging infrastructure
- Higher charging power rates possible (300+ kW)

Perfect for fast charging and heavy duty vehicles

Time for "Re-fueling" your car depends on charging power and battery



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Easy charging & reliable and secure payments

Electronic wallet

Create an account, if there is already an account login created. Entering the wallet, if it is loaded

- set an amount
- add the amount to the wallet
- enter the order and payment through the virtual POS terminal Select a station
- Insert a cable
- Enter a pin code (taken from the station display)
- Select kWh
- Choose a payment method
- Start charging

RFID device variant

- With RFID reader
- Start charging

Card

Create an account, if there is already an account login created. Select a station

- Insert a cable
- Enter a pin code on the station display
- Select of kWh
- Choose a method of payment (credit or debit card)
- Start charging



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Complete portfolio of EVs charging products & solutions







VersiCharge

Energizing the evolution of eMobility siemens.com/versicharge

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VersiCharge AC Series IEC Highlights

Rugged housing for indoor/outdoor use (IP56 IK10)

High performance dual band Wi-Fi



VersiCharge Benefits at a glance







Single Home User

Customer challenge

- "I just want to charge"
- Private installation location
- Monitor and control charging
- Track energy cost
- Limited power supply
- Power limitation as per local subsidy programs (e.g. 11 kW in Germany)
- Peace of mind

Solution: VersiCharge

- Cost effective and feature rich
- Simple install and setup
- Safety and quality guarantee
- Integrated metering with adjustable charging current

Multi-Family Applications

Customer challenge

- Multiple chargers in one location
- Access by various parties
- Site limit of incoming power
- Easy management of many chargers
- Various installation locations

Solution: VersiCharge

- Access control via RFID
- Connectivity to user-based billing
- Local load management
- Mobile app and/or PC based commissioning
- Wall and pole mounting options

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VersiCharge RFID reader

- RFID cards are used to authenticate and to start charging
- RFID cards must be enabled prior to use









Cards Family	Memory	Security	Protocol Support
MIFARE Classic	1K, 4K	Crypto 1	ISO14443A Part 1-3
MIFARE Plus	1K, 2K, 4K	AES, Crypto 1	ISO14443A Part 1-4
MIFARE DESFire	2K, 4K, 8K	AES, 3DES	ISO14443A Part 1-4
MIFARE Ultralight	40, 48, 128, 144	None, 3DES	ISO14443A Part 1-3

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Alternatively, Authentication can be done through Modbus or OCPP

Mobile App Installation

Charger Setup – Wi-Fi

Charger Setup – SIM/Cellular

Charger Setup - Ethernet

App Operation

Troubleshooting

VersiCharge Easy commissioning via App/PC based tool



- Turn on the power, unit displays the white "power on"
- · Active Internet is required

Mobile app





- Available for IOS and Android Systems to provide guided commissioning for single chargers
- Download the VersiCharge app from the <u>Google Play Store</u> or from the <u>Apple App Store</u>

PC based application tool



- Available to commission commercial installations of large groups of chargers. Includes configuration of networks and feature to copy and reuse profile for multiple devices
- Download the PC application from the <u>website</u>. Additional documentation available on the website

VersiCharge Charging



Once Authentication is complete, connect the vehicle and the charging unit using suitable charging cable





2

Charging process starts

via the status LED

automatically and displayed

Time delay and status view can be done through Mobile App

3



Upon completion of charging, the device switches to the "Ready for charging" status



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VersiCharge

Commissioning of multiple chargers with PC based application tool

PC based application tool

- Available to commission commercial installations of large groups of chargers
- Includes configuration of networks, set up of parent/child configurations, and feature to copy and reuse profile for multiple devices





Workplace Charging

Customer challenge

- Limited access or availability of existing communication network
- Existing structures or new construction
- Indoor and outdoor
- High number of chargers and users
- Power constraints of site plus potential PV
- Existing or new Building Mgt. System

Solution: VersiCharge

- Mobile network access (4G LTE)
- Building management system integration
- Local load management
- User management and billing via OCPP
- Remote firmware updates and charger diagnostics from Siemens
- Financing or leasing model possibility

Smart charging / load management



Load management with building management

Static load management



- Building energy consumption
- Static power for EV charging
- Maximum power of grid connection

VersiCharge solution

- Max. amperage per charger adjustable at installation
- External load management via OCPP
- Parent-child configuration (load management option coming soon)

Dynamic load management



- Maximum power of grid connection

VersiCharge solution

- Building management integration via Modbus
- External local load controller communication via OCPP



Parent/Child communication options

Cellular connected use case



Features

- Parent internet access via integrated cell modem (alt. Ethernet)
- Easy and fast commissioning using Siemens provided tool
- Access mgmt and billing via OCPP
- Local load mgmt. or remote using OCPP

Advantages

- Parent unit Internet connection enables connection for multiple child units
- Remote firmware upgrades to the group administered by Siemens
- Remote diagnostics and troubleshooting by Siemens
 - Reduced setup cost
 - Reduced maintenance cost

Building management integration Parent/Child configuration plus building integration



VersiCharge AC Series Network Configuration Examples



Available variants

	Socket	Parent (Child
	1-Phase (7.4 kW)	8EM1310-2EH04-3GA2	8EM1310-2EH04-0GA0
	3-Phase (22 kW)	8EM1310-3EH04-3GA2	8EM1310-3EH04-0GA0
	Cable		
	1-Phase (7.4 kW)	8EM1310-2EJ04-3GA2	8EM1310-2EJ04-0GA0
	3-Phase (22 kW)	8EM1310-3EJ04-3GA2	8EM1310-3EJ04-0GA0

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SICHARGE CC AC 22

The perfect charging station for urban applications siemens.com/sicharge

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Corporate Guest and VIP

Customer challenge

- Demonstrate quality and design
- Convey own brand

Solution: SICHARGE CC AC 22

- Visual user guidance
- Welcome message on display
- Integrate own design around the charger

Retail, Hotel, Restaurants

Customer challenge

- Attract customers
- Convey messages

Solution: SICHARGE CC AC 22

- Customised design
- Advertising images on display
- Perfectly visible

Street parking

Customer challenge

- Urban environment
- Remote locations
- Bill for charging

Solution: SICHARGE CC AC 22

- Robust design
- Easy to maintain
- Cell connection via UMTS, LTE
- Revenue grade metering (MID and ERK)

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Charging the future with AC solutions Key takeaways



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SICHARGE D

Dynamic charging for future eMobility siemens.com/sicharge-d

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SICHARGE D The future of DC fast charging





PowerUp

The SICHARGE D chargers allow an easy upgrade of charging power to meet evolving charging needs.

ConnectPlus

Cost-efficient and space saving, the SICHARGE D can be easily extended with two DC dispensers, then charging up to 5 cars in parallel*.

FullDPA

Dynamic power allocation easily considers eVehicles individual power demands and ensures optimized charging time.

ValueScreen

The 24" touch-screen provides user-friendly charging experience and allows an easy integration of customized content.

Designed for

Highway and urban charging stations

- ✓ Best-in-class efficiency
- ✓ Highest utilization of installed power
- ✓ Very compact footprint

Public charging

- ✓ Robust with anti-vandalism protection IK10 also valid for its large screen
- ✓ Noise level parameterization (< 50 dB(A)) e.g. for day and/or night mode
- ✓ Variety of payment options

Customer charging

- ✓ Unique, appealing design and value-adding screen
- ✓ High cyber security based on special Siemens assessment processes

* available in 08.2021

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Best-in-class technology Innovative features designed for you

Weatherproof, UV-resistant, color-stable, Inclined rain-protection slope and scratch-resistent powder coating directs water to the rear Fit for outdoor applications IP 54 and IK10 LED for user guidance and SIEMEN DC status indication left and right Shatterproof glass front High brightness, intuitive 24" touchscreen display for true barrier-free access and various customization opportunities DC Charging Cable No.1 CCS2; MID meter (optional) DC Charging Cable No. 2 CHAdeMO; CCS2* and MID meter (optional) RFID card reader for user authentication Integrated contactless credit-card reader terminal** AC Type 2 socket with flap and plug locking, MID meter (optional) SICHARGE Emergency stop button (optional) EMC Class B (on request) Large front and back doors provide easy * available in 04.2021 access for maintenance ** available in 06.2021 Features setup may differ depending on customer specific configuration

ValueScreen – more than a touchscreen

Ultimate interface flexibility for your customers with image height adjustment



The integrated 24" user-friendly adjustable screen allows your customers to easily operate the SICHARGE D charger at the most convenient height.

Future chargers will operate as part of integrated business processes, and allow more functions than just charging.

With its large flexible screen, the SICHARGE D is already prepared to support this expanded functionality.

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PowerUp – ready for the future Easy and cost-efficient scaling



Offer up to 300 kW charging power

With our SICHARGE D you are ready to meet the rising demands for fast charging.

Your charger can easily be upgraded with additional power modules guaranteeing minimum downtime: plug-and-play.

After restarting, the system is automatically reconfigured and delivers upgraded power.

ConnectPlus – ensures utmost flexibility Easy extendibility with additional dispensers





Charge more cars with a single charging system

Easily extendable with additional dispensers, the SICHARGE D charging system gives you ultimate flexibility and optimized parking space utilization.

Easily accessible by up to five electric vehicles charging in parallel (4 x DC and 1 x AC) at any SICHARGE D compact charger.

* available in 08.2021

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FullDPA – Dynamic Power Allocation Parallel charging on a new level



With SICHARGE D, the charging process automatically adapts to the connected vehicle(s) to fulfill two goals.

It always seeks to use the full charging power available, and to use it based on the actual power request of each car(s) connected.

In this way, either the entire charging capacity can be used on one vehicle, or it can be distributed to several vehicles based on their demand. Because the power demand is dynamic during the charging process, the appropriate distribution of charging power by SICHARGE D minimizes the charging times for all connected EVs.

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SICHARGE D Flexible configuration options

Configuration options

AC socket

This is a selection of configuration options

Incoming AC meter	Standard AC meter for measuring total power consumption
AC meter for AC outlet	Standard AC meter for measuring the consumption at the AC outlet
DC meter for DC outlet	Standard DC meter per outlet
Credit-card payment	Two options at choice: integrated contactless terminal or terminal with PIN-pad, on request
Additional safety pack	Additional fuses on the DC power trains and an emergency stop button on the housing
Extended temperature range	Extention of temperature range down to -35° C on request
Integration test of new backend system	SiCharge D can be flexibly connected to any backend according to OCPP 1.6J+ On your behalf, we can also configure and test the connection to a previously unconnected backend
Configuration and communication test	Each Sicharge D is 100% tested in the factory. Optionally, we can also perform a customer-specific configuration, including SIM card and communication test to backend
Noise level parameterization	Depending on local requirements (in sensitive areas like hospitals, hotels, residential dwellings) the charger noise level can be parameterized for day and/or night mode
Customer-specific branding	Customized foliation patterns and design can be created using templates to support your individual branding, on request

Additional 22 kW AC Type 2 socket

Configuration options in your region may vary; please contact your Siemens representative for more information

Compact Power Charging CPC 50kW & CPC150 kW

With impressive technology from Siemens, designed and built by Kostad

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DC Compact Power Chargers CPC 50 and CPC 150 Partner products powered by Siemens components

CPC 50

Electric vehicles can charge with

- 50kW (CPC 50) or
- 150kW (CPC 150)
- Voltage level **up to 850V DC** (920V DC with derating)
 - All relevant charging standards
 - CCS
 - CHAdeMO
 - AC socket Type 2
 - Integration of Siemens industrial components
 - SINAMICS DCP converters
 - SIMATIC S7 controllers
 - Industrial grade ECC charge controllers
- **Remote connectivity** (Sinema Remote Connect) for fast and cost effective service through data analytics as well as shorter reaction times and predictive maintenance

CPC 50 – fast 50 kW charger for diverse applications Partner product powered by Siemens components

- Optimally suited for current and future electric vehicles with long cruising range and high voltage levels
- Charging power up to 50 kW and voltages up to 920V with charging time less than 30 Minutes
- Highest reliability, data and IT-security and low maintenance due to Siemens industrial components and software
- Connection is possible via CCS2 or CHAdeMO as well as 22 kVA / 43 kVA via an AC connector of type 2.

Solution Partner

Kostad Steuerungsbau GmbH

The certified Siemens Solution partner Kostad Steuerungsbau GmbH is an experienced provider of charging infrastructure.

For the design and manufacture of CPC 150, we cooperate with this strong partner.

Solution Partner	SIEMENS
eMobility	

Front View of CPC 50

CPC 150 – The powerful and fast 150 kW charger Partner product powered by Siemens components

- Optimally suited for current and future electric vehicles with long cruising range and high voltage levels
- Charging power of 150 kW and voltages up to 920V for fast and reliable charging of two e-cars at the same time
- Highest reliability, data and IT-security and low maintenance due to Siemens industrial components and software

Solution Partner Kostad Steuerungsbau GmbH

The certified Siemens Solution partner Kostad Steuerungsbau GmbH is an experienced provider of charging infrastructure.

For the design and manufacture of CPC 150, we cooperate with this strong partner.

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Front View of CPC 150

System overview Compact Power 50&150kW with local access control and metering

Sicharge UC

With impressive technology from Siemens, designed and built by Kostad Sicharge UC

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The SICHARGE UC Family

One product family for all utility vehicle requirements

Charging Center

- One product family for all utility vehicle requirements
- Broad power range from
 50 kW to 800 kW
- Connection to the vehicle by cable or automatically connecting pantograph
- Suitable for both opportunity and depot charging

The SICHARGE UC family Charging center front view

The Charging Center is the core of the system. It contains the charging controller, the DC converters and optionally a direct cable connection to the vehicle. Several other vehicle connections like the cable based Frontend, inverted Pantograph and Hood can be powered by this unit.

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The SICHARGE UC family Vehicle interface front view - Frontend

The cable connected Frontend of the UC family is installed close to the vehicles connection with a small footprint and elegant design. For investment and space optimization, several Frontends can be powered in sequence by a single Charging Center.

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The SICHARGE UC family Vehicle interface front view - Inverted Pantograph

Inverted Pantograph urban design

The inverted Pantograph is fully automated option to connect to the fleet e.g. on feeding opportunities along the route.

This "urban design" was created to accommodate modern urban architecture. Inverted Pantograph

industrial design

With similar features as the urban design, the industrial design of the mast has its advantages of a modular installation as well as optimized cost.

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The SICHARGE UC family Vehicle interface front view - Mast mounted Hood

For electric vehicles with integrated Pantograph, the Hood is the connecting counterpart. We offer the choice of a single as well as a double design for sequential charging.

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Solutions for Fleet Electrification

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Fleet electrification stages

Siemens – the right partner to successful electrification

Your journey to successful electrification

Intelligent planning

Every successful journey begins with **thorough** planning.

Depot concept development, consultancy about grid connection and financial solutions, followed by customer-specific simulations – and you are all set to go.

Right charging infrastructure

Depending on your **electrification needs**, we offer you the **necessary hardware**, should it be about AC or DC charging.

Depot grid connect

Everything from a single source – with our mid-& lowvoltage portfolio as well as integration of photovoltaics or battery storage, your depot electrification will be carried out successfully.

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Digital solutions

Be sure that charging operations of your fleet will run smoothly and efficiently.

With us you get a **dedicated digital solution** for whatever need you have during your electrification phase.

Connected services

With our cloud-based and comprehensive classical services, your eVehicles will be well cared for and available whenever you need them.

Intelligent planning of the electric infrastructure

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Comprehensive portfolio for DC and AC charging

Future proof e.g. up to 1000V

Open, modular & scalable

Robust, durable, outdoor designed

CAPEX and energy efficient

Right charging infrastructure

The future-oriented charging setup

- Best fitting hard- and software for your specific needs
- Freely choose from components of the SICHARGE UC family for DC charging in various power classes
- The whole system provides various connection options for your highest flexibility
- Right AC charging infrastructure for any electric vehicle

End-to-end solution for your eFleet Grid connection

Siemens offering: Digital solutions to manage the operations of your eFleet

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Maintenance of Infrastructure

Monitoring and Reporting of Chargers, Notifications, Remote reset

DC charging for eFleets Selection of latest Highlights

Global leadership in charging technology

10 years of experience Trust **Global service network** Reliability Technical excellence and expertise

Let's shape the eMobility world together!

Thank you! **Questions?**

Contact

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