Charging solutions for electro mobility

witty start I witty solar witty share I witty park

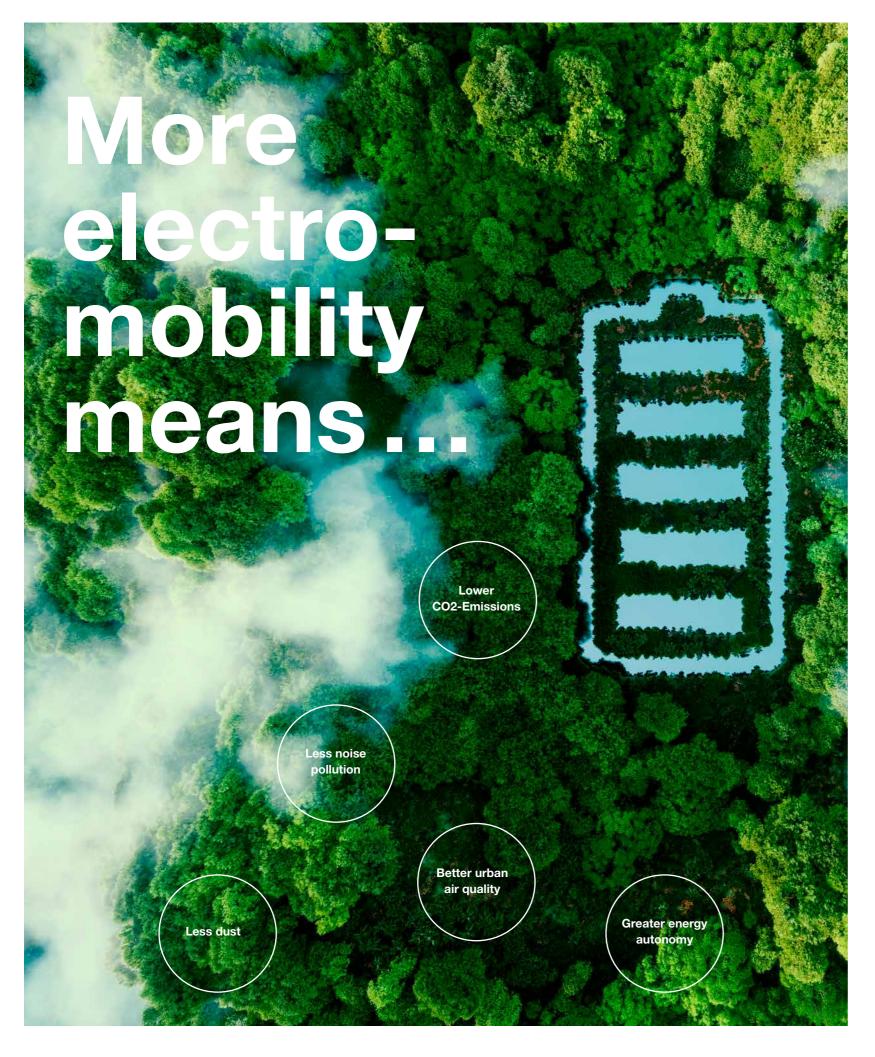








:hager





The electro mobility transition is in full swing! Get to grips with yours, together with Hager.

E-mobility is the market of the future. The 2021 saw more than 356,000 new registrations for electric vehicles, the strongest increase to date. The increase in electric vehicles means more demand for charging stations.

With our witty start, witty solar, witty share and witty park e-charging stations for private, semi-public and public areas, you will become a starting point for e-mobility transition.

Stake your claim in this fast growing market segment!



Content





The witty range



Subsidy programmes



witty for single-family houses



witty start



witty solar



witty share



witty park

witty for semi-public charging

28



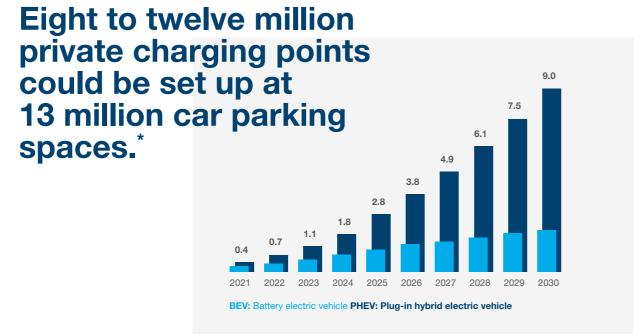
Accessories

Overview of charging stations

Knowledge and education

One electrifying market

A trip to the pump could soon be a thing of the past. According to a study* by the German Energy Agency (DENA), 60 to 85% of all e-charging will in future be covered by private charging points. The authors of the study estimate that eight to twelve million private charging points could be set up at around 13 million privately accessible car parking spaces. With witty, you can connect your customers to the energy transition and expand your business in a way that is future proof.



Market ramp-up of electric cars until 2030 in the BDI climate protection scenario Source: Study "Climate Path for Germany", Prognos, Boston Consulting Group, 2018



GEIG The German Building Electromobility Infrastructure Act

Single and two-family houses offer the greatest potential for expanding your charging infrastructure. The advantages for your customers are low purchase costs, direct access to the power grid, and low legal and bureaucratic hurdles, as no approvals are required from landlords or owner groups.

At the same time as the expansion of the private charging infrastructure, one million publicly accessible charging points are to be set up by 2030. From 2024 onwards, a net increase of around one million electric cars per year is expected. As a result, from 2025 onwards, regions with strong purchasing power may see bottlenecks occurring in their public infrastructure. Our private and semi-public charging solutions give you and your customers a means to avoid these bottlenecks today.

Charging stations need the right connection components. This will create another lucrative market for electricians, even if their customers do not currently drive e-cars. For instance, the German Building Electromobility Infrastructure Act (GEIG – Gebäude-Elektromobilitätsinfrastruktur Gesetz), which has been in force since March 2021, provides for the following on-site measures for the future use of e-mobility:

New builds and renovations on residential buildings with more than ten parking spaces must have charging infrastructure prepared for all parking spaces.

Non-residential buildings must have charging infrastructure prepared for at least one in every three parking spaces and at least one charging point must be set up.

From 2025, all non-residential buildings with more than 20 parking spaces must be equipped with at least one loading point.

Advise your customers proactively by informing them about possible subsidies and by carrying out the prescribed installations.

hager.de/geig

^{*}Source: dena, Prognos, 2020

[&]quot;Privates Ladeinfrastrukturpotenzial in Deutschland".



Easy as one, two, three, four The witty range

Hager's witty range offers a custom-made wall-box for every charging requirement for private and semi-public use. With witty start, witty solar, witty share and witty park we not only cover different customer requirements, but more importantly your need for simple, fast installation and commissioning.







witty sha



The right wallbox for the right application

For private use

Choosing the right charging station depends on the circumstances and requirements of your customers. The witty range has the right solution for every location.

For semi-public and public use



witty start The starter package

- Easy and safe charging
- Type 2 charging socket
- Charging capacity: adjustable up to 22 kW
- Interlock by key switch

witty solar The complete package

- Dynamic phase switching
- Up to three charging stations can be networked
- Contingency loading, boost charging,
 PV overcharging
- Interlock by key switch
- Type 2 charging socket (32 A) + SCHUKO® socket outlet (16 A)
- Integrated blackout protection

witty share The system solution

- Up to 20 wallboxes per load manager
- Calibration-compliant design also available
- Static and dynamic load management
- Back-end capability via OCPP 1.6
- Complies with ISO 15118Access control via RFID

- Comfortable and safe charging

The flexible one

witty park

- Two type 2 charging sockets with 22 kW charging capacity
- Two SCHUKO® socket outlets (16 A)
- Access control via RFID cards

Using subsidies



The national and state government and local authorities are making a massive effort to encourage the energy and mobility transition: with a wealth of subsidies and low-interest loans. The environmental bonus from the German Federal Office for Economic Affairs and Export Control (BAFA), for example, subsidises the purchase of an electric car to the tune of up to €xxx per vehicle, depending on the vehicle and drive type. The expansion of the charging infrastructure is also being comprehensively subsidised. But it is not easy to navigate the jungle of subsidies even for experienced specialist craftspeople. This is where the Hager energy compass and our continuously updated knowledge section can help "Laws and subsidies."

€xxx Subsidy per charging point

KfW subsidises the purchase and installation of a commercial charging station up to 22 kW to the tune of €xxx per charging point. The charging station can be used for company vehicles and employees' private vehicles.

Find out more at hager.de/kfw

More subsidy programmes for e-mobility:*

Up to € xxx	BAFA environmental bonus per electric vehicle (battery operated)
Up to € xxx	BAFA environmental bonus per plug-in hybrid (battery powered)
€ xxx car tax	For the first 10 years, then 50% (ø approx. €2000 per vehicle)
xx% car tax (instead of x% of gross list price)	For private use of company vehicles (ø approx. €1000 per vehicle)
€ xxx per year	Greenhouse gas reduction rate (GHG rate) per electric car or electric motorcycle by petroleum companies
xx–xx% (max. € xxx- €xxx)	For electric delivery bicycles (max. five per year)



Knowledge section "Laws and subsidies."

The benchmark for the EU climate protection targets is high. But the political situation is constantly changing. Our "Laws and subsidies" section regularly informs you about current subsidy programmes and important legal changes.

Find out more at hager.de/gesetze



 The energy compass helps guide you and your customers safely through the jungle of subsidies and opportunities.

on



If your customers are interested not only in electromobility, but in a complete energy management system, our new energy compass can help. It brings together builders, electrical tradespeople and energy consultants and helps you to find the best solution. Builders can carry out the project themselves, in the first step. As a specialist partner, we then provide you with project and contact data of interested customers and have your offer checked free of charge by an energy consultant for possible subsidies. Our specialists take care of submitting and processing the application and will be by your side throughout the entire project. This means that you don't have more work to do – just more business!

Start with your customers today: hager.de/energiekompass



Energy consultant

- Checks the offer for subsidy opportunities
- Submits the application for subsidies and handles the processing
- Monitors the distribution of subsidies





Builde

- Can carry out initial rough planning on their own
- Receives project documentation
- Receives a free overview of subsidies



- **Executing company**
- Receives interesting projects and new customers
- Is given support for subsidies
- Is helped during consultation
- Receives a free service

^{*} As of August 2022

Charging solutions for single-family houses

The wallbox witty start enables your customers to easily and comfortably take their first steps with electromobility. If your customers want something extra, they can use the intelligent wallbox witty solar to recharge their electricity from their own PV system. In conjunction with the energy storage flow, your customers have access to a future-orientated complete solution that enables maximum energy self-sufficiency.



The starter package witty start

witty start makes your first steps into e-mobility simply and easily. The wallbox for single and two-family houses is impressive, with its sophisticated design, incredible weather resistance and a charging capacity up to 22 W. The cable duct at the rear allows flexible cable entry from above, below and behind. So witty start is "ready to go" anywhere you are.

Safe charging

witty start is equipped with an integrated DC fault current detection to ensure maximum charging safety. The access control via key switch also protects the wallbox against energy thieves.

Wind and weather

Thanks to its UV-resistant housing, high degree of protection IP55 and impact class IK10, witty start is suitable for both indoor and outdoor use. Continuous heat, rain, hail and light shocks do not faze the compact wallbox.



Simple installation

- Flexible cable inlet from the top, bottom
- Spacious connection compartment with plug-in terminals
- Preconfigured to 11 kW

Variable charging current

- From 10 to 32 A in six stages (1/3-phase)
- Adjusted by rotary control
- Type 2 charging socket

Maximum safety

- 6 mA DC integrated protection
- Fuse protection by FI type A; no FI type B
- Access control via key switch

Find out more at hager.de/witty-start

Simple operation by rotary

Use the rotary control to set the required charging current. There are six settings between 10 and 32 A available. This allows you to flexibly set the charging power up to 22 kW.

Spring-loaded terminals

terminals on the DIN rail make

installation even faster and

Large connection com-

The spacious housing

offers plenty of space for wiring and additional

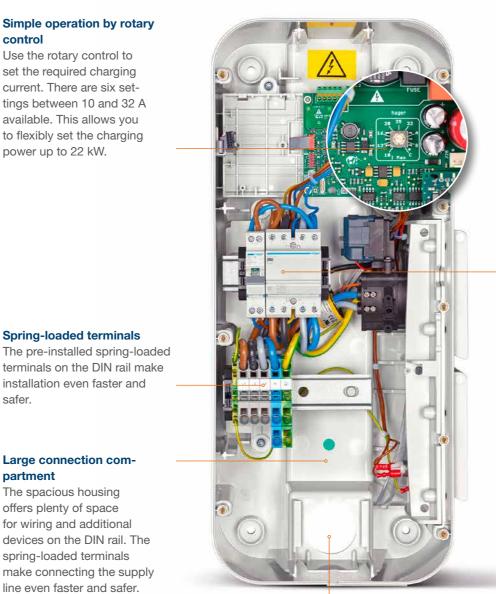
devices on the DIN rail. The

make connecting the supply

line even faster and safer.

spring-loaded terminals

partment



Integrated DC fault current protection

The built-in DC fault current protection detects DC fault currents greater than 6 mA and switches off the charging station in the event of a fault. A simple FI switch type A is sufficient for fuse protection; no FI switch type B is required. A compact residual current circuit-breaker saves you

extra space.

Rear cable duct

The cable duct at the rear allows flexible cable entry from above, below and behind. This way, the witty start wallbox seamlessly fits to any building conditions.

Charging socket type 2, 22 kW (3-phase)

- Mode 3 charging mode in accordance with **DIN EN 61851**
- Rated current: 10 A-32 A (1/3-phase)
- Charging capacity: 3.7 kW-22 kW

Key switch for access control





Easy installation

Cable flange with strain relief

The large cable entry flange for up to four cables makes installation even easier. The strain relief on the inside ensures a long-lasting and secure connection.

Status LED

The status LED indicates the

relevant operation mode.

Type 2 charging socket

The type 2 charging sock-

et can be used to charge

all electric vehicles with a

Access control via key

Protects the wallbox

against unauthorised

3.7 kW and 22 kW.

charging capacity between

Contact sensor



The complete package witty solar

witty solar expands on the design advantages of witty start with a future-orientated dimension: optimised charging via the in-house PV system, which makes it possible to reduce consumption off public networks to a large extent, thanks to dynamic phase switching. Communication between the energy storage, the associated energy manager and the charging station ensures maximum use of the electricity produced in-house while minimising electricity costs.

Dynamic phase switching

witty solar provides twice as much charging capacity compared to a conventional 400-volt rotary current socket outlet. However, an electric car does not always have to be charged with a full 22 kW. In most cases, it is sufficient to charge the vehicle for many hours with low kW. The dynamic phase switching permanently adjusts the charging current to the current charging capacity of the solar-energy system. This results in an optimal full charge at low energy costs.

Boost function

When speed is needed, the car's battery gets a boost for several miles within a very short time, without waiting for a full charge.

Up to three charging stations can be

Ideal for larger households or smaller companies with several electric cars. Up to three witty solar charging stations can be networked with the flow energy manager. The energy manager coordinates the distribution of solar power to the vehicles. Depending on the overall capacity, witty solar charges up to two electric cars simultaneously. Once one car is fully charged, the next is automatically filled.



Easy installation

- Flexible cable inlet from the top bottom or back
 - Spacious connection compartment with plug-in terminals

Variable charging current

- Dynamic phase switching for optimum charging capacity
- Capacity-orientated charging with up to 22 kW and blackout protection

Flexible charging modes

- PV overcharging
- Boost charging function
- Loading with hold time (for proportional PV charging)

Maximum safety

- 6 mA DC protection integrated - Fuse protection by FI type A;
- no FI type B required
- Access control via key switch



Find out more at hager.de/witty-solar

Rear patch channel

Cable entry from top, bottom or rear through the wall or stand (see accessories on page 41).

Folding side

Rotary switch

To manually adjust the current: Seven levels from 6 A up to 32 A.

Circuit breaker

LS switch for SCHUKO® socket outlet.

Integrated fault current protection

Built-in DC fault current detection (6 mA DC), protected by FI switch type A; no FI switch type B is required.



Charging socket type 2, 22 kW (3-phase)

- Mode 3 charging mode in accordance with
- Rated current: 6 A-32 A (1/3-phase)
- Charging capacity: 1.4 kW-22 kW



Socket SCHUKO® 16 A

Interlock by key switch





Dynamic phase switching

Spring-loaded terminals

terminals make installation

even faster and safer.

The pre-installed spring-loaded

Protection for 1/3-phase

switching

Switch over

Contact sensor

For example, to activate

accelerated charging

directly at the wallbox.

Robust housing

The UV-resistant housing with

degree of protection IP55 and

degree of impact resistance

IK10 reliably protects against

sunlight, rain and hail.

E-mobility taken a step further

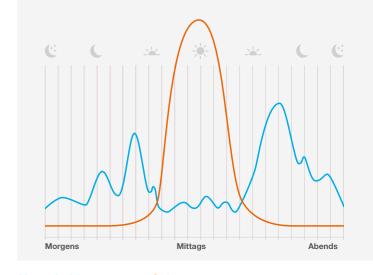
With flow.



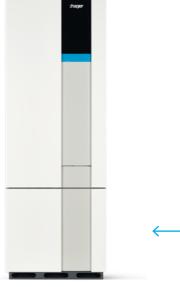


Efficient peak shaving

The sun does not always shine when the most electricity is being consumed. That is why flow enables intelligent load shifting, also known as peak shaving: Excess PV energy is stored and then released when needed, usually in the morning and evening.



Solar power production









Store

The flow energy storage stores in-house solar power and makes it available for all aspects of daily life. It has been specially adapted to the requirements of single-family houses and is available in the three power sizes 6.5. 9.75 and 13 kW.

Manage

The energy manager acts as the intelligent control centre of flow. It is installed in the technology centre in a way that saves space (4 PE) and controls other generators such as PV systems and heat pumps in addition to storage and charging stations. The energy manager can be integrated into the domovea smart home system and offers full consumption transparency via app visualisation.

Charge

witty solar takes the charging current for the electric car directly from the energy storage unit and the PV system or heat pump. The energy manager coordinates all charging processes and ensures maximum private energy use at minimum electricity costs.

flow is available in two variants

Energy package 1: Consisting of energy storage (6.5/9.75/13 kW) and energy manager **Energy package 2:** Consisting of energy storage, energy manager and witty solar charging station

Visit our flow seminars:

Whether you need a basic seminar, certificate training or advanced training, we can quickly turn you into a flow expert! Our energy management experts will be happy to advise

e-mail: beratung.em@hager.com

Cable holder **Key switch** The cable holder and other Access control via key switch accessories are available as protects the wallbox against unauthorised access. an option.

Status LED

Indicates the relevant

Type 2 charging socket

can be used to charge all

charging capacity between

SCHUKO® socket outlet Mode 2 socket outlet

SCHUKO® for charging e-bikes or electric scooter.

electric vehicles with a

1.4 kW and 22 kW.

The type 2 charging socket

operation mode.

Public and semi-public charging

In order to cope with mobility transition, charging stations must be set up on a large scale, and be supplied and secured with the necessary electrical infrastructure. In addition to single and semi-detached family houses, semi-public and public areas offer many opportunities for the comprehensive extension and expansion of your business scope with the networked charging solution witty share for multi-family houses and businesses, or the tried-and-tested witty park charging station for private and semi-public use.



The system solution witty share

With witty share, several wallboxes can be operated in a networked charging infrastructure without overloading the in-house power supply. The load manager ensures this by efficiently controlling all charging currents. witty share is suitable for multi-family houses, customer and company parking spaces, and vehicle fleets. In addition, the calibration-compliant version, enables demand-orientated billing models to be implemented in public areas.

Simple installation

witty share is characterised by how easy it is to install and operate, a feature that continues on the inside. The clear layout of the connection compartment makes operation easy. The charging stations are automatically detected by the load manager (see page 37).

Future-proof communication

witty share complies with the current standard DIN ISO 15118 and, via OCPP, is 1.6 communication and back-end capable. The system is compatible with all common billing systems and is ideal for rental power models and fleet management.



- Two versions: witty share and calibrationcompliant witty share
- Up to 22 kW charging capacity
- Static and dynamic load management (see page 37)
- Back-end capability via OCPP 1.6
- Complies with ISO 15118
- Robust and weatherproof thanks to IP55, IK10
- Access control via RFID

Find out more at hager.de/witty-share



Rear cable duct

Cable entry from top, bottom or rear through the wall or stand (see accessories on

All important components are processed on one

High-quality electronics

board. This facilitates networking and ensures reliable control.

DIP switch

To manually adjust the phase: 1- or 3-phase. The 3-phase basic setting can also be used 1-phase.

DC fault current protection

Fuse protection is cost-effective and saves space with a compact type A FI/LS. Thus, FI type B is not required.

Spring-loaded terminals

The pre-installed springloaded terminals make installation even faster and

Cable entry flange with strain relief

management.

Current transformer

Transformer measurement up to 2500 A possible.

Contact sensor

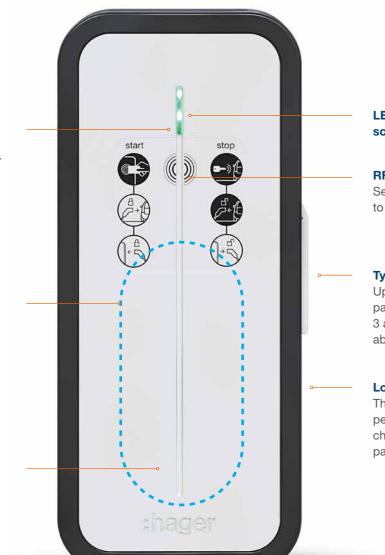
For manual unlocking and setting time-delay charging.

Cable holder optional

The wallbox with cable holder is available on request (see accessories page 41).

Robust housing

UV-resistant, shock- and weather-proof due to high degree of protection IP55 and IK10.



LED operation display screen

RFID sensor

Secure access control thanks to modern RFID technology.

Type 2 charging socket

Up to 22 kW charging capacity, charging type mode 3 according to EN 61851 or above ISO 15118.

Lockable charging cable

The charging cable can be permanently attached to the charging station by setting a parameter.

Complete transparency calibration-compliant witty share

As an option, you can have a calibration-compliant version of witty share with a charging display screen. For this purpose, each wallbox is equipped with an MID-compliant energy meter as well as a controller for encryption and a display for the charging data. Calibration-compliant witty share can be used when exact billing is required, for example if several users share a wallbox, or when billing company cars or for rental power models.

Transparent end customer billing

With the calibration-compliant witty share charging infrastructure, building owners, employers and mobility service providers can record the meter data of all connected electric cars via a third-party billing system. This allows drivers to compare the displayed readings for their charging process with the kWh number on their bill at any time. This ensures maximum consumption transparency and trust.

Standards-compliant and data-safe

Calibration-compliant witty share complies with all requirements of the German Measuring And Calibration Act (Mess- und Eichgesetz—MessEG). The calibration-compliant version is ex-works and cannot be retrofitted. All consumption data is transmitted securely and encrypted.



- Calibration-compliant consumption measurement using an integrated energy meter
- Full transparency for consumption and costs
- Ideal for tenant power models and fleet management
- Secure data transmission via encrypted OCPP protocol
- Compatible with common billing systems





Charge display screen

The display screen shows the kW hours per charging (similar to the litre display screen on a petrol pump).

QR code

The QR code acts as a private key that assigns each charging session to a charging station.

Easily split power Load manager

Flexibility is the key to avoiding bottlenecks and overloads in the domestic energy system. Up to 20 charging stations can be controlled statically or dynamically per load manager.



Flexible load management

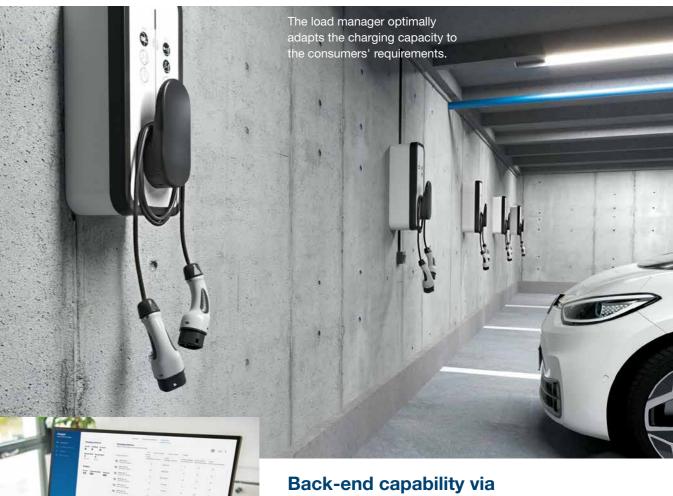
With dynamic load management, the load manager can control up to 20 charging stations. With static load management, several power distributors can be installed at the same time, meaning more than 20 charging stations can be controlled.





- Static and dynamic load management
- Transformer measurement up to 2500 A.
- Up to 20 charging stations per load manager
- Fixed and flexible positioning

Maximum space flexibility:



OCPP 1.6

The OCPP protocol is comptaible with all common billing systems, e.g. SAP, reev, has-to-be and completo. All consumption data is transmitted in encrypted form.

The flexible witty park

witty park is the ideal charging station for semi-public use. It can be used anywhere, up to two vehicles or bicycles per charging column need to be charged at the same time.



witty park gets two electric cars or two e-bikes ready for action at the same time. The first is provided by the two charging points opposite each other, each with a charging capacity of 22 kW. The latter is the two SCHUKO® socket outlets with 1-phase currents up to 16 A. The two mode 3 socket outlets with enhanced contact protection charge all common electric vehicle types with 3-phase charging currents up to 32 A. Each charging point must be protected separately with an LS switch type B and an FI switch type B.

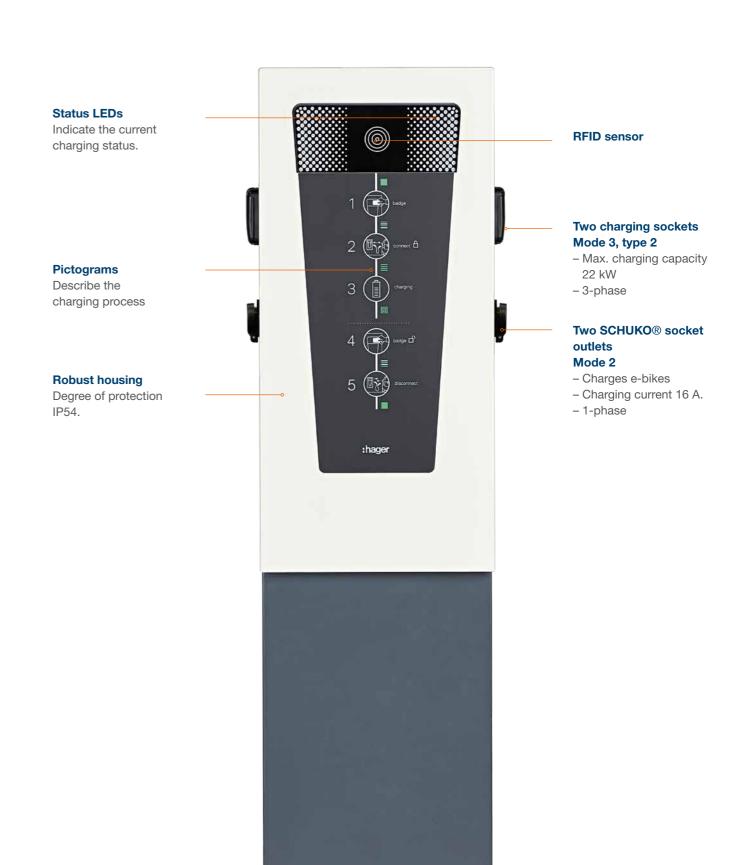
Easy to use

The printed icons make use intuitive and chronological. The charging status is indicated on the right and left by a green LED. A central RFID card reader protects against unauthorised access – perfect for use in semi-public and commercial areas.



- Two mode 2 socket outlets SCHUKO[®], charging current up to 32 A(3-phase)
- Two mode 2 socket outlets SCHUKO®, charging current up to 16 A, 1-phase
- Complies with DIN EN 61851
- Robust steel enclosures:
 Degree of protection IP54
- Access control via RFID

Find out more at hager.de/witty-park



Practical accessories

From the wallbox to the charging station: With our attractive accessories you can make witty charging stations even more convenient and versatile for your customers.

Pedestals are recommended for outdoor installation.

Pedestals for witty start, solar and share



Stainless steel base, round

Get the elegant stainless steel stand (XEVA13X)

They are available in two versions:

- XEVA130: Stand, can be fitted on one side
- XEVA135: Stand, can be fitted on both sides
- Secure anchorage with base XEVA150 and drilling template XEVA160



Edelstahl-Standsäule, eckig

Stainless steel pedestal, square The robust pedestal (XEVA11X) is available in the following versions:

- XEVA110: Pedestal, can be fitted on one side
- XEVA115: Pedestal, can be fitted on both sides
- Height/width/depth: 1270/321/91 mm
- Colour anthracite
- Base XEVA140
- Earthing set XEVA116



Cable holder

Cable holder on robust polycarbonate:

- Colour anthracite, RAL 7021
- Height/width/depth: 250/65/120 mm
- Order no. XEVA100



Switching card for data transmission

For witty start:

- Connect the load management module (XEV305)
- Order no. XEVA200



3-phase load management module

For witty start:

- Charging control for home load limiting and PV charging
- Order no. XEV305

Sticker

- XEVA300: Sticker with key switch symbol for witty start and witty solar
- XEVA310: Sticker for witty share with



RFID cards

For witty share and witty park

- XEVA400: Set of 20 RFID cards for standard users
- XEVA410: Set of 3 RFID cards for administrators



5 m charging cable:



- Charging cable, M3T2/T1 20 A, 1-phase
- Charging cable, M3T2/T2 20 A,
 1-phase
- Charging cable, M3T2/T2 20 A, 3-phase
- Charging cable, M3T2/T2 32 A, 3-phase

All charging stations at a glance





witty start

Single/two-family houses indoor/outdoor

Charge control	✓			
Authentication with key	✓			
Authentication with RFID				
PV overcharging	•			
Different charging strategies				
User app control				
Load management				
Calibration-compliant billing				
Back-end connection				
1/3-phase switching				
Boost charging				
Loading with hold time				
Charging capacity up to 22 kW	✓			
Charging current limitation via rotary switch	✓			
Ad-hoc loading function according to LSV				
Blackout protection	•			



witty solar

Single/two-family houses + PV and, if necessary, electricity storage indoor/outdoor

✓	
~	
~	
✓	
✓	
~	
✓	
V	
~	



witty share

Multi-family houses and businesses





witty share ER

Multi-family houses and businesses





witty park

Semi-public areas and industry

~	
/	
-/	
<i>y</i>	
•	

= available optional

41

Knowledge and education

E-mobility is booming. But laws, standards and support programmes are constantly changing. With us you remain up to date and are perfectly equipped and trained to help your customers.





Hager tip 49

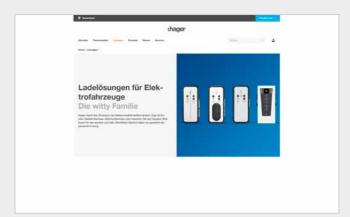
Federal subsidies for efficient buildings

Hager tip 50

German Building Electromobility Infrastructure Act

Landing pages for you and your customers:







hager.de/witty-familie

hager.de/gesetze



Home energy management system flow

Webinars and training:

Our live webinars and face-to-face seminars will quickly get you ready for the mobility transition.

Learn more and register now: hager.de/wissen







Hager Vertriebsgesellschaft mbH & Co. KG Zum Gunterstal 66440 Blieskastel, Germany

hager.com