The intelligent home charger

VitaeMobility

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Content

>> CHARGING YOUR ELECTRIC CAR HAS NEVER BEEN THIS EASY!

1. Charging your electric car

To charge the battery of your electric car, there are two charging standards:

- the **AC Mode 3 standard** for charging at a **regular charging station**. This charging standard can be used with the charging cable attached to the VM Mobility Pack charger or when plugging into a public charging stand with the charging cable in the car.
- the **DC Mode 4 CCS standard** for charging at a **quick charger**. When you stop at a quick charger, the cable with this plug is always attached to the charging station itself.

Explanation of the charging standards

CHARGING STANDARD	TYPE OF PLUS	CHARGING SPEED
AC MODE 3 Regular charging station for "Home – Business – Public" charging		**1F I 230V – MAX. 32A – 7,4kW** **3F I 400V – MAX. 32A – 22kW** CHARGING SPEED (*): ca. 40 up to 125 km autonomy per hour
DC MODE 4 CCS charging standard for Public quick chargers Quick charging on the go		**Up to 150 kW** CHARGING SPEED (*): up to 999 km autonomy per hour CHARGING TIME: 40min (0 - 80%)

(*) The calculation of this charging speed is based on an average consumption of approx. 20kWh/100km.

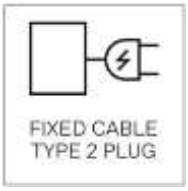
Charging at the VM Mobility Pack charger

The greatest luxury of an electric car is that you have your own charging station at home so that your car is fully charged and ready to use every morning.

The VM Mobility Pack charger allows you to charge your car fully in one night. Based on an average consumption of 20kWh per 100km, a value taken on the safe side, with that current you can recharge approx. 35 to 100km per hour depending on the available electrical capacity. This charging speed therefore is more than sufficient to provide you with a fully charged battery every morning.

A current lower than the maximum allowed 32A can affect the speed of charging.

2. The features of the VM Mobility Pack charging station

FEATURE	DESCRIPTION	EXPLANATION
	**CHARGING SPEED** - Tailored to your car - 7,4/22kW – 1/3f – 230/400V capacity - Up to 125km/hr charging speed - 100% charging in one night	Via the app you seemlesly set the maximum charging current. Dynamic Smart Grid automatically adjusts the current.
	**CHARGING PROCEDURE** - Plug & charge - Plug in = start charging - Lock charger via app - Scheduled charging using timer via app	You can block access to the charger on your smartphone app you block. You can plan when you want to charge using the timer in the smartphone app.
	**CHARGER VERSION** - Fixed cable with type 2 plug - 5 or 7m length (type 100) - Cable suspension hook - Holder for the plug	A strain relief avoids sudden shocks to the loader when accidentally pulling the cable.
	**ELECTRICAL PROTECTION** - 6mA DC detection in the charger - Fuse and differential in the electrical cabinet - Cable suspension hook - Holder for the plug	A battery fault in the car can cause a dangerous electrical situation in the house. The 6mA detection ensures that the charger is switched off in the event of a fault.
	**CONNECTIVITY** - No subscription fee - Bluetooth (Smartphone) - Wifi (online account) - Direct control via smartphone app	All your charging sessions, as well as your energy consumption, are visible in your own account. You can easily create overviews.
	**INTELLIGENT REGULATION** - Avoids overloading - Maximum loading speed - House consumption has priority over charging	You can cook, wash and do other activities in the house without having to plan the charging!

3. Dynamic Smart Charging, how does it work?

Your electric car is a new important consumer in your home. You cannot compare it with other devices in the house. After all, charging the battery takes several hours and uses a capacity that is 100 to 200% of the normal peak. That is why it is sensible to use a charging station, as it is equipped with an industrial plug or socket that can provide the required capacity for many hours.

You cannot control the charging capacity of the electric car from within the car. This can only be done via the charging point. The VM Mobility Pack provides a specific adjustment of the electrical installation in your home to ensure that your charge point knows to what extent the capacity needs to be adjusted.

What does your electrical installation with the VM Mobility Pack look like?

Figure 1 gives an overview of the electrical installation with the VM Mobility Pack.

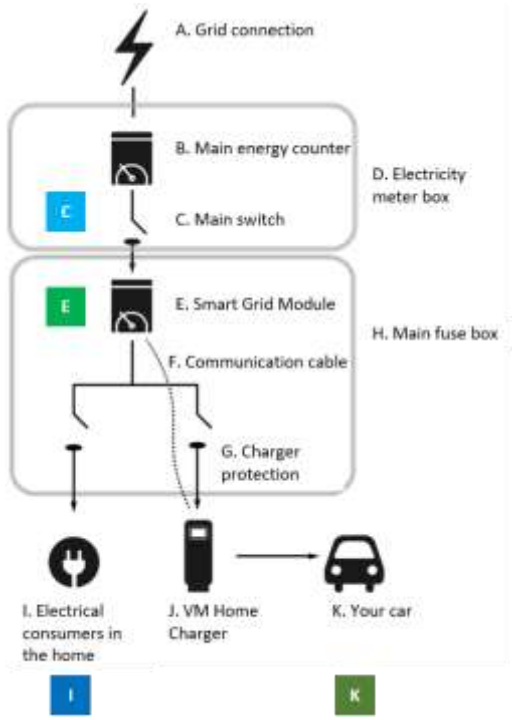


Figure 1: Electrical home installation with the VM Mobility Pack

The **fixed parts** of the electrical installation in your home are:

- the grid manager's meter box **(D)** containing the main counter **(B)** and the main switch **(C)**;
- the distribution box of the electrical circuits **(H)** in your home containing the loss circuit breakers and fuses.

The **VM Mobility Pack** contains:

- the VM home charger **(J)**;
- its electrical protection **(G)**;
- the Smart Grid module **(E)** and
- the communication cable between the Smart Grid module **(E)** and the VM home charger **(J).**

The parts of the VM Mobility Pack that are added to the distribution box of the house are in a separate distribution box.

With Dynamic Smart Charging you avoid overloading

A mains cable **(A)** enters your home which, together with the main switch **(C)**, determines the electrical connection of your home. The main switch can be of the single-phase or 3-phase type. The connection is provided to feed the electrical consumers in the house where the average consumption of your house is 'low'. However, at times such as cooking and domestic activities, consumption can 'peak'. If an electric car is charging, it can overload your main switch. The light then, literally, goes out.

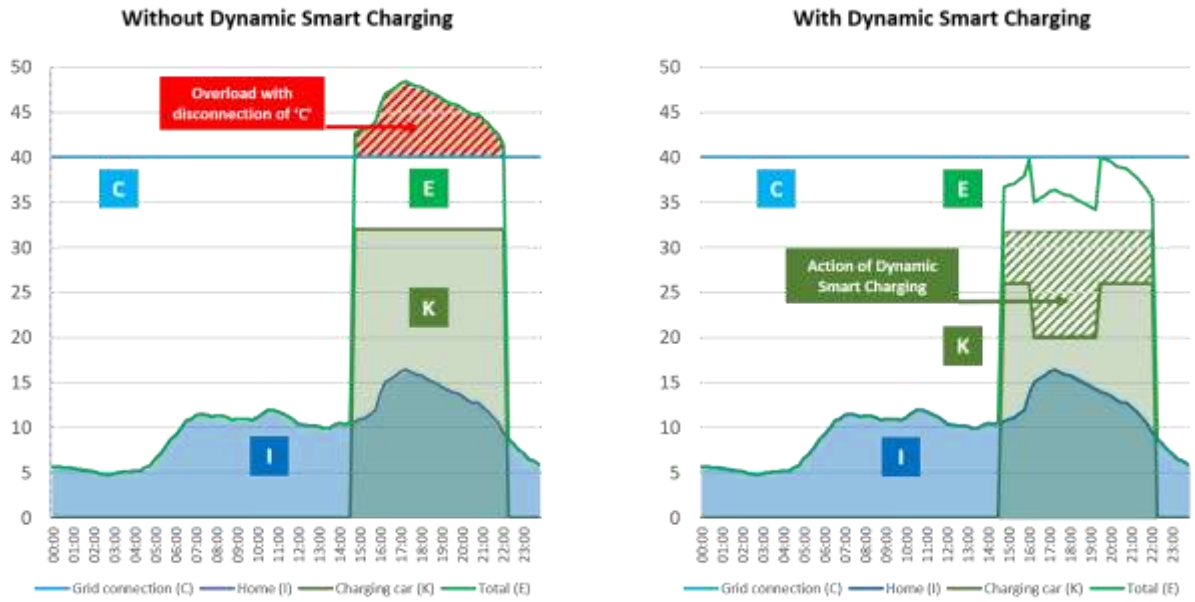


Figure 2: Influence of Dynamic Smart Charging on the maximum capacity of the electrical home connection

There are 2 ways to avoid an overload:

1. you can plan the start of charging with a timer, or
2. you can use Dynamic Smart Charging.

The first method requires attention. You have to set the timer on the charger or on other devices and take a safety margin. An overload can still occur and you don't actually achieve the optimal result.

Dynamic Smart Charging is automatic. The Smart Grid Module **(E)** measures how much of the capacity is used and adjusts the charging current on the charging station according to the maximum available capacity (C). This capacity is set via the charging station's app. The moment the consumption of the dwelling decreases, the charging current on the charging station increases. In this way, Dynamic Smart Charging ensures the shortest possible charging time without overcharging.

If you prefer to load during the night hours, the loading can be blocked via the timer in the app on the hours outside the nighttime. For example, you can combine Dynamic Smart Charging with the hours when electricity is cheapest.

4. How do you choose the right VM Mobility Pack?

We attach great importance to the ease of use and charging speed of the home charging solution we propose in the VM Mobility Pack. That's why different versions have been created depending on the electrical installation of your home.

The VM Mobility Pack exists in 2 versions:

- **Type 40** for electrical installations with a single-phase main switch **(C)**;
- **Type 100** for electrical installation with a three-phase main switch **(C)**.

If your electric vehicle can only charge single-phase, the charging speed, with the same available capacity, will not differ for both solutions (*).

(*) If your electric vehicle can charge three-phase, there is a difference.

5. Contact us

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