PHOENIX CONTACT E-Mobility

Presentación

PHOENIX CONTACT
INSPIRING INNOVATIONS

PHOENIX CONTACT E-Mobility

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PHOENIX CONTACT E-Mobility

Pioneers of fast charging technology

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Pioneers of fast charging technology

- Phoenix Contact E-Mobility is the competence center for electromobility within the Phoenix Contact Group
- Reliable partner to the automotive industry
- Further development and worldwide standardization of a modern charging infrastructure suitable for everyday use
- Development of trend-setting technologies such as High Power Charging

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Our worldwide locations

Germany

- PHOENIX CONTACT E-Mobility GmbH
- Headquarters (administration, development and production)
- Founded in 2013

China

- PHOENIX CONTACT (Nanjing) E-Mobility Technology Co., Ltd.
- Development and production
- Founded in 2015

Poland

- PHOENIX CONTACT Wielkopolska Sp. z o.o.
- Since 2018 also production for PHOENIX CONTACT E-Mobility

Back Company history

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Expertise from a single source

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Expertise from a single source

- Since the invention of the terminal block in 1928, we have been dealing with electrical connection technology
- We have been developing charging technology for electromobility for over 10 years
- High product quality and innovative strength are the result of expert knowledge and technological know-how
- Phoenix Contact E-Mobility offers all competencies from a single source

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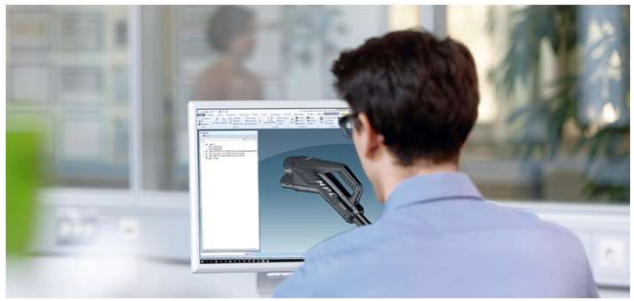
Expertise from a single source



Development and engineering

Tests and quality assurance

Production and assembly

IATF 16949 certified

Leading in technology

Strong in consulting

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All competencies in detail

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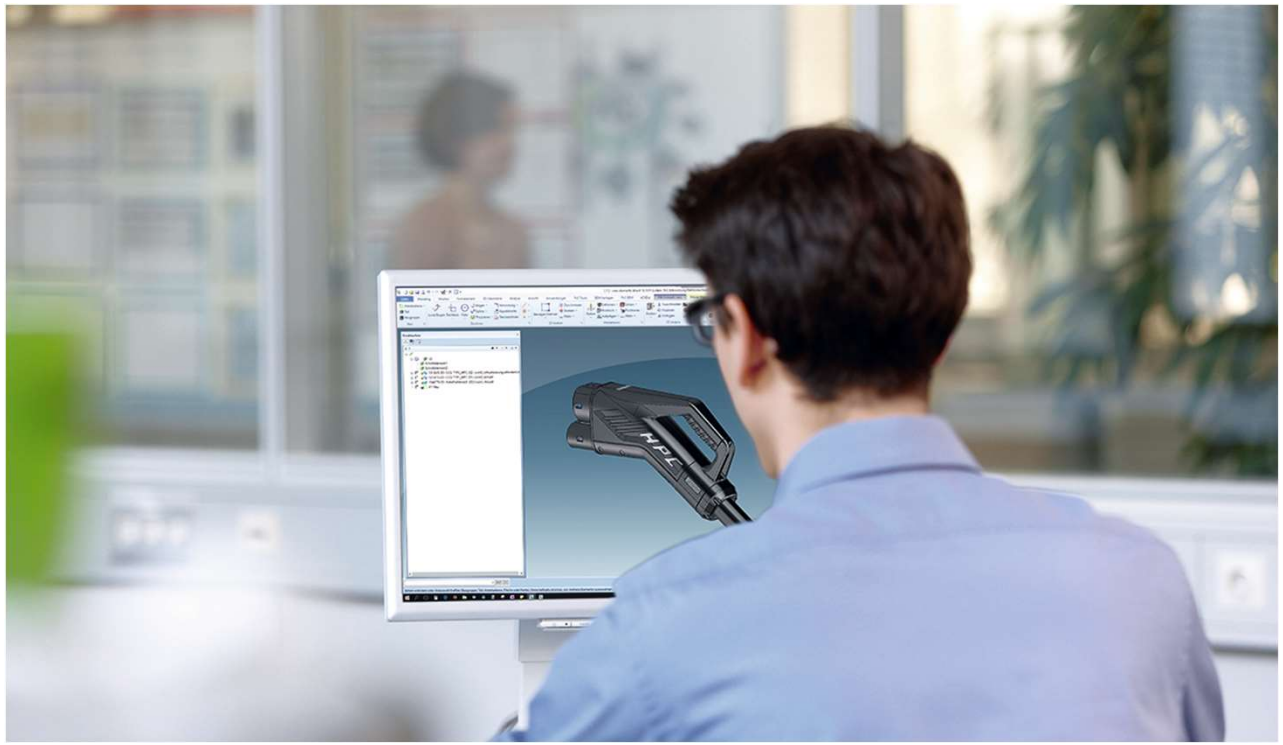
Expertise from a single source

Development and engineering



When our engineers develop new solutions, it's not just about mastering a technical challenge:

The prototype must then be ready for series production.

To achieve this goal, we sometimes take unusual paths, by developing our own production tools and processes.

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Expertise from a single source

Tests and quality assurance

Standard-compliant tests performed throughout development ensure the electrical safety, resistance to cold and heat, and mechanical durability of our products.

They thus guarantee consistently high quality and reliability.

After manufacture, each product is subjected to an extensive functional test.

Expertise from a single source

Production and assembly

Qualified employees, transparent processes, high flexibility and fast reaction times are the hallmarks of our modern production.

The latest technologies are used, such as special joining processes for particularly stable, high-performance electrical connections in our charging connector systems.

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Expertise from a single source

IATF 16949 certified

When cooperating with automobile manufacturers, particularly high demands are placed on work processes, product quality and organizational structure.

We have successfully passed the audits for IATF 16949 and ISO 9001 and are therefore a competent partner and reliable supplier to the automotive industry.

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Expertise from a single source

Leading in technology

Thanks to our proximity to customers and our active involvement in standards committees and electromobility networks, we know the requirements of the market very well.

In this way, we develop forward-looking technologies for electromobility suitable for everyday use.

Two examples are the Combined Charging System (CCS) and High Power Charging (HPC).

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Expertise from a single source

Strong in consulting

We help you on your way to electromobility:

Our experts select the right products for you and provide you with competent advice on setting up your charging stations and integrating them into higher-level systems.

In addition, we design the connection of photovoltaic and wind turbines to your charging points.

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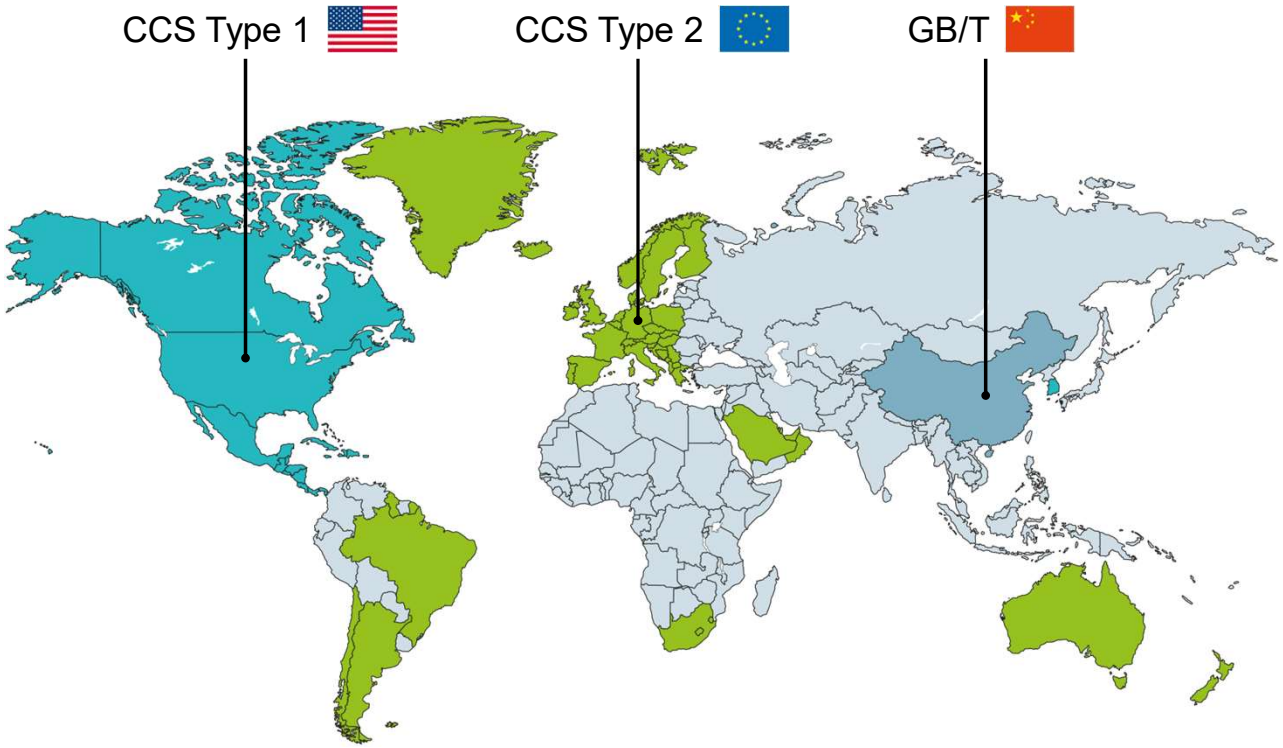
Overview of worldwide charging standards



- Various charging standards have become established throughout the world with their specific connector geometries
- We offer you a complete range of charging technology products for all regions from a single source
- Thanks to the Combined Charging System (CCS), AC and DC charging with just one vehicle charging socket is now possible in many parts of the world

Back | Charging standards in detail | Advantages of CCS | CharIN

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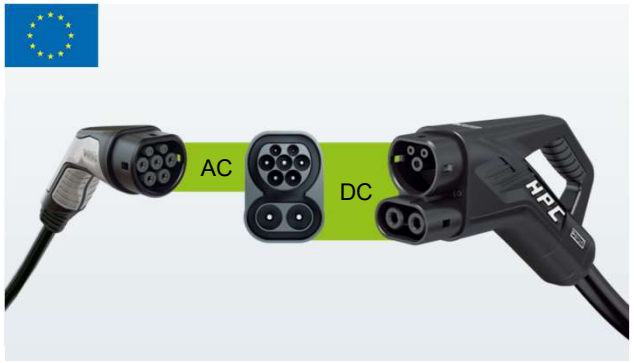
Overview of worldwide charging standards

Charging standards and their mating faces in detail

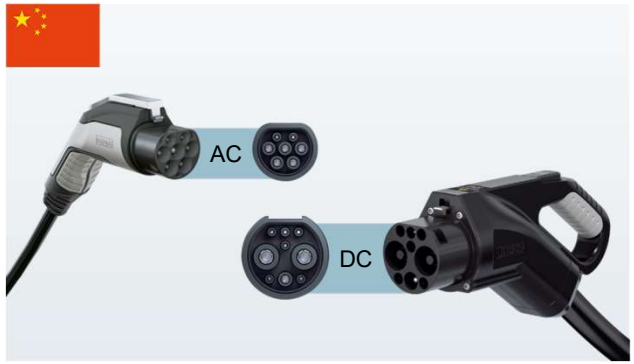
CCS Type 1

- Usage: North America and South Korea
- Standards: SAE J1772 and IEC 62196-3
- AC and DC charging connectors fit into one CCS charging socket



CCS Type 2

- Usage: Europe, Greenland, South America, South Africa, Saudi Arabia and Australia
- Standard: IEC 62196-3
- AC and DC charging connectors fit into one CCS charging socket



GB/T

- Usage: China
- Standard: GB/T 20234
- Separate AC and DC charging sockets are required in the vehicle

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Overview of worldwide charging standards

Advantages of the Combined Charging System (CCS)

- Due to the common geometry of their mating faces, AC and DC charging connectors fit into the same vehicle charging socket
- The car manufacturer only has to plan one charging socket into his vehicle
- For the driver, handling during charging is easier
- Thanks to the electromechanical locking of the charging connector and the integrated, high-precision temperature monitoring, the system is particularly safe

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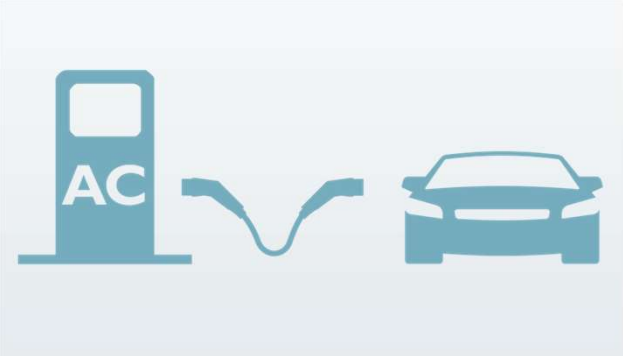
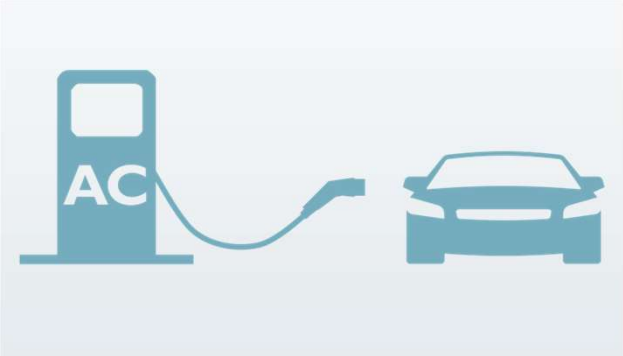
Overview of charging modes



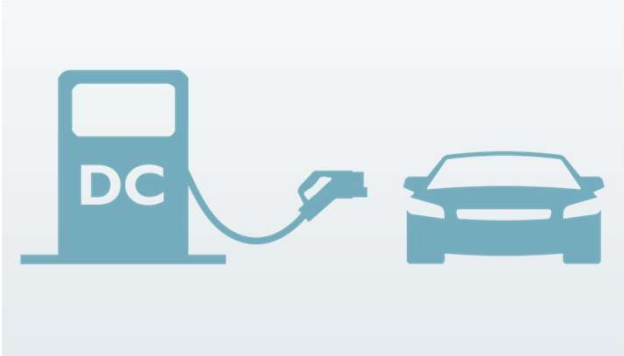
Charging mode 3, case B

- Alternating current (AC)
- Mobile charging cable
- Infrastructure plug is plugged into infrastructure socket
- Vehicle connector is plugged into vehicle socket



Charging mode 3, case C

- Alternating current (AC)
- Charging cable firmly connected to the charging station
- Vehicle connector is plugged into vehicle socket



Charging mode 4

- Direct current (DC)
- Charging cable firmly connected to the charging station
- Vehicle connector is plugged into vehicle socket

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The right products for every application

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The right products for every application

- Every charging solution places special demands on performance and functionality
- Broad, scalable portfolio of coordinated components including software
- Interfaces for feeding renewable energies into the grid for environmentally friendly charging
- Coupling with network control technology, building and energy management

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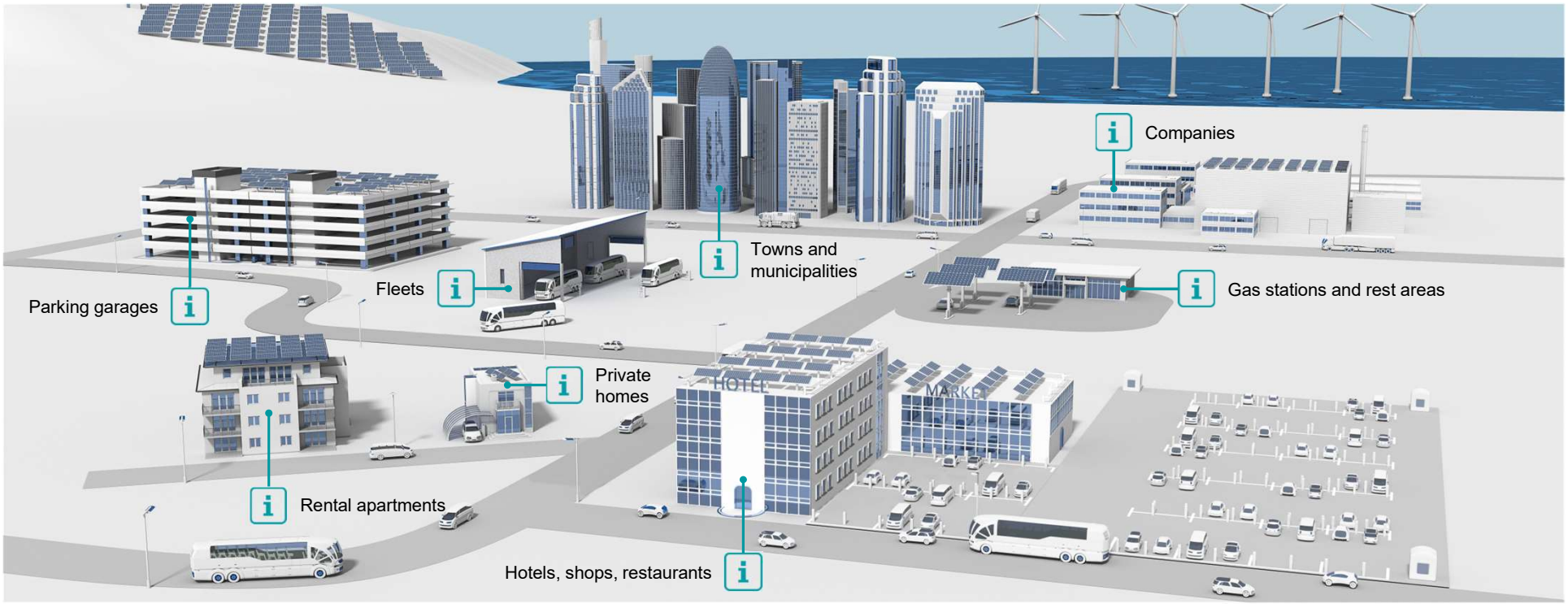
The right products for every application



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The right products for every application

Private homes

Simple wall boxes for
garages and carports

Typical functions:

- AC charging ☑ (11 kW)
- DC charging
- Touch operation
- Shutdown in case of fault currents ☑
- User authorization e.g. via RFID
- Load management
- Billing via OCPP
- Remote maintenance
- Building/energy management

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The right products for every application

Private homes

Simple wall boxes for
garages and carports

Recommended products:

- AC charging cable
- Alternative: AC charging socket
- AC controller Basic
- Residual current monitoring

for each charging point

- Terminal blocks
- Surge protection

for every wallbox

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The right products for every application

Rental apartments

Charging stations for tenants with load distribution and uncomplicated billing

Typical functions:

AC charging	☑ (11 kW)
DC charging	
Touch operation	
Shutdown in case of fault currents	☑
User authorization e.g. via RFID	optional
Load management	optional
Billing via OCPP	optional
Remote maintenance	
Building/energy management	optional

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PHOENIX CONTACT
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The right products for every application

Rental apartments

Charging stations for tenants with load distribution and uncomplicated billing

Recommended products:

- AC charging cable
- Alternative: AC charging socket
- AC controller Advanced Plus
- Optional: Energy meter

→ for each charging point

- Terminal blocks
- Surge protection

→ for every charging station/wallbox

- Optional: Management software
- Optional: Industrial PC
- Optional: Ethernet switch

→ for the entire application

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The right products for every application

Towns and municipalities

Area-wide shop networks to reduce emissions and maintain the quality of life in the smart city

Typical functions:

AC charging	☑ (22 kW)
DC charging	☑ (150 kW)
Touch operation	optional (at every charging station)
Shutdown in case of fault currents	☑
User authorization e.g. via RFID	☑
Load management	
Billing via OCPP	☑
Remote maintenance	☑
Building/energy management	

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The right products for every application

Towns and municipalities

Area-wide shop networks to reduce emissions and maintain the quality of life in the smart city

Recommended products:

- AC charging socket
- Alternative: AC charging cable
- AC controller Advanced Plus
- DC charging cable
- DC controller Professional
- Energy meter

for each charging point

- Terminal blocks
- Surge protection
- Power supply
- Optional: Touch panel
- Optional: Ethernet switch

for every charging station

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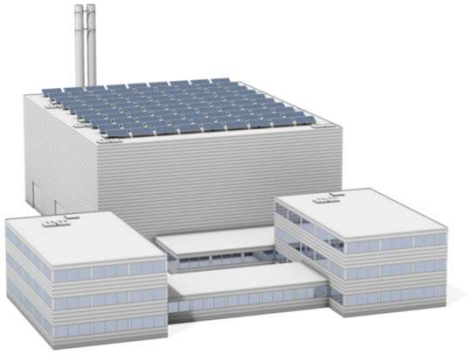
The right products for every application

Companies



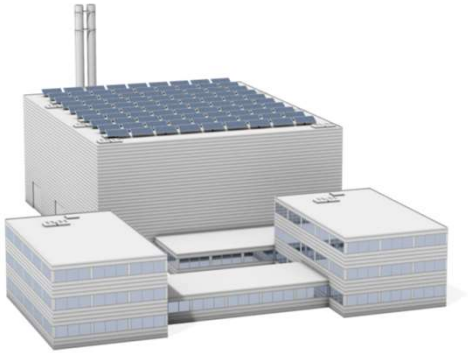
Charging facilities for employees, guests and vehicle fleet – integrated into building and energy management

Typical functions:

AC charging	☑ (22 kW)
DC charging	☑ (50 kW)
Touch operation	☑ (at every charging station)
Shutdown in case of fault currents	☑
User authorization e.g. via RFID	☑
Load management	☑
Billing via OCPP	optional
Remote maintenance	optional
Building/energy management	optional

The right products for every application

Companies



Charging facilities for employees, guests and vehicle fleet – integrated into building and energy management

Recommended products:

- AC charging cable
- Alternative: AC charging socket
- AC controller Advanced Plus
- DC charging cable
- DC controller Professional
- Energy meter

→ for each charging point

- Terminal blocks
- Surge protection
- Power supply
- Touch panel
- Ethernet switch

→ for every charging station/wallbox

- Charging management software
- Industrial PC
- Optional: DSL/mobile modem

→ for the entire application

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sample reference

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The right products for every application

Fleets

Charging solutions for bus, taxi and and transport companies

Typical functions:

AC charging	(22 kW)
DC charging	(150 kW)
Touch operation	(at every charging station)
Shutdown in case of fault currents	
User authorization e.g. via RFID	
Load management	
Billing via OCPP	
Remote maintenance	
Building/energy management	

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The right products for every application

Fleets

Charging solutions for bus, taxi and and transport companies

Recommended products:

- AC charging cable
- Alternative: AC charging socket
- AC controller Advanced Plus
- DC charging cable
- DC controller Professional
- Energy meter

for each charging point

- Terminal blocks
- Surge protection
- Power supply
- Touch panel
- Ethernet switch

for every charging station/wallbox

- Charging management software
- Industrial PC
- DSL/mobile modem

for the entire application

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The right products for every application

Parking garages

Numerous charging points in a confined space with a central terminal and billing system

Typical functions:

AC charging	☑	(22 kW)
DC charging		
Touch operation	☑	(central at terminal)
Shutdown in case of fault currents	☑	
User authorization e.g. via RFID	☑	
Load management	☑	
Billing via OCPP	☑	
Remote maintenance	☑	
Building/energy management	☑	

The right products for every application

Parking garages

Numerous charging points in a confined space with a central terminal and billing system

Recommended products:

- AC charging socket
- Alternative: AC charging cable
- AC controller Advanced Plus
- Energy meter

for each charging point

- Terminal blocks
- Surge protection

for every charging station/wallbox

- Charging management software
- Industrial PC with touch panel
- DSL/mobile modem
- Ethernet switch

for the entire application

The right products for every application

Hotels, shops and restaurants

Charging options as added value for guests and customer loyalty

Typical functions:

AC charging	☑ (11 kW)
DC charging	☑ (50 kW)
Touch operation	☑ (at every charging station)
Shutdown in case of fault currents	☑
User authorization e.g. via RFID	☑
Load management	☑
Billing via OCPP	optional
Remote maintenance	optional
Building/energy management	optional

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The right products for every application

Hotels, shops and restaurants

Charging options as added value for guests and customer loyalty

Recommended products:

- AC charging socket
- Alternative: AC charging cable
- AC controller Advanced Plus
- DC charging cable
- DC controller Professional
- Energy meter

→ for each charging point

- Terminal blocks
- Surge protection
- Power supply
- Touch panel
- Ethernet switch

→ for every charging station

- Charging management software
- Industrial PC
- Optional: DSL/mobile modem

→ for the entire application

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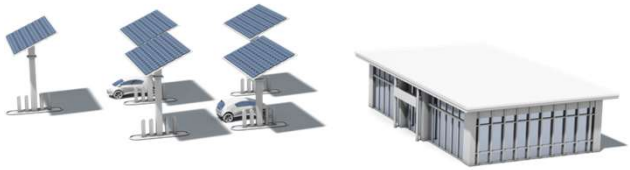
The right products for every application

Gas stations and rest areas



Fast DC charging with high performance in a few minutes

Typical functions:

AC charging	☑ (22 kW)
DC charging	☑ (500 kW HPC)
Touch operation	☑ (at every charging station)
Shutdown in case of fault currents	☑
User authorization e.g. via RFID	☑
Load management	☑
Billing via OCPP	☑
Remote maintenance	☑
Building/energy management	☑

The right products for every application

Gas stations and rest areas

Fast DC charging with high performance in a few minutes

Recommended products:

- AC charging socket
- Alternative: AC charging cable
- AC controller Advanced Plus
- Cooled DC charging cable
- DC controller Professional
- Energy meter

→ for each charging point

- Terminal blocks
- Surge protection
- Power supply
- Touch panel
- Ethernet switch

→ for every charging station

- Charging management software
- Industrial PC
- DSL/mobile modem

→ for the entire application

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High power charging car solutions - Superchargers for E-Mobility

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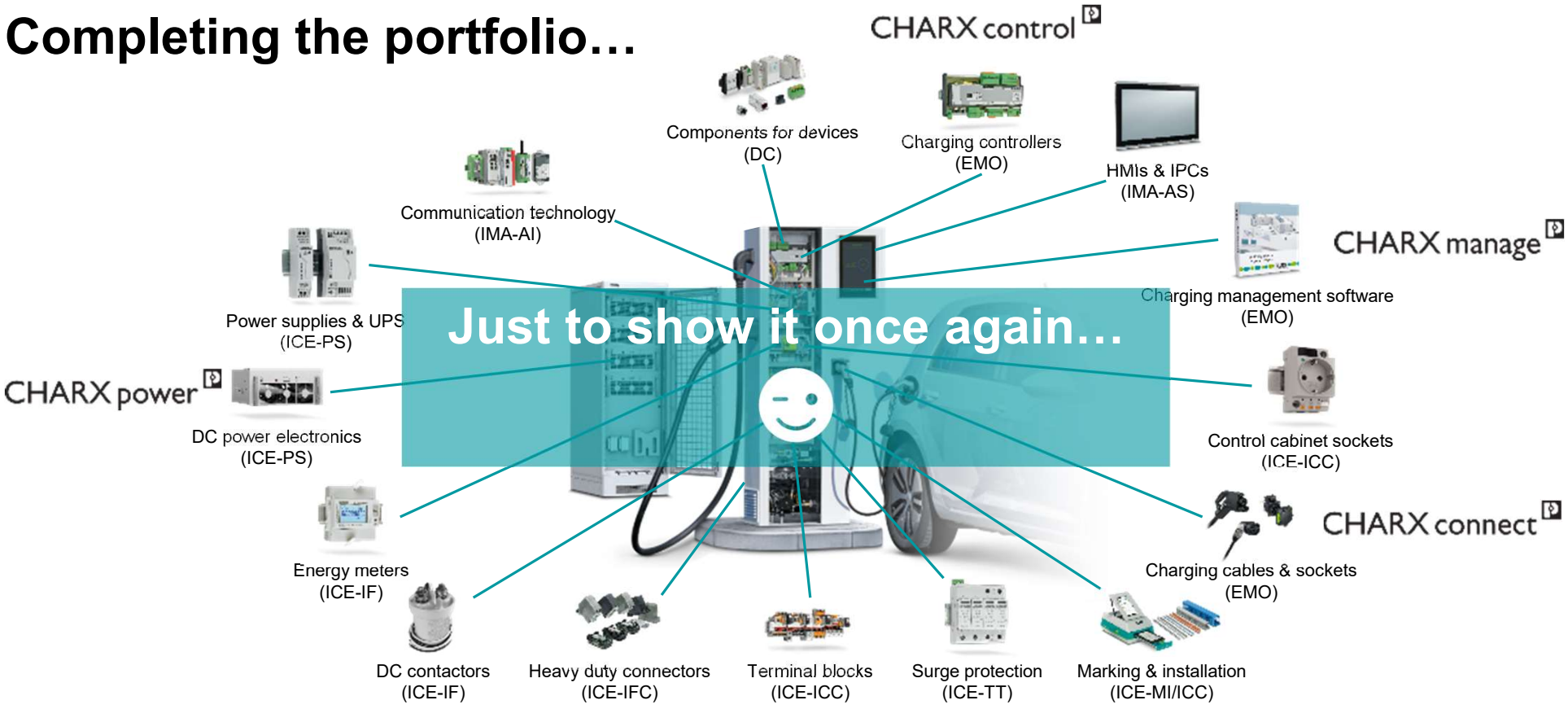
Application landscape for charging infrastructure

Completing the portfolio…



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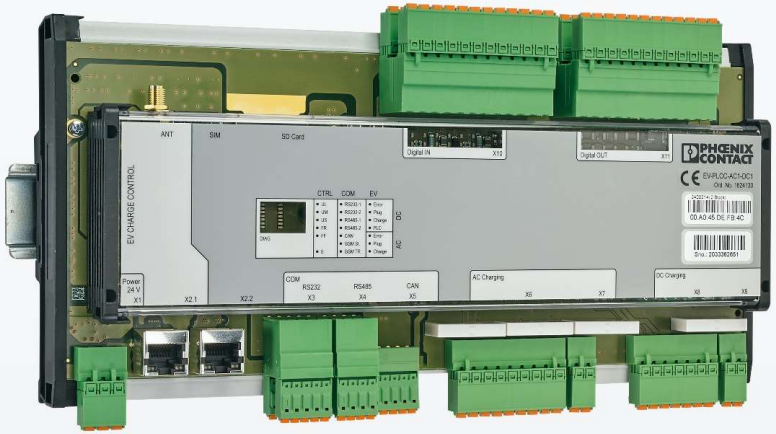
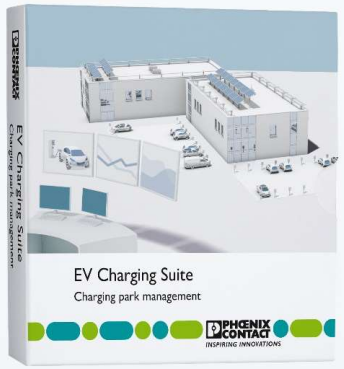
Our portfolio for the entire charging process





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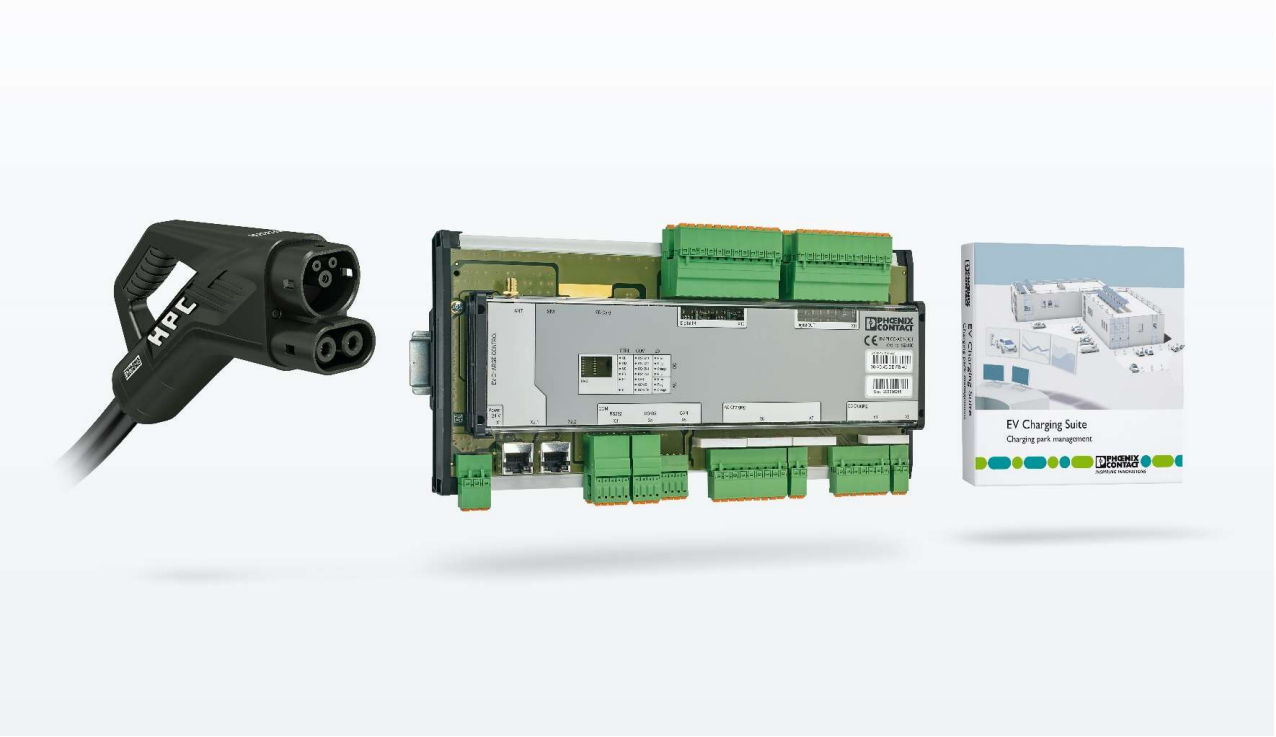
Our portfolio for the entire charging process



- Our broad product portfolio offers nearly all components for the construction of your charging stations:
  - Charging cables and sockets
  - Charging controllers and software
  - Connection and automation technology

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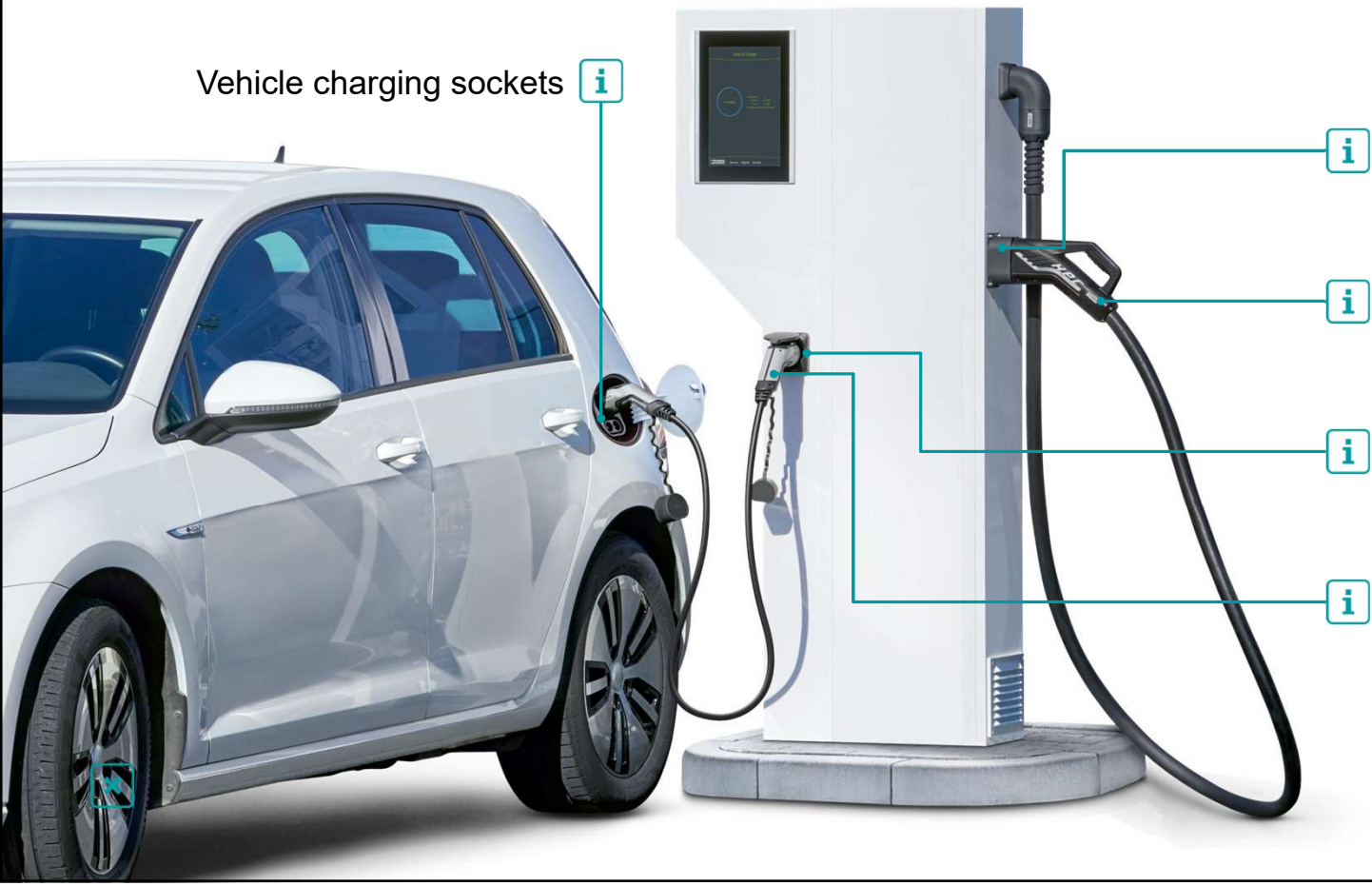
Our portfolio for the entire charging process

Reliable connection systems for vehicles and charging points



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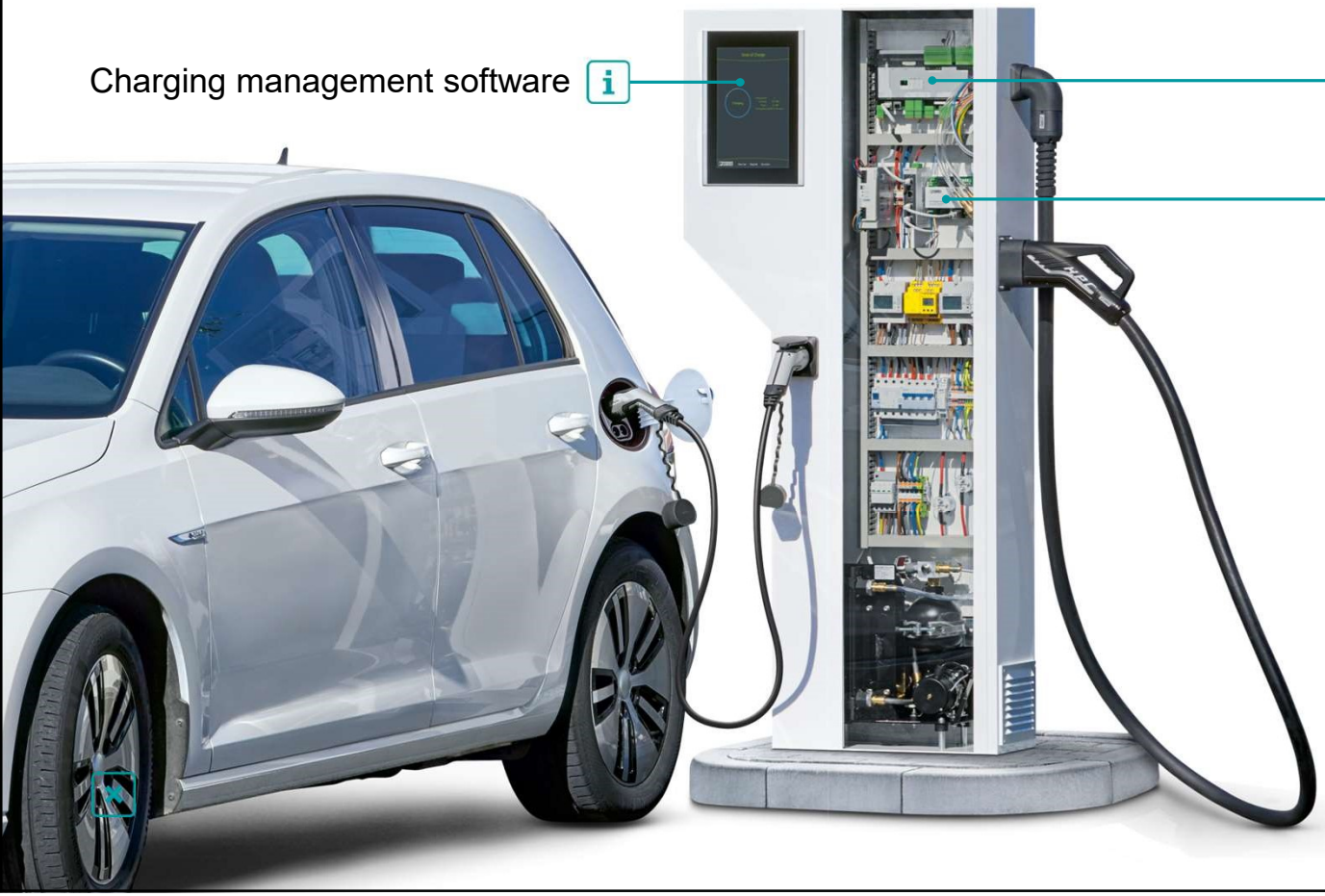
Our portfolio for the entire charging process

Software and controls for an intelligent charging infrastructure



Charging management software

DC charging controllers

AC charging controllers

More products:

- Starter kits
- Residual current monitoring

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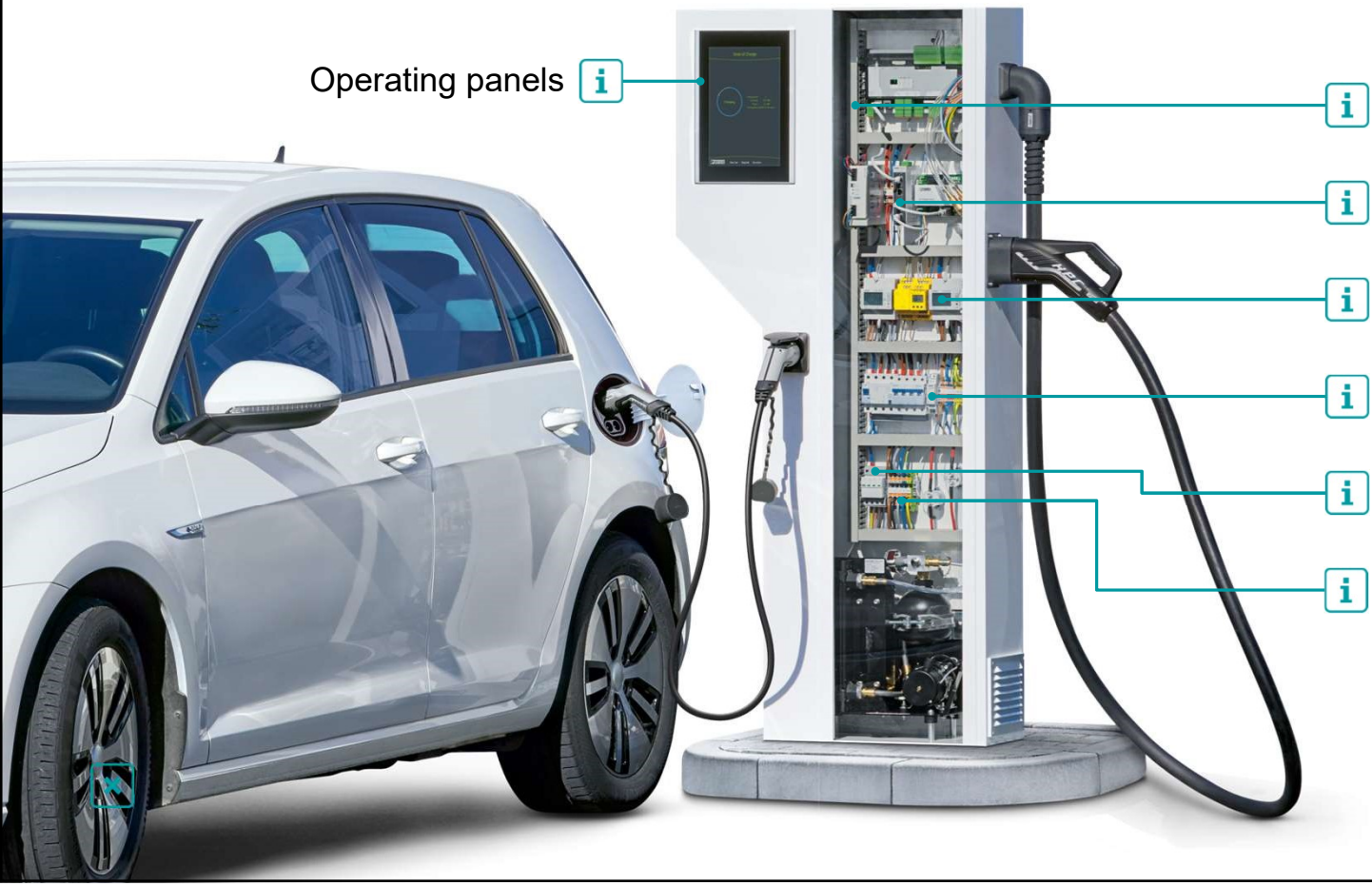
Our portfolio for the entire charging process

Further products for setting up your charging stations



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Reliable connection systems for vehicles and charging points

DC charging cables

- We can supply you with standard-compliant charging cables for worldwide fast charging with direct current
- Charging capacities up to 250 kW are supported
- The cooled variants for High Power Charging (HPC) can even achieve charging capacities of up to 500 kW
- This makes the charging process comparable to refuelling a vehicle with a combustion engine

Back | High Power Charging | Cables as required | More on the web

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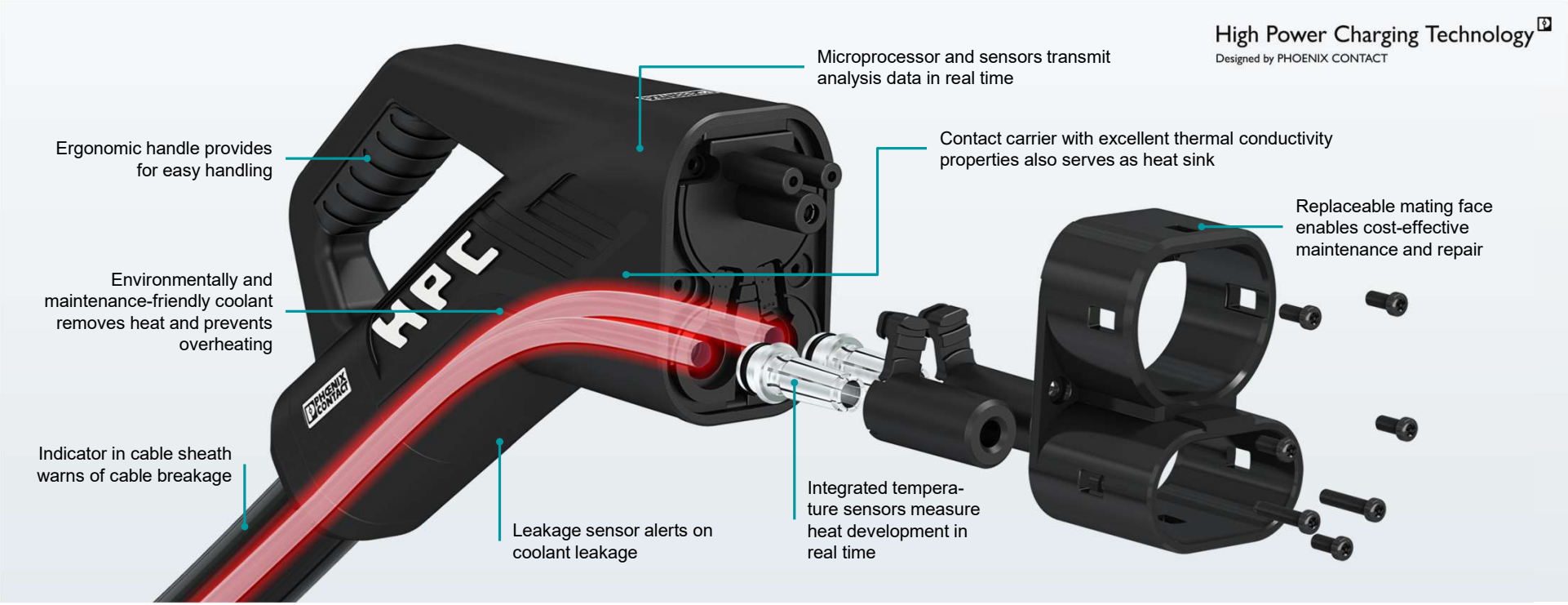
Reliable connection systems for vehicles and charging points

High Power Charging – fast charging in a new dimension

- **Extremely fast**
  100 km range in 3-5 min thanks to 500 kW charging power
- **Extremely safe**
  Permanent temperature and leakage monitoring
- **Maintenance-friendly**
  Interchangeable mating face and semi-open cooling system
- **Environmentally friendly**
  Water-glycol mixture as coolant
- **Fully CCS compatible**

High Power Charging

The HPC charging connector in detail



Back | Promotional clip | Product animation | More on the web

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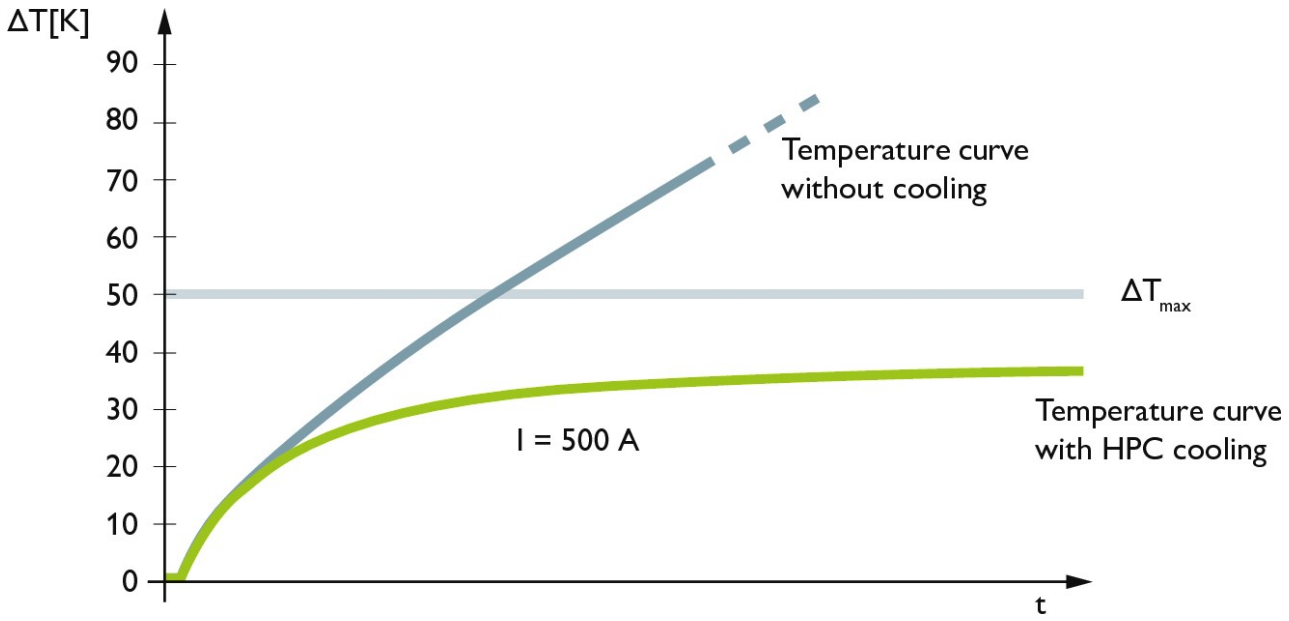
High Power Charging

How does cooling work?



- According to VDE-AR-E 2623-5-3 and IEC TS 62196-3-1, charging connectors and cables must not be more than 50 K warmer than the ambient air
- To ensure this, several temperature sensors measure the heat development in real time
- A controller evaluates the data and regulates the cooling capacity according to demand, so that overheating is prevented safely and in accordance with standards

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High Power Charging

Flexible application possibilities

Electricity filling stations and charging parks

- Cooling unit and controller centrally located
- Decentralised charging columns are supplied with coolant – they only have heat exchangers
- All charging columns thus use a common cooling circuit

Stand-alone charging columns

- Cooling unit and controller integrated in charging column
- Together with charging connector and charging cable, an independent cooling circuit is formed

High Power Charging

Product range and accessories

CCS Type 1

- For use in North America
- Expected to be available from 2020

CCS Type 2

- For use in Europe
- Available from End of 2018

Cable feed-through

- Fast, safe and convenient installation
- Interfaces for power, communication and cooling

Repair kits

- Fast and inexpensive repairs
- For exchanging mating face frame and DC contacts

High Power Charging

Configuring your cooled HPC solution

- Based on the installation space of your charging columns, the climatic conditions at the installation site and other factors, we will put together the optimum combination for you:
  - HPC charging cable
  - HPC cable feed-through
  - DC charging controller
  - Further components
- We recommend suitable cooling units and heat exchangers from one of our technology partners

Reliable connection systems for vehicles and charging points

AC charging cable

- For conventional charging with alternating current, we offer a complete portfolio of AC charging cables for charging capacities up to 26 kW
- In addition to variants with open cable ends for attachment to a charging station, you can also obtain mobile cables for the boot
- The ergonomic design has already won two renowned design awards

Reliable connection systems for vehicles and charging points

AC infrastructure charging sockets

- Our infrastructure charging sockets are used in AC charging stations and wall boxes and enable the charging of a vehicle via a mobile charging cable
- The charging sockets are available for the European Type 2 standard and for the Chinese GB/T standard
- The Type 1 standard for North America and Japan does not provide for an infrastructure charging socket

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Reliable connection systems for vehicles and charging points

Accessories

- Our brackets for AC and DC charging cables are mounted on the outer wall of the charging station or wall box
- During the charging pauses, they ensure that the vehicle connector is held securely and protect it from weather influences
- To protect the AC infrastructure charging boxes against precipitation and vandalism, we offer self-closing and self-opening protective lids

PHOENIX CONTACT
INSPIRING INNOVATIONS

Reliable connection systems for vehicles and charging points

Vehicle charging sockets

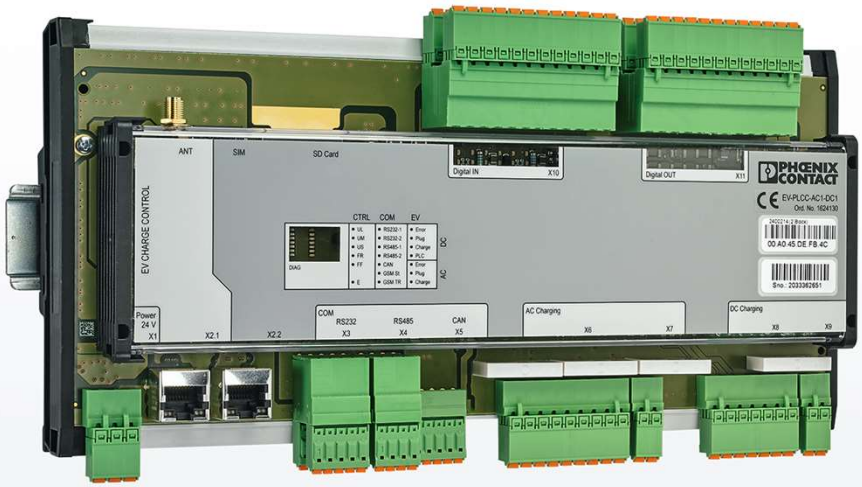
- The universal vehicle charging sockets for the American and European Combined Charging System (CCS) allow DC and AC charging with only one mating face
- Thanks to the uniform dimensions, automobile manufacturers can provide the same installation space in the body of all vehicle models
- You will also find DC charging sockets for the Chinese GB/T standard

Back | Product animation | Customer-specific sockets | More on the web

PHOENIX CONTACT
INSPIRING INNOVATIONS

Software and controls for an intelligent charging infrastructure

DC charging controllers

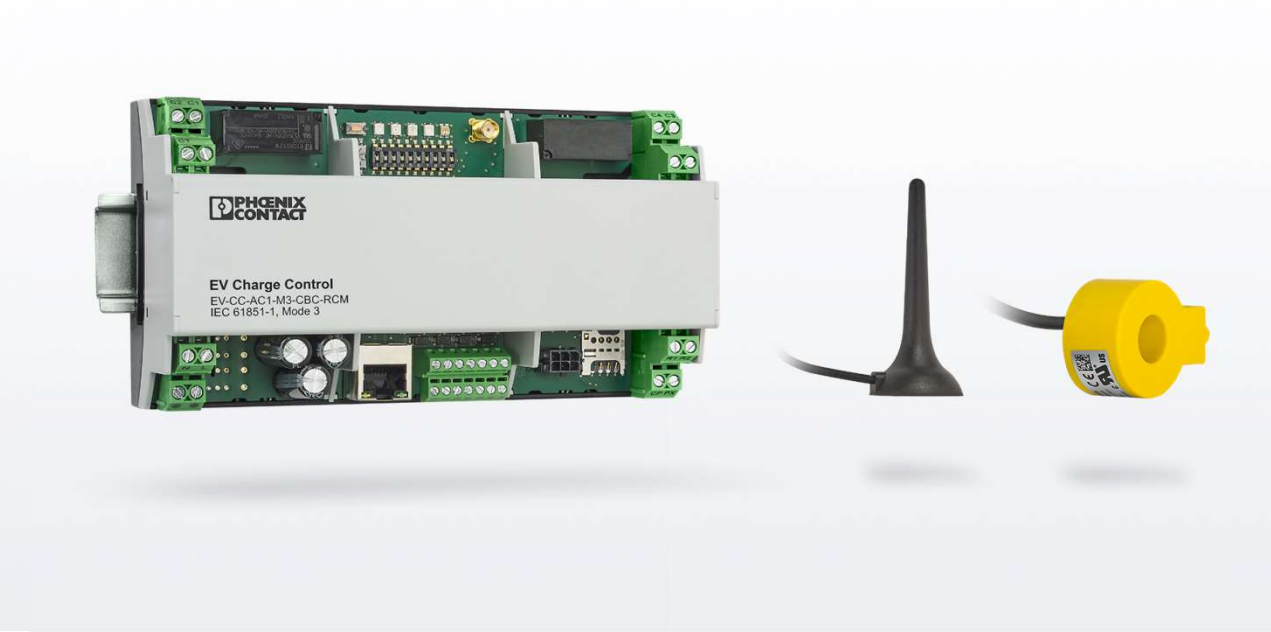


- EV Charge Control Professional is the powerful control solution for your modern fast charging station
- Freely programmable according to IEC 61131
- Supports both fast DC and conventional AC charging
- Takes over all control and communication tasks as well as visualization on the control panel

PHOENIX CONTACT
INSPIRING INNOVATIONS

Software and controls for an intelligent charging infrastructure

AC charging controllers



- EV Charge Control Basic for simple, private charging points such as wall boxes in garages and carports
- EV Charge Control Advanced and EV Charge Control Advanced Plus for public or commercial AC applications with multiple charging points, load and energy management, remote access and billing

INSPIRING INNOVATIONS

Software and controls for an intelligent charging infrastructure

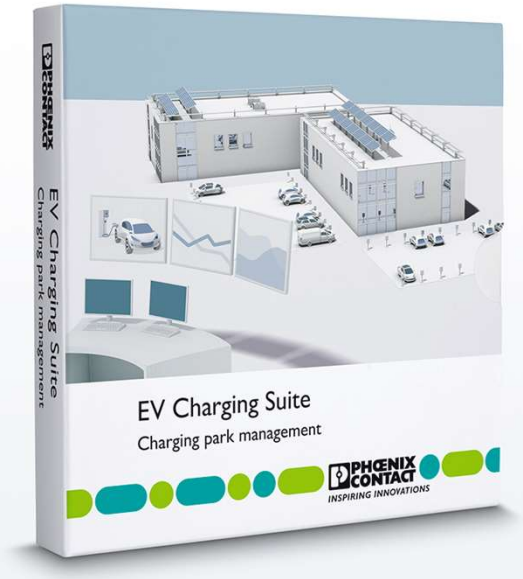
Residual current monitoring

- In combination with a type A residual current device, our EV-RCM residual current monitoring module saves you from having to use an expensive type B residual current device, because it interrupts the charging process in the event of an error
- Once the residual current is no longer present, the charging controller automatically resets the module, making the charging point available for use again without the need for costly servicing

PHOENIX CONTACT
INSPIRING INNOVATIONS

Software and controls for an intelligent charging infrastructure

Charging management software



- **All in one software**
  The interface between driver, billing provider, electricity grid operator, charging park operator
- **Intelligent distribution**
  Optimum load distribution and increased availability
- **Comfortable control**
  Configure and monitor your charging park via web browser
- **Future-proof investment**
  with scalable licenses
- **Get started right away**
  with pre-installed industrial PCs

Back | Product animation | Video: Customer statement | More on the web

PHOENIX CONTACT
INSPIRING INNOVATIONS

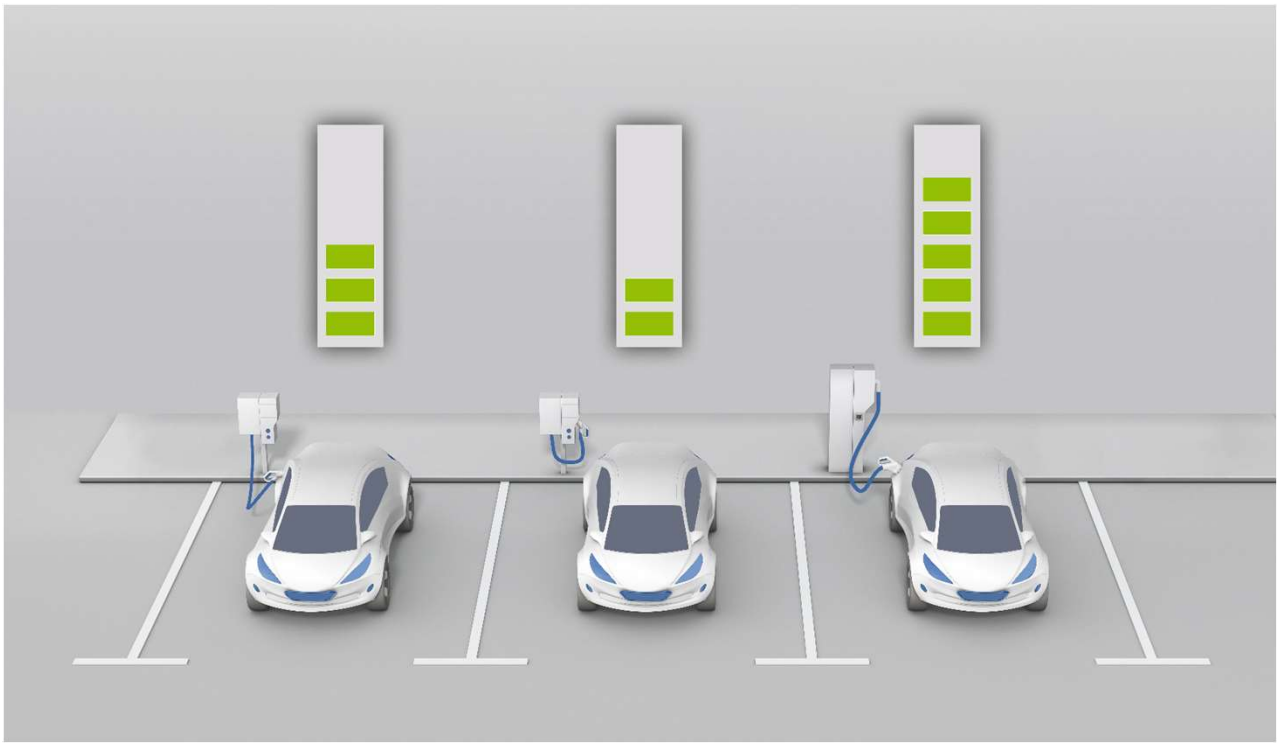
Charging management software

Good reasons for a charging management

- Trend towards larger charging car parks due to increasing number of e-cars
- The challenges:
  - Achieve optimal charging power for each charging point with the limited on-site grid connection
  - Ensure safe, high-availability operation
  - Take into account other energy consumers and producers

Charging management software

Intelligent distribution



- The integrated load management distributes the connected load optimally to all charging points according to adjustable rules
- This avoids triggering the main fuse due to overload and thus ensures the availability of your charging park
- In addition, you avoid high extra costs that can arise if the contractually agreed maximum output is exceeded

Charging management software

Comfortable control

- Configure, control and monitor your fleet via web browser
- Manage users and charging points, release charging operations
- Access all data, clearly visualized and exportable
- Tailored user roles offer the right rights for plant operators, service technicians and operating personnel

Charging management software

Easy charging

- The customers of your charging park are intuitively guided at the central terminal via a touch interface, from authorization to completion of the charging process
- Billing is precise and consumption-based via the Open Charge Point Protocol (OCPP), via which the software communicates with the billing provider

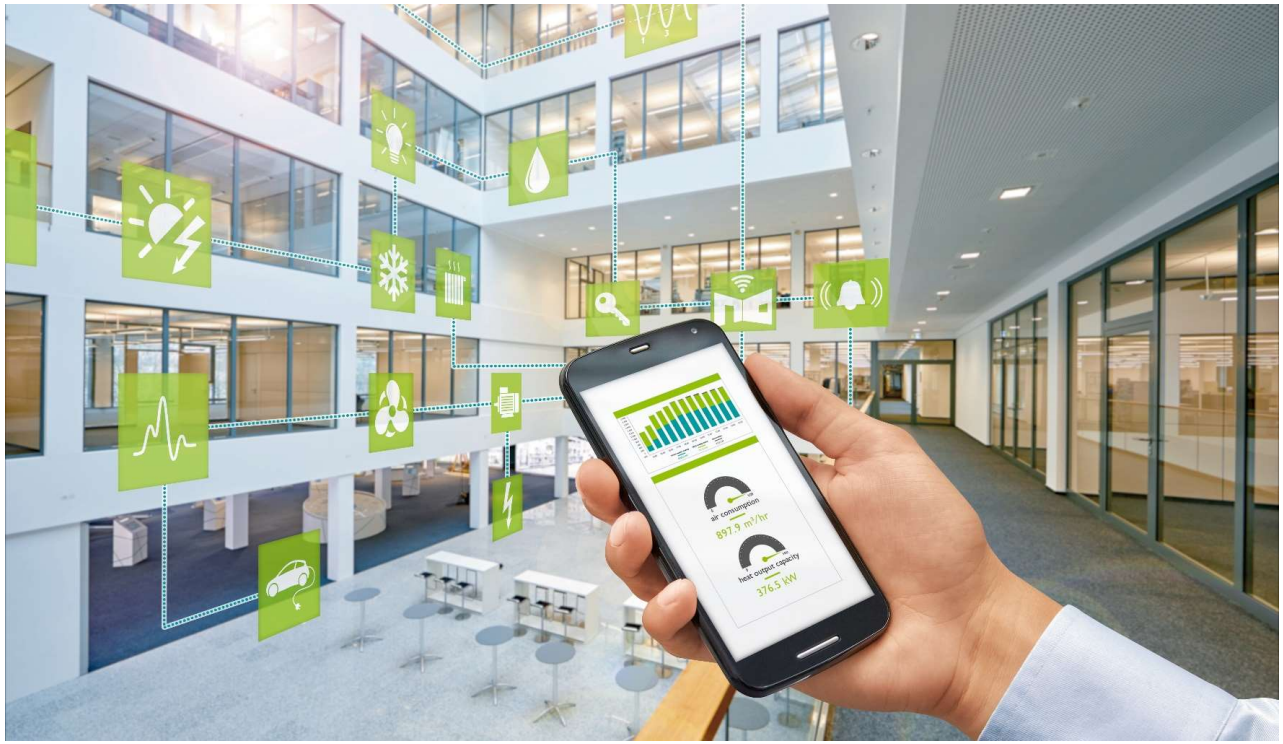
Charging management software

Future-proof investment

- Depending on the size of your charging fleet, you will receive staggered software licenses for 10, 30 and 50 charging points
- Simply add new attachment points – without complete reconfiguration
- For larger extensions we offer low-cost upgrade licenses
- In this way you can make future-proof investments and flexibly expand your charging options

Charging management software

Clever integration



- Optional connection to a building and energy management system such as Emalytics
- By integrating real-time data, the interaction of all producers and consumers can be optimized
- This enables, for example, environmentally friendly charging with regenerative energies
- At the same time, it ensures that sufficient energy is reserved for other consumers

Charging management software

Get started right away

- Upon request, you can get the EV Charging Suite pre-installed on a Valueline IPC
- So you reduce your installation and configuration effort
- The IPCs are designed for outdoor use and are easy to read even in strong sunlight
- The hardware performance is matched to the system requirements of the EV Charging Suite

PHOENIX CONTACT
INSPIRING INNOVATIONS

Our portfolio for the entire charging process

Starter kits for building-up charging stations

- Our starter kits are the perfect introduction for electricians to the world of charging technology
- The kits contain a ready-made compilation of all necessary components for the simple and manual assembly of private or commercial AC charging stations
- Thanks to the tested wiring diagrams, no additional development work is required

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Starter kits for building-up charging stations

Contents of a starter kit

- A starter kit contains e.g:
  - AC charging socket with protective cover or AC charging cable with holder
  - AC charging controller
  - Residual current monitoring module
  - Terminal blocks, jumpers, end caps and end holders
  - wiring diagram

Further products for setting up your charging stations

HMIs and industrial PCs

- We offer special HMIs and industrial PCs for intuitive touch operation and also for controlling your charging stations
- Thanks to the IP67-protected front, extended temperature range, weather-resistant materials and sunlight readable display, these are designed for continuous outdoor operation in all weathers

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INSPIRING INNOVATIONS

Further products for setting up your charging stations

Communications technology

- Standard interfaces such as Ethernet and mobile telephony allow a flexible and secure connection to billing, building and energy management systems as well as remote control and remote maintenance of your charging fleet
- For these purposes we offer you a broad portfolio of Ethernet switches, mobile routers and security routers

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Further products for setting up your charging stations

Energy meters

- We recommend the use of our energy meters in order to obtain exact data on the energy consumption or performance of your charging points for billing purposes
- The devices are MID-approved according to EN 50470 and measure current, voltage, power and energy
- The connection for data evaluation is made via Ethernet or serial interfaces

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INSPIRING INNOVATIONS

Further products for setting up your charging stations

Power supplies

- For the stable operation of your charging station you need a reliable power supply
- In addition, the devices of our STEP POWER family are space-saving and very energy-efficient due to their high efficiency and low no-load losses
- Extreme outdoor temperatures from -25 °C to +70 °C are no problem for the units

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INSPIRING INNOVATIONS

Further products for setting up your charging stations

Surge protection

- Charging stations must be highly available, at any time of the day or night and in wind and weather
- To protect the charging point and vehicle from lightning and overvoltages, at least one type 2 surge arrester should be used in all sub-distributions, charging points and wall boxes
- This is the only way to achieve an adequate level of protection

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Video: Experiment in the high-current laboratory
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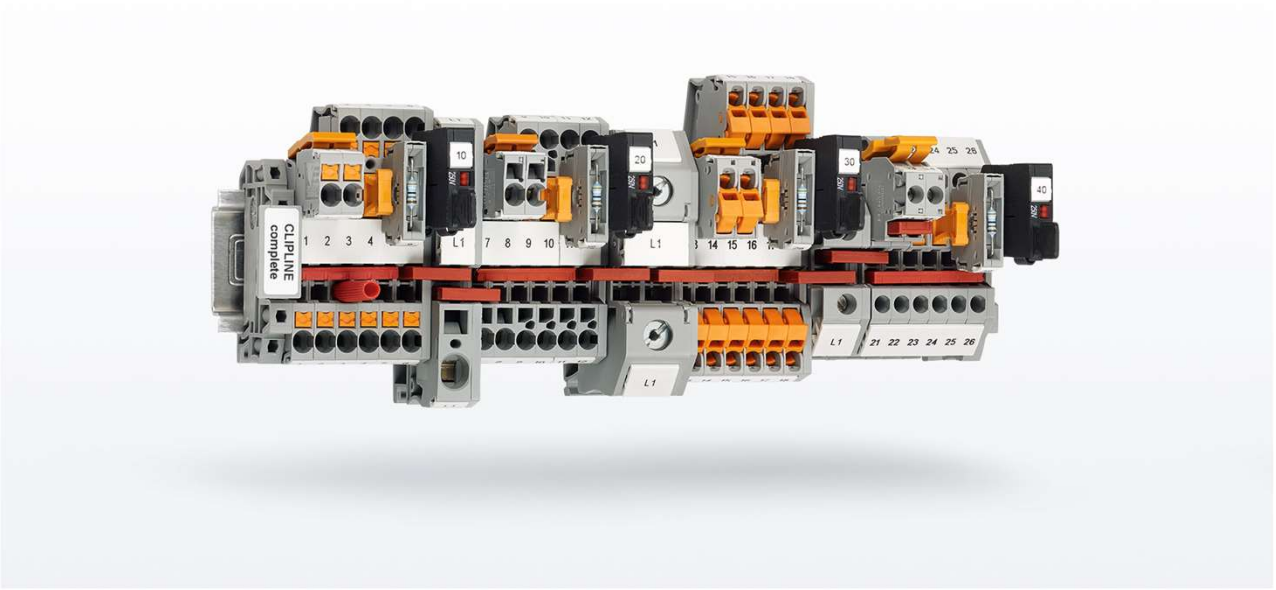
Further products for setting up your charging stations

Terminal blocks



- We offer you a complete range of terminal blocks for supply, potential and signal distribution in your charging stations and wall boxes
- You have a free choice of connection technology
- With hybrid terminals, you cleverly combine two connection techniques to meet the requirements for internal and external wiring simultaneously

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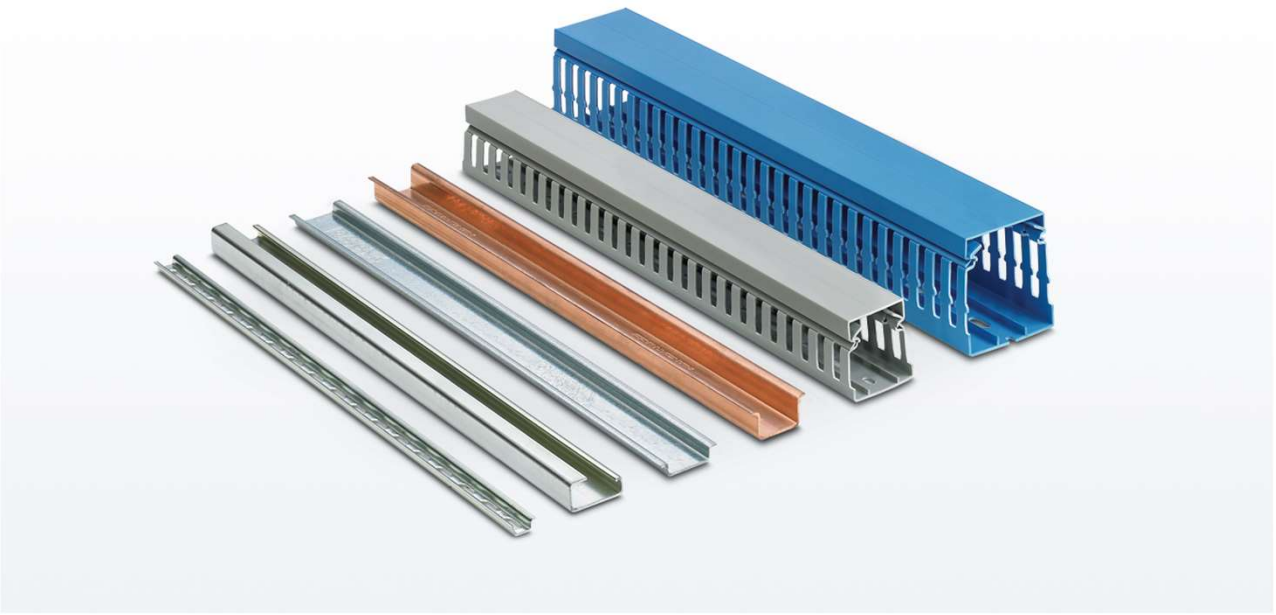
Further products for setting up your charging stations

Installation material



- You can fasten and wire all components securely and quickly using suitable installation and assembly materials, and also bring order to your charging station or wall box
- In addition, you will find mounting rails, wiring ducts, end brackets, sockets and much more

PHOENIX CONTACT E-Mobility

High Power Charging – fast charging in a new dimension

- **Extremely fast**
  100 km range in 3-5 min thanks to 500 kW charging power
- **Extremely safe**
  Permanent temperature and leakage monitoring
- **Maintenance-friendly**
  Interchangeable mating face and semi-open cooling system
- **Environmentally friendly**
  Water-glycol mixture as coolant
- **Fully CCS compatible**

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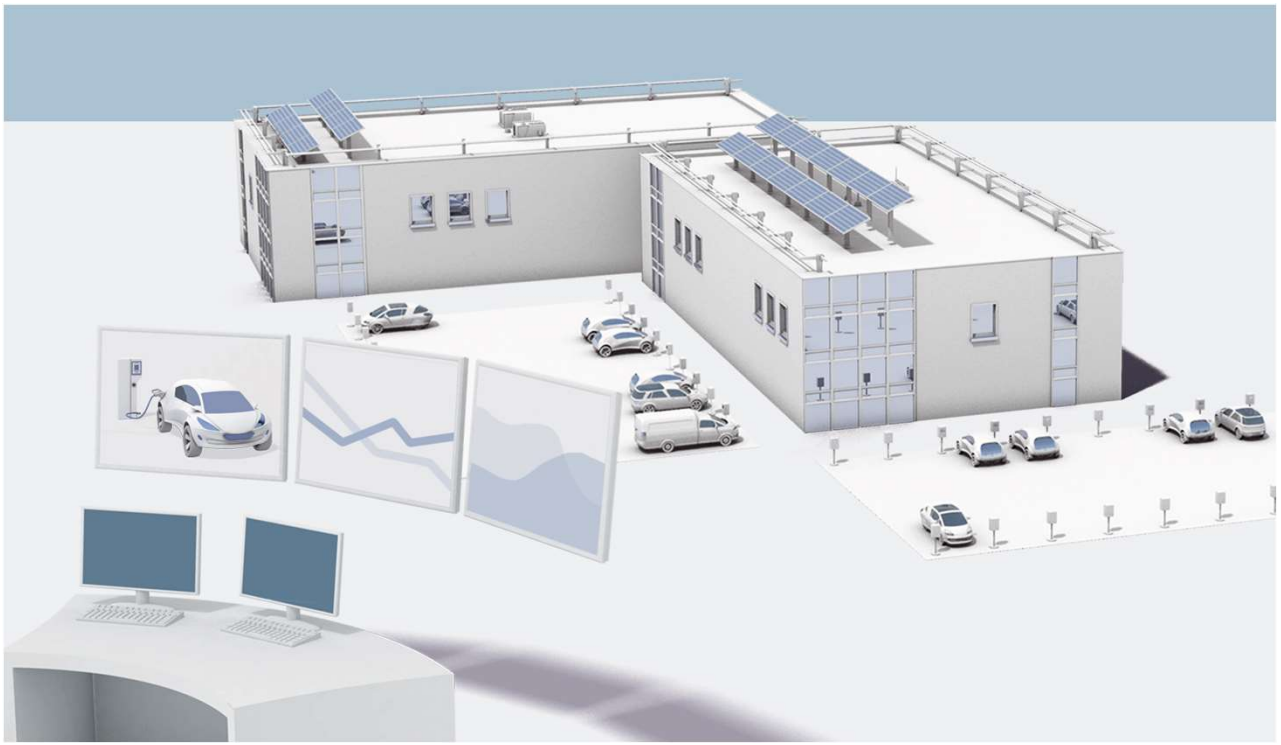
INSPIRING INNOVATIONS

PHOENIX CONTACT E-Mobility

EV Charging Suite – intelligent management of charging stations



- **All in one software**
  The interface between driver, billing provider, electricity grid operator, charging park operator
- **Intelligent distribution**
  Optimum load distribution and increased availability
- **Comfortable control**
  Configure and monitor your charging park via web browser
- **Future-proof investment**
  with scalable licenses
- **Get started right away**
  with pre-installed industrial PCs

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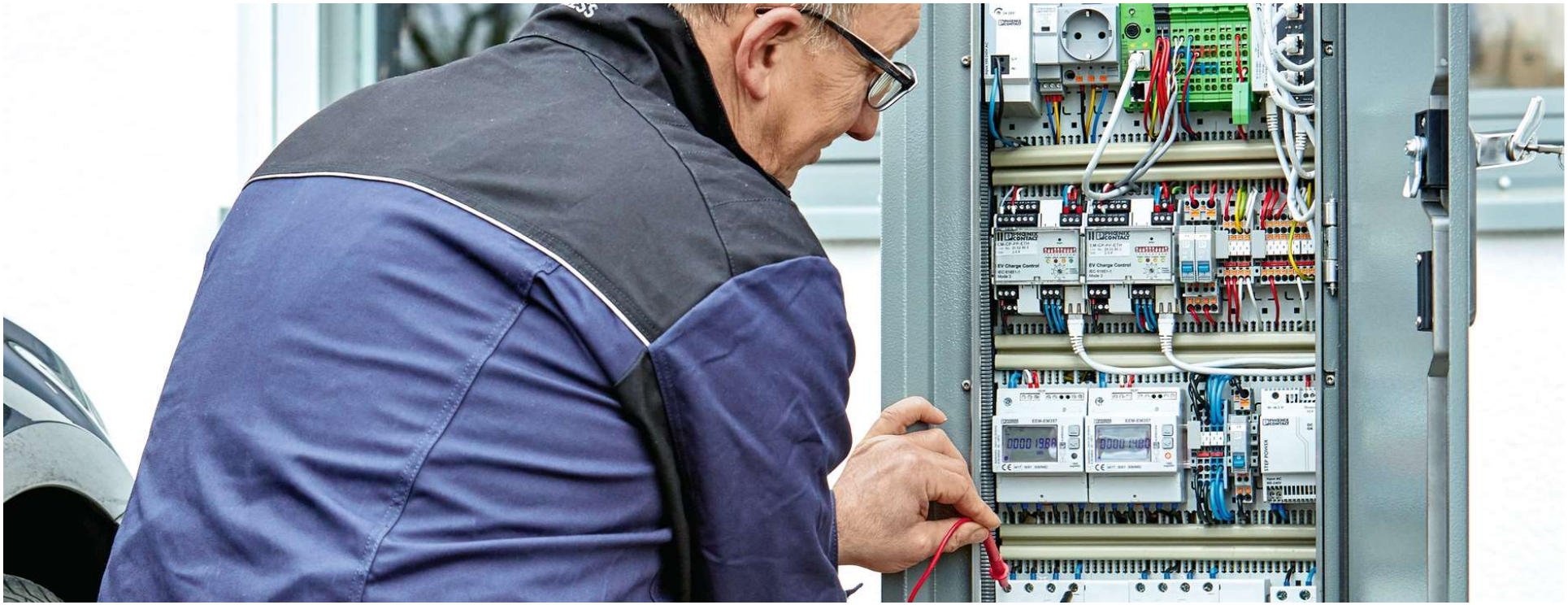
INSPIRING INNOVATIONS

PHOENIX CONTACT E-Mobility

Our service is your added value



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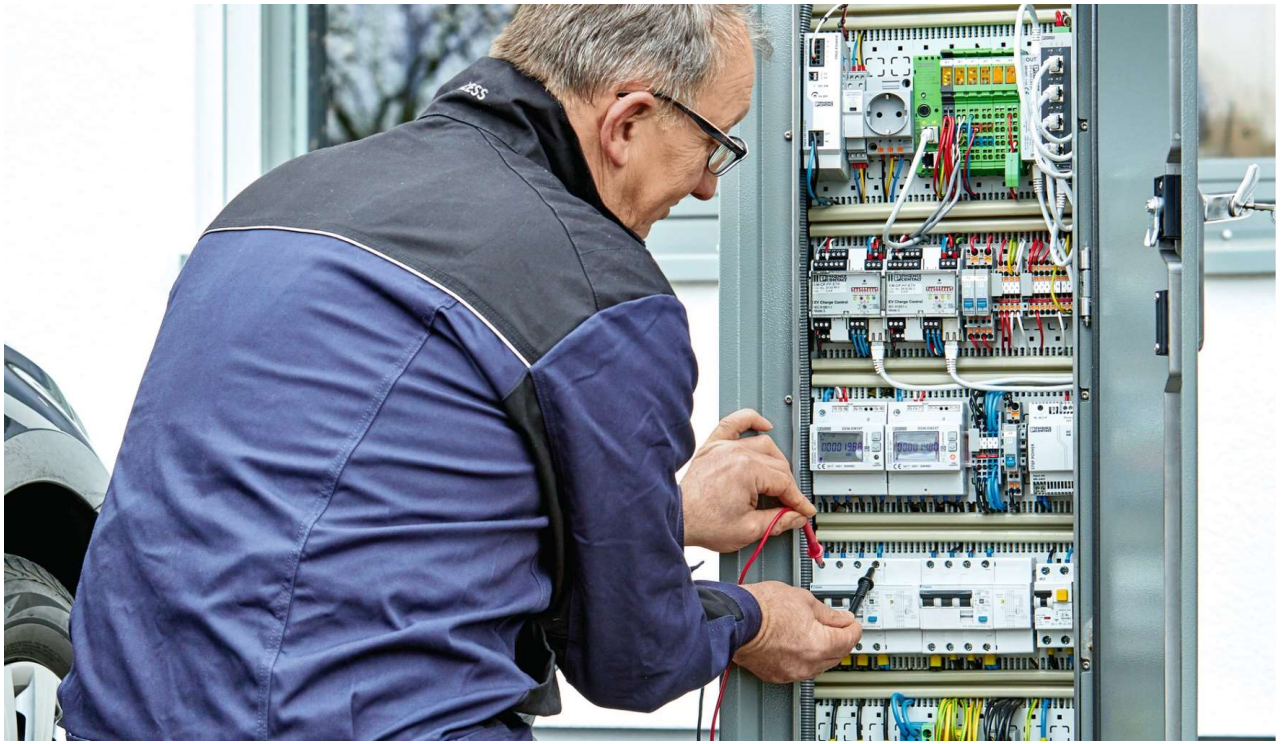
INSPIRING INNOVATIONS

PHOENIX CONTACT E-Mobility

Our service is your added value



- Good service is when your expectations are exceeded
- Support in the realization of your charging solution or application through consulting, conception, programming and customizing
- Development of customer-specific product variants and individual solutions that achieve more than the standard requires

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PHOENIX CONTACT
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Our service is your added value

Conception of your infrastructure

Configuring your cooled HPC solution

Programming your software solution

Charging connectors with your logo

Charging cables as required

Development of vehicle charging sockets

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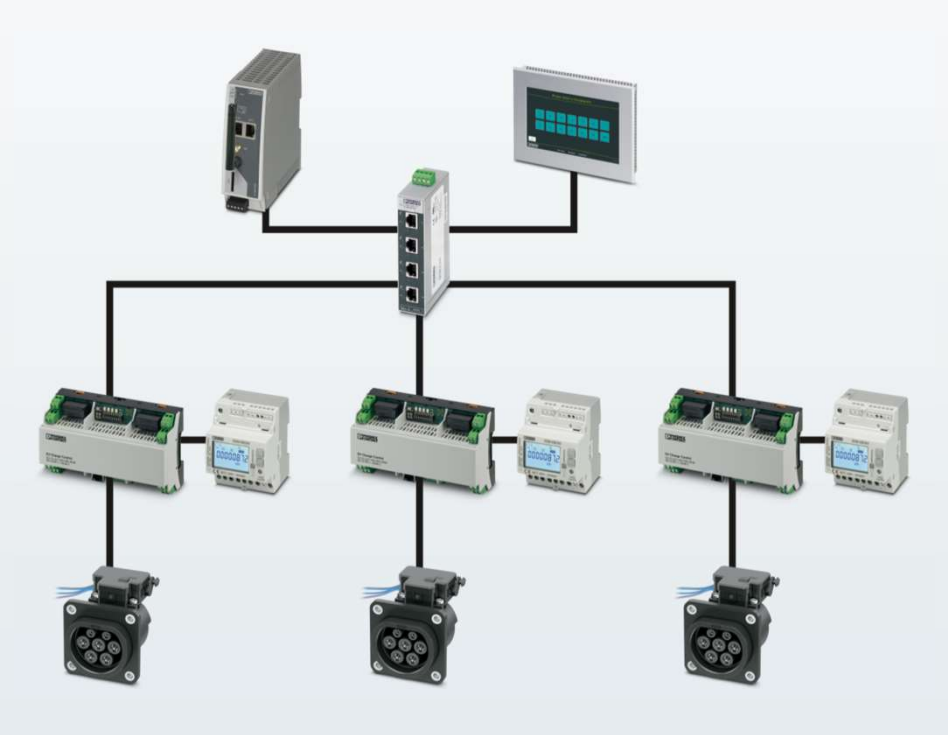
All services in detail

PHOENIX CONTACT
INSPIRING INNOVATIONS

Our service is your added value

Planning and conception of your charging infrastructure



- We support and accompany you in all phases of your project – from planning to commissioning
- For this purpose we put together the suitable products according to your requirements and create wiring diagrams
- In addition, we help you with the connection to your building and energy management as well as to the billing provider
- In doing so, we take into account current charging standards, norms and the relevant measurement and calibration regulations

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INSPIRING INNOVATIONS

Our service is your added value

Configuring your cooled HPC solution

- Based on the installation space of your charging columns, the climatic conditions at the installation site and other factors, we will put together the optimum combination for you:
  - HPC charging cable
  - HPC cable feed-through
  - DC charging controller
  - Further components
- We recommend suitable cooling units and heat exchangers from one of our technology partners

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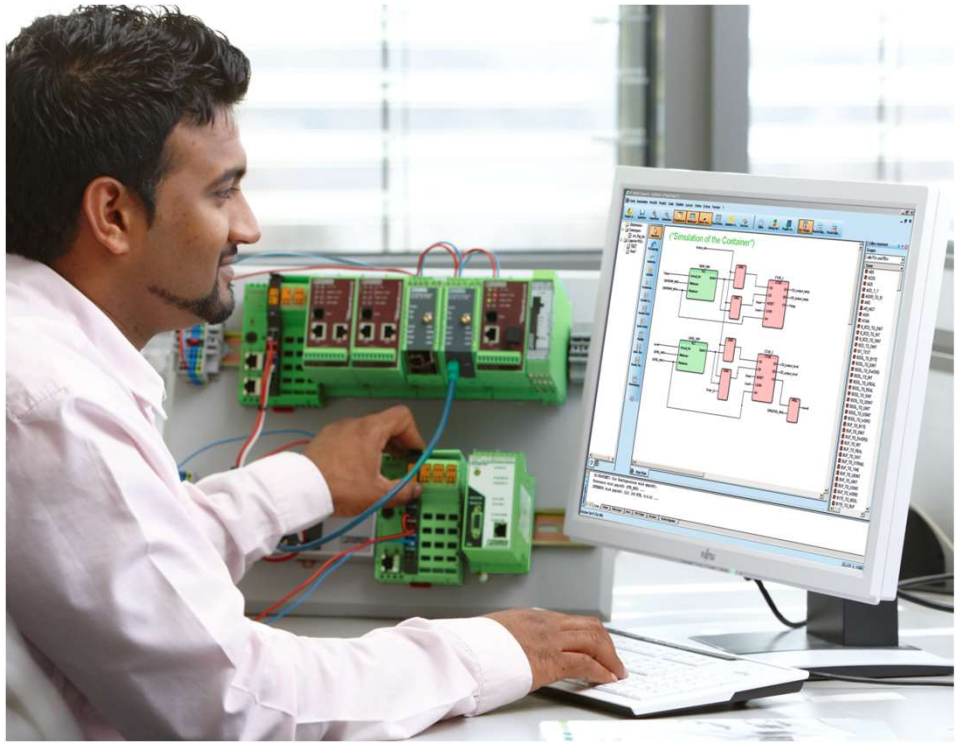
Our service is your added value

Programming your software solution



- Do you have special requirements that are not covered by our standard software?
- We also develop individual software solutions by creating appropriate function blocks for communication between charging points and higher-level systems
- We also design an intuitive user interface optimized for touch operation according to your wishes

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Our service is your added value

Charging connectors with your logo

- On request we also manufacture our AC charging connectors with your company logo
- This gives your charging station or wallbox a consistent branding and outward appearance
- Choose between:
  - Embossing of your logo into the soft component of the charging connector
  - UV and weather resistant adhesive label, printable in black and white or colour

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More about AC charging cables

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Our service is your added value

Charging cables as required

- Choose from our wide assortment:
  - Different lengths
  - Different cross-sections
  - Metric and AWG cables
  - Spiral and straight cables
- If you do not find your desired combination with us, the plant and production of a customized article is possible
- On request, the cable end can also be supplied with stepped cut, assembled or compacted

Back | More about AC charging cables | More about DC charging cables

PHOENIX CONTACT
INSPIRING INNOVATIONS

Our service is your added value

Development of customer-specific vehicle charging sockets

- We develop charging sockets for the series production of your vehicle according to your requirements regarding installation space, charging capacity and functions
- We integrate features such as:
  - LED indicators
  - Lighting
  - Operating elements
  - Locking of charging connector and flap
- Through intelligent cooling concepts and precise temperature measurement, we reduce the conductor cross-sections and thus lower the costs of the entire charging system

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More about vehicle charging sockets

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PHOENIX CONTACT E-Mobility

Successfully completed customer projects

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PHOENIX CONTACT E-Mobility

Successfully completed customer projects

- With their commitment and application know-how, our experts often do pioneering work
- The following examples will show you how we have successfully implemented exciting projects with a wide variety of requirements together with our customers

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Successfully completed customer projects

The largest e-filling station

Ultra-fast charging

Affordable charging current

Energy management

In the smallest space

Charging with solar energy

Design charging stations

Special CO_2 balance

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All customer projects in detail

More on the web

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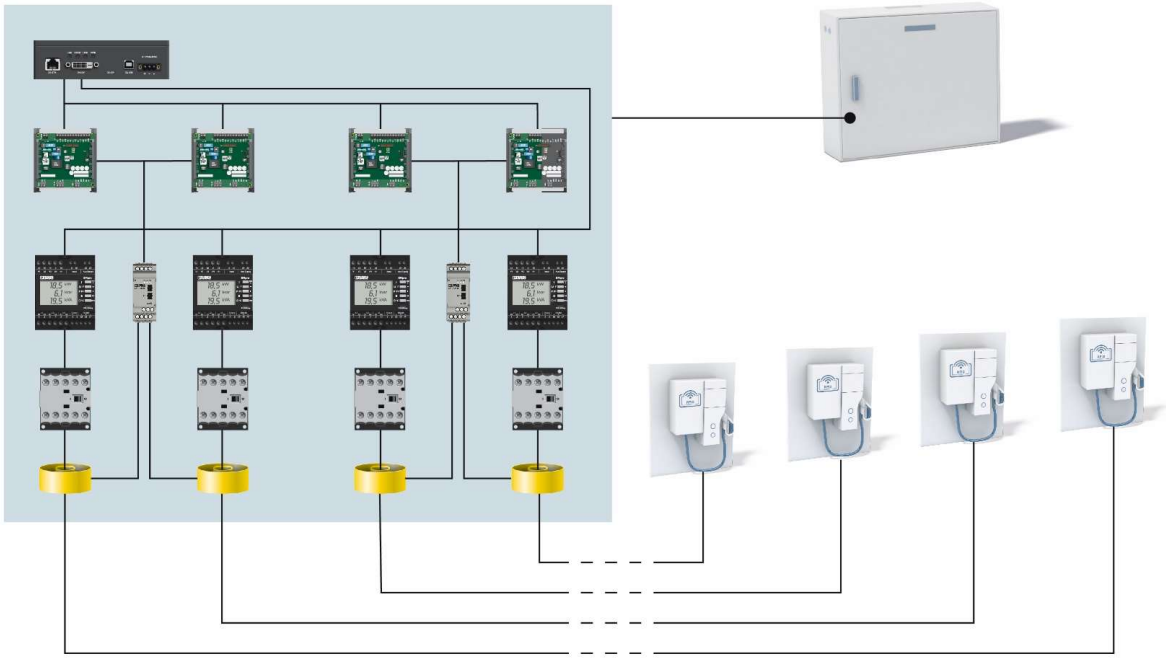
Successfully completed customer projects

Sustainable: Germany's largest e-filling station



"Our plant ran without any problems from the very first moment", Torsten Kocher of the IT system house Bechtle.

In the multi-storey car park at the Neckarsulm headquarters, 50 charging points were integrated by the parking guidance specialist RTB, which receive their electricity from the PV system on the roof.

PHOENIX CONTACT supplied the charging technology.

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PHOENIX CONTACT
INSPIRING INNOVATIONS

Successfully completed customer projects

Research project enables ultra-fast charging

Together with BMW, Porsche, Siemens and Allego, we have realized and opened the world's first HPC charging station with 450 kW charging power as part of the FastCharge research project.

We supplied our cooled, CCS-compatible DC charging cables as well as the control technology.

The charging stations at Autohof Jettingen-Scheppach on the A8 are available free of charge to drivers of electric cars.

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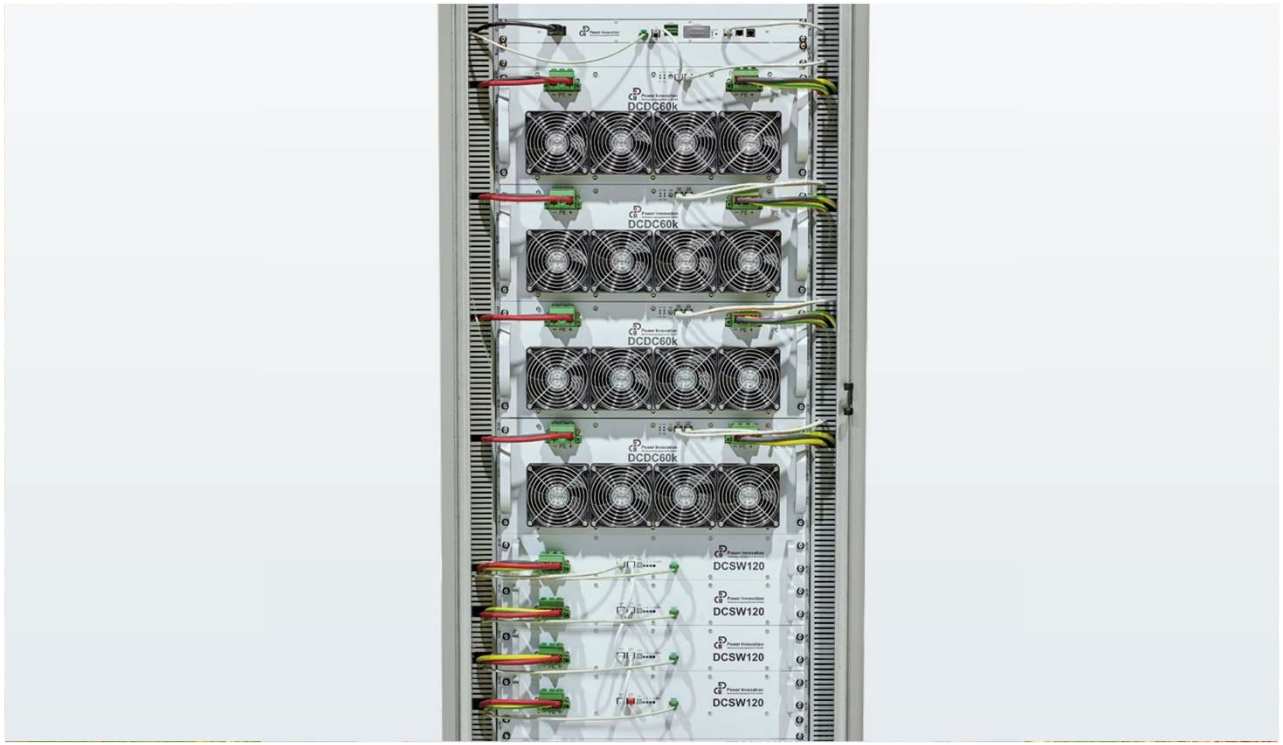
INSPIRING INNOVATIONS

Successfully completed customer projects

Affordable charging current from battery accumulators



Power Innovation, manufacturer of switched-mode power supplies, relies on the connection of quick-charging stations to battery storage units, which are fed from regenerative energies.

This means that high energy requirements can be met at short notice without retrofitting a higher connected load.

The EVCC Professional charging controller takes over communication between the memory and the power electronics, among other things.

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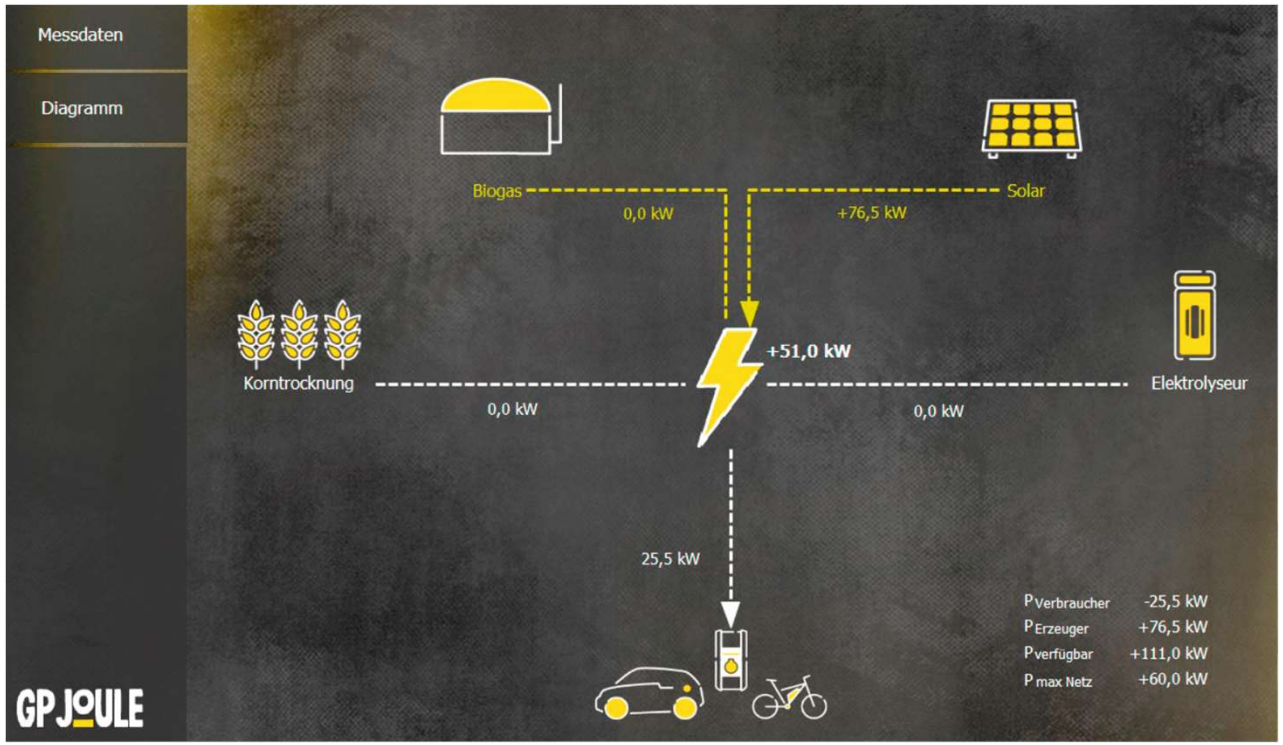
INSPIRING INNOVATIONS

Successfully completed customer projects

Charging park with intelligent energy management



GP Joule, specialist for regenerative energies, has equipped the company's own charging fleet with a load and energy management system.

The aim: to load our own fleet of 28 electric cars using the biogas and solar energy we generate ourselves in the best possible way.

Everything is controlled from a central control cabinet equipped with EVCC Advanced AC charging controls, calibrated energy meters and EV Charging Suite software.

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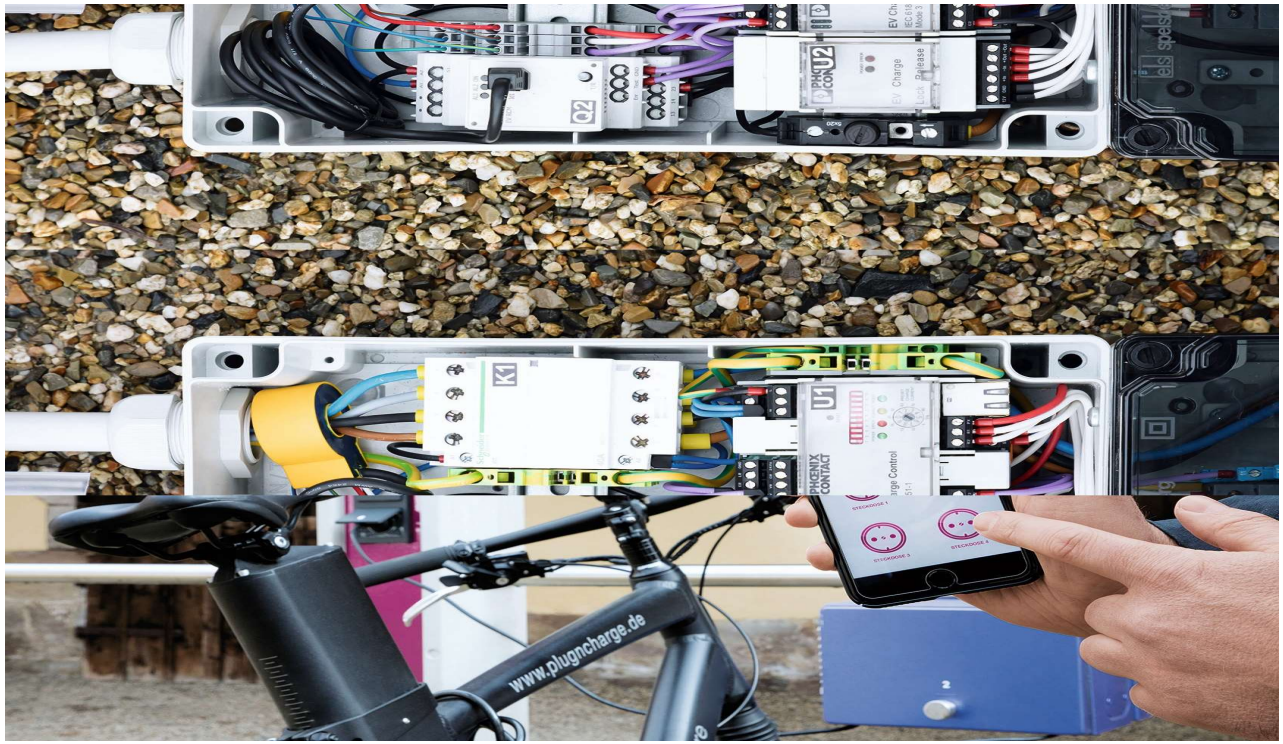
Successfully completed customer projects

Design charging stations with technology in the smallest space



Plug'n Charge develops and produces charging points for electric vehicles and pedelecs with exceptional design and easy operation via smartphone.

The challenge was to integrate the charging technology into a very small installation space.

Thanks to our particularly compact EVCC Basic and Advanced charging controllers and MID-compliant energy meters, this was no problem at all.

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Successfully completed customer projects

Fast charging on the motorway with solar energy

Fastned, installer of charging stations in the Netherlands, was looking for a fast charging solution for installation at motorway service stations.

The company opted for ABB charging stations equipped with our CCS charging connector.

This means that electric vehicles can be refuelled within 15 to 20 minutes for a range of 150 kilometres. Fastned exclusively uses wind and solar energy.

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INSPIRING INNOVATIONS

Successfully completed customer projects

Intelligent design charging stations with comfort functions

Hedele, service provider for electrical and communication engineering, designed an interactive charging station and equipped it with comfort and information functions.

The result was the intelligent and modular CAP charging station series.

Our charging controller EVCC Advanced with its compact dimensions controls the complete communication with the vehicles to be charged.

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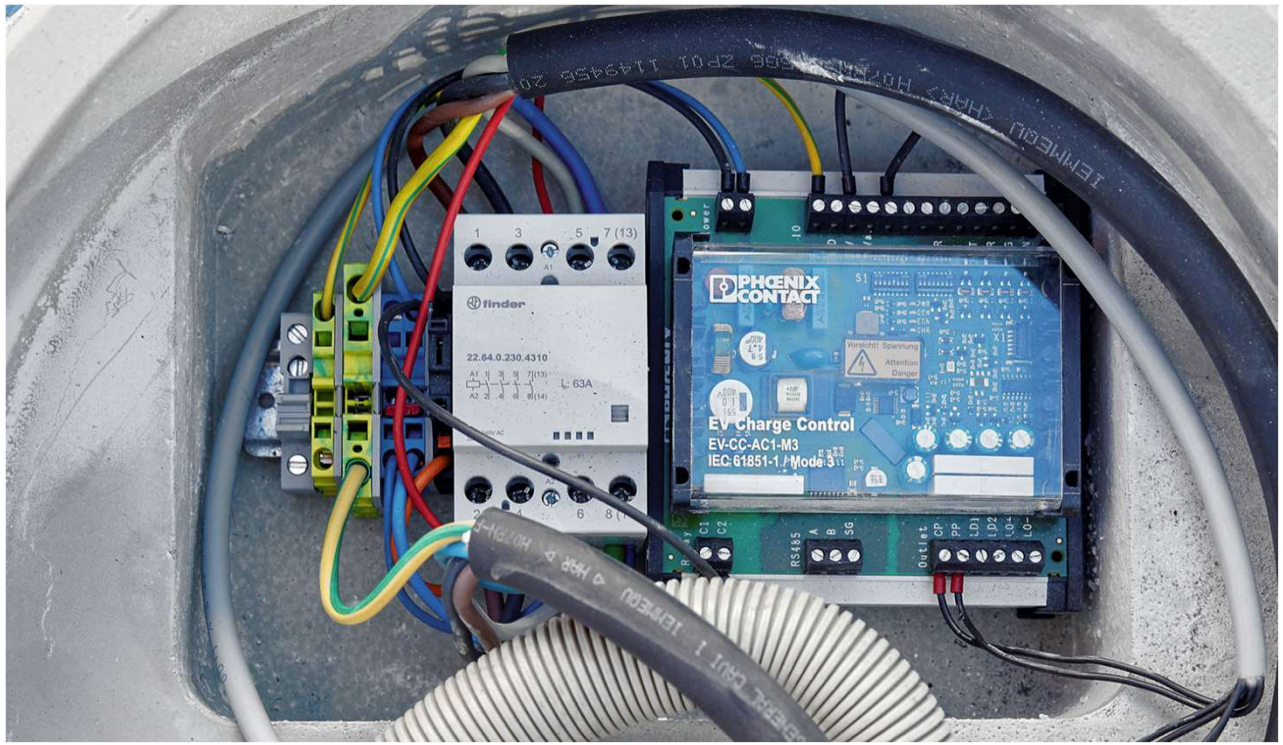
Successfully completed customer projects

Charging stations with special CO_2 balance



Velocity Aachen, provider of a mobility system on a rental basis, has implemented Pion Technology, a charging solution for its e-bikes and electric cars.

The concrete material used for the charging column housings filters the fine dust from the ambient air and thus has a special ecological balance.

In addition to AC charging technology and power supplies, our communication technology is also used for cloud-based billing.

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Solutions for electromobility

Thank you

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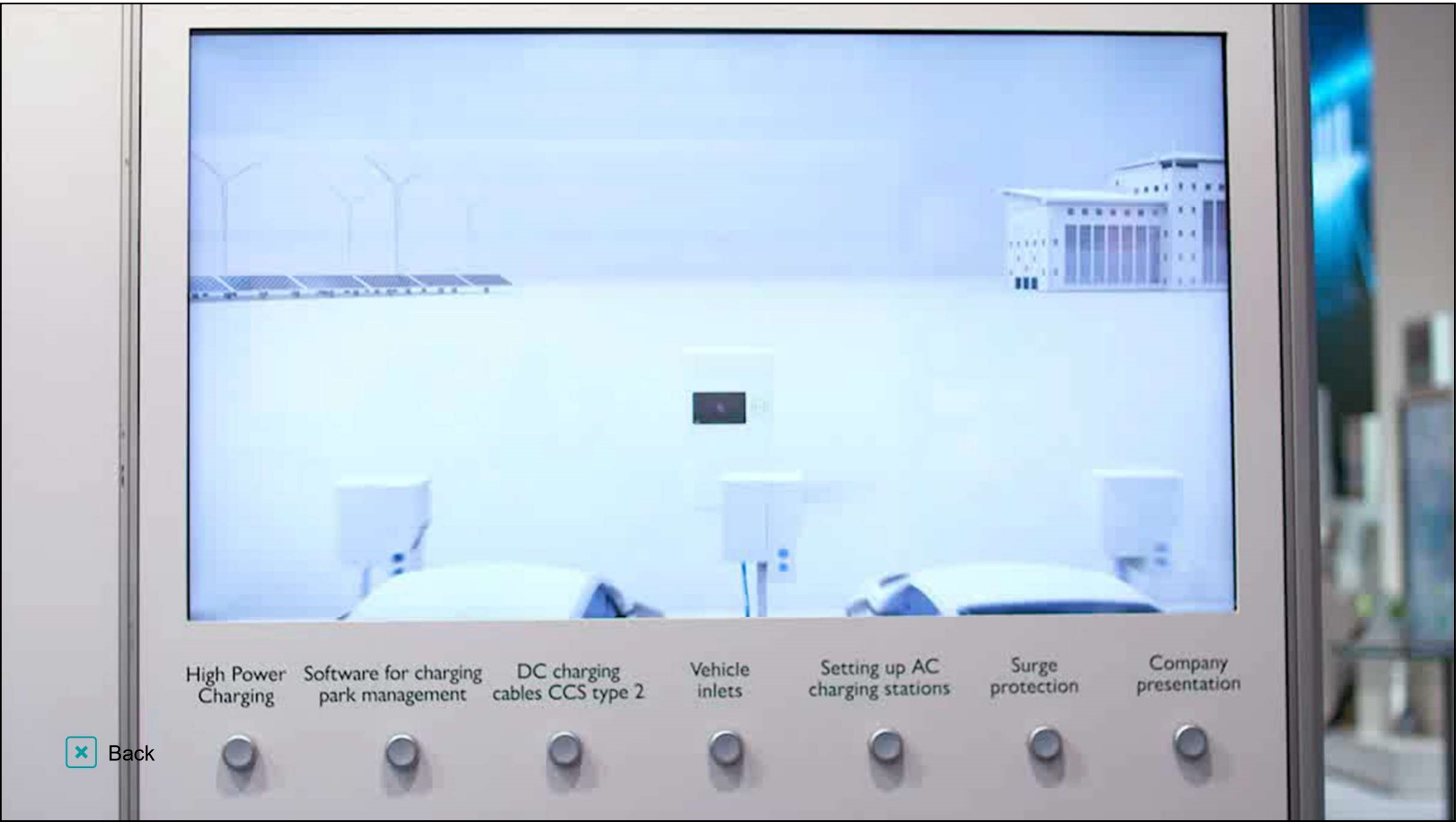
High Power Charging
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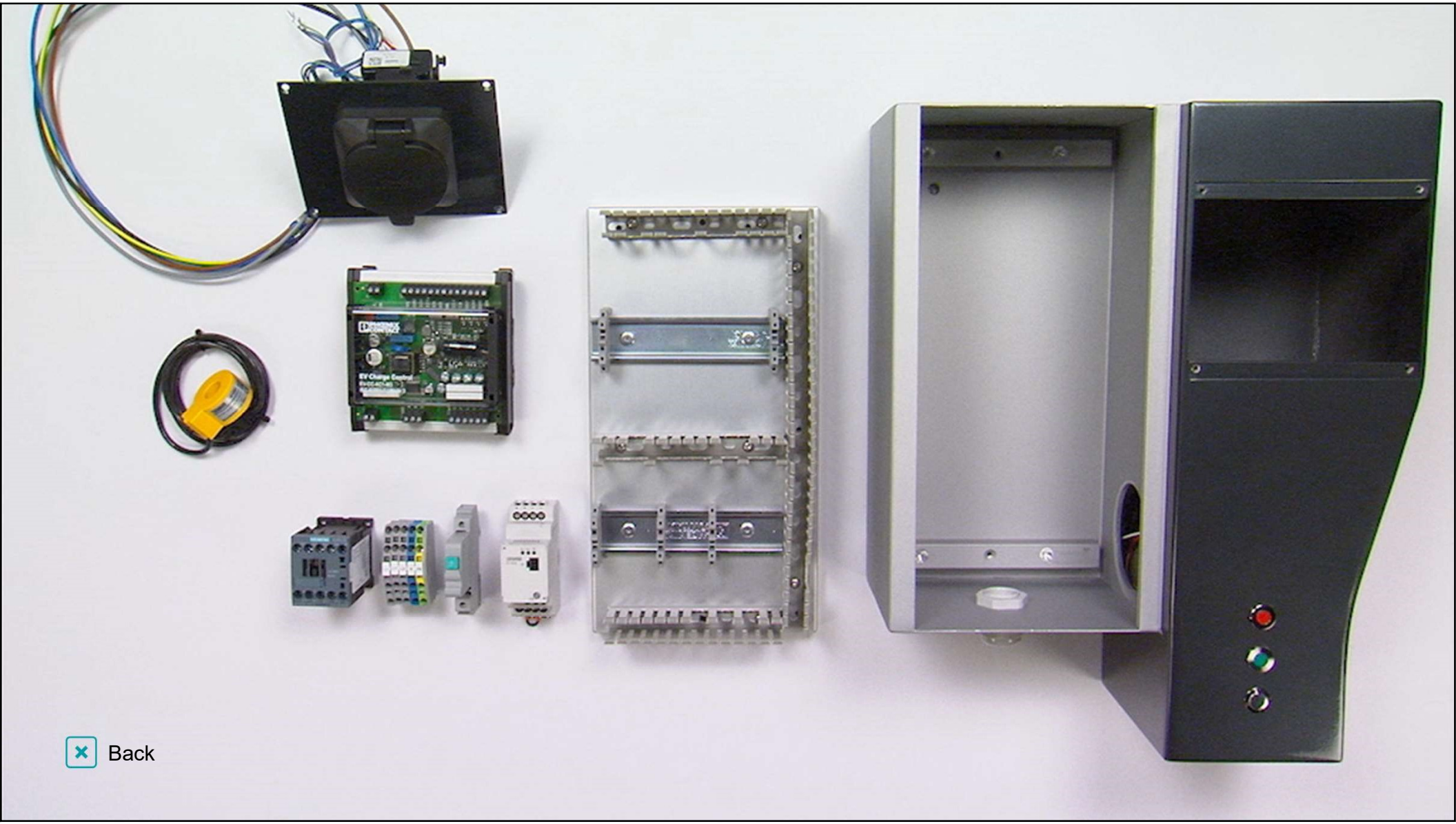

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