



RENEWABLE ENERGIES

PVingParks  
Generation Solutions

## INTRODUCTION

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Capture energy and generate a profit where you didn't do it.

The drop in solar photovoltaic installation costs, combined with rising electricity prices, has increased the use of many types of innovative solutions in energy generation systems. CIRCUTOR, after years of hard working to improve electrical efficiency, has designed a complete solution that integrates instantaneous self-supply with charging for electric vehicles.





# The most complete system

PVingPark is a solution that combines a solar photovoltaic canopy with an EV charging system. This solution allows electricity to be produced when there's sun, thus covering part of the installation's electricity consumption, and providing power to charge electric vehicles. The **PVingPark** has all the elements necessary to install it →

## ESSENTIALS

- › Photovoltaic modules
- › Structures
- › Inverter.

## OPTIONAL

- › DC and AC protection boxes
- › Control and monitoring
- › Charging equipment for electric vehicles.

## Features of the solution



### Certification and stability

- › Complies with the CTE and Eurocode (*including climate loads in the Canary Islands*)
- › It is stable, so the foundations/footings don't have to be very large.
- › European regulations:
  - › Eurocode 0, 1 and 3.
- › Equivalent Spanish regulations:
  - › Código Técnico de la Edificación.
  - › DB-SE-SE, DB-SE-AE, DB-SE-A.



### Pre-designed foundations

- › The templates for laying the foundations are supplied to fit perfectly with the canopy during mounting.



### Ducts for all the cabling

- › The cabling of the PV modules is routed inside the canopy and can be easily adjusted using handholes, ensuring the cabling is hidden and protected.



### Easy mechanical mounting of PV modules

- › No lifeline is required, it can be set up from below using a scaffold or scissor lift.
- › Compatible with 108/120 half-cell modules.



### Waterproofing

- › The metal profiles on the canopies are suitable for collecting and routing water and avoiding leaks.
- › EV charger integrated into its primary structure.

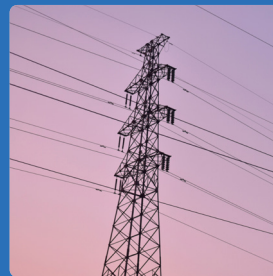


## Advantages of the system



### Uses renewable energy

Reduction of CO<sub>2</sub> emissions, all the energy generated by the system is clean thanks to solar panels.



### Lower energy costs

Distributed generation that helps reduce the energy consumed from the grid.



### Electric vehicle charging

Offers the option of adding chargers for electric vehicles. This way, you can integrate PV generation and charging into the same solution.



### Remote monitoring

Monitoring of the installation's electrical consumption and PV generation. All in order to improve the system's performance and efficiency.

# Applications

The best solution for corporate campuses, shopping centres and service areas; offers users the option to charge their vehicle while generating photovoltaic energy to supply the facility's consumption. This type of solution is ideal for places where charging points are needed for electric vehicles, and to provide shelter for them as well.



# Energy Management Software

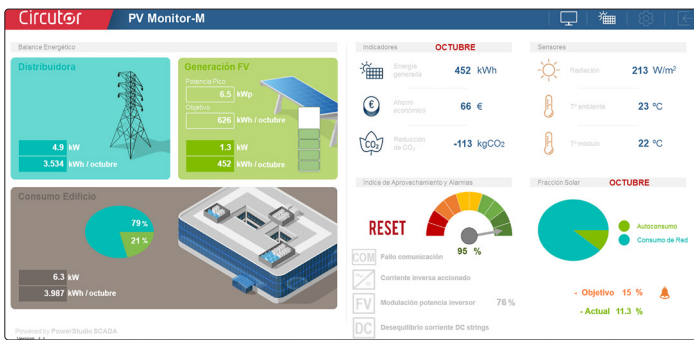
## PowerStudio SCADA and DLM-line

PowerStudio SCADA is a platform that offers complete energy management and monitoring for the entire canopy. Similar to but aimed at RVE, the (DLM-line) is a platform for managing electric vehicle chargers to avoid overloading the connection due to charging cycles, always giving priority to the installation's consumption.

## iPV-Monitor

Monitoring and display platform that shows all the parameters of the solar canopy. Compatible with any screen or monitor, allowing it to be viewed by the public. The device communicates with the installation's analysers and sensors to show: Generation, Consumption, Solar radiation, Performance, Savings, and more. It also has Ethernet to add screens and remote access.

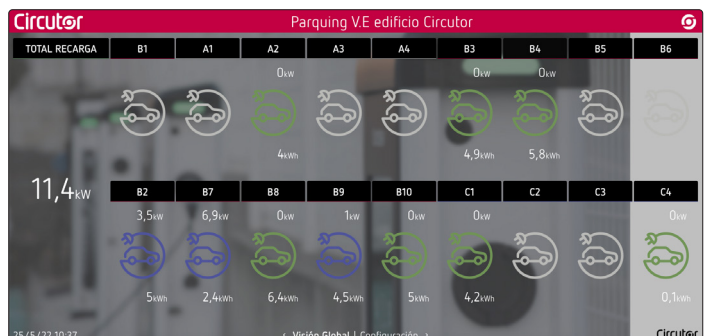
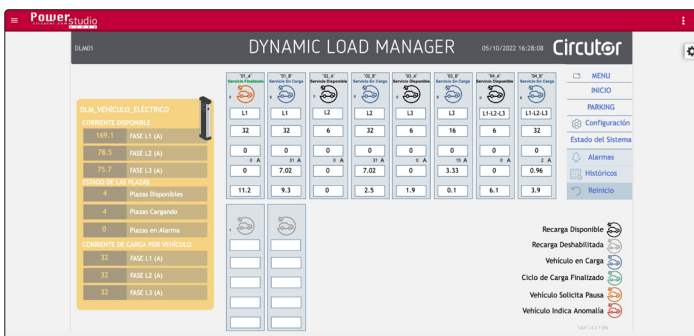
### PowerStudio SCADA



### iMonitor



### DLM-line





# 3 series of PVingParks

The canopy solutions come in three series: **PVS** model (PVS2 simple, PVS2-R simple integrated, PVS4 double), **PVM** model (PVM2 simple, PVM4 double) and **PVT** Model (PVT single, PVT double)

These three can be combined in installations ranging from 2 spaces (~5 kWp) to hundreds/thousands of spaces and kWp, thanks to modularity for commercial or industrial sectors.

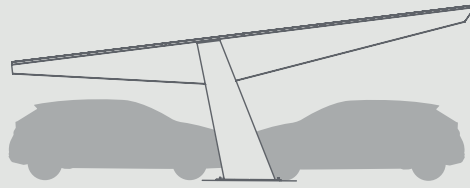
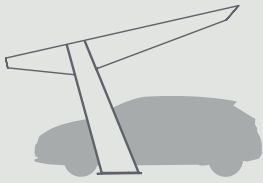
## PVS

Constant-tilt modular canopy with integrated EV charging points

PVS 2

PVS 2-R

PVS 4

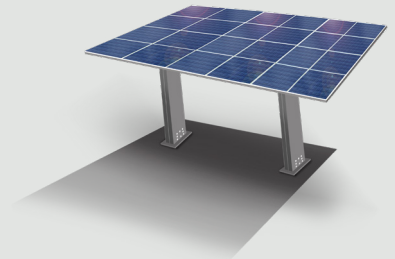
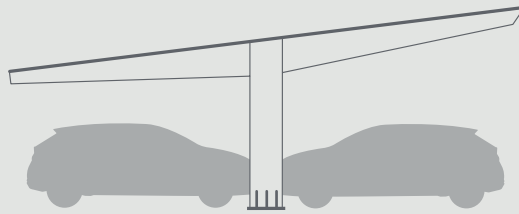
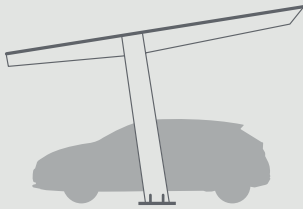


## PVM

Constant-tilt modular canopies

PVM 2

PVM 4

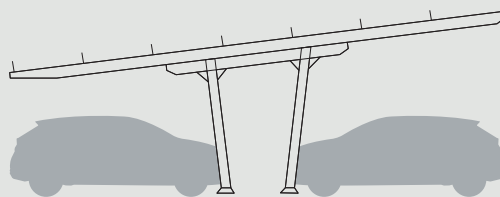
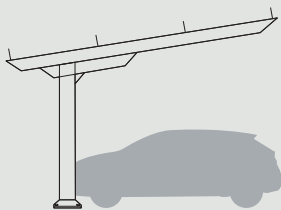


## PVT

Constant-tilt modular canopies

PVT 2

PVT 4



# PVS

## Constant-tilt modular PVingPark with integrated EV charging points

The **PVS** series consists of 3 models: **PVS 2**, **PVS 2-R** and **PVS 4**.

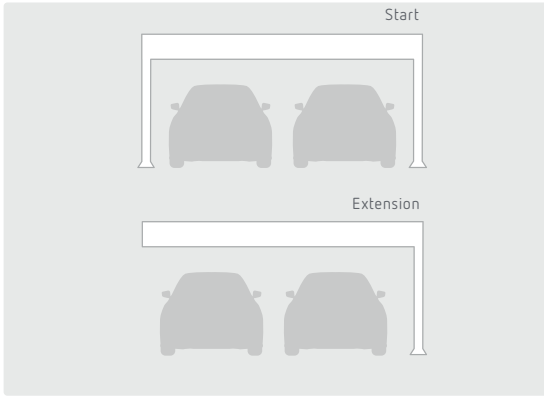
**PVS** canopies have been designed to offer a fully modular and robust system, ensuring the integration of different EV charging solutions. The canopy structure is made of galvanized steel, which is then primed and painted. This process allows the product to have higher durability and rust protection, and the canopies to be customized to the customer's liking.





## Configurable PVS modules

### 5 m module



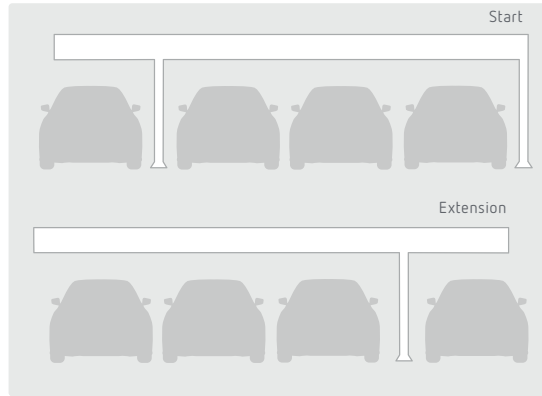
### 5 m + module



### 7.5 m module

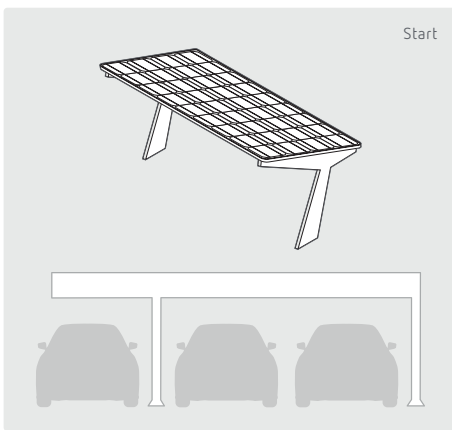


### 7.5 m + module



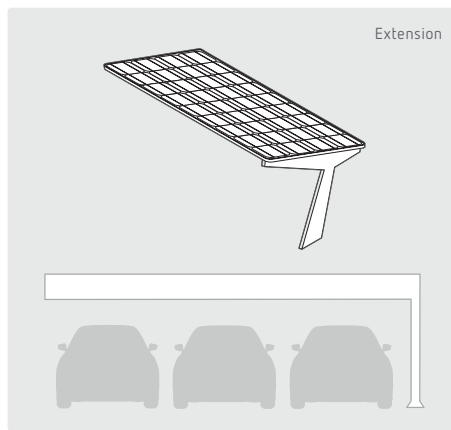
## PVS combinations

### 5 m + module



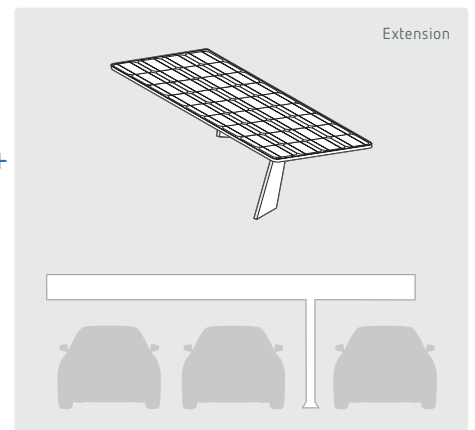
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### 7.5 m module

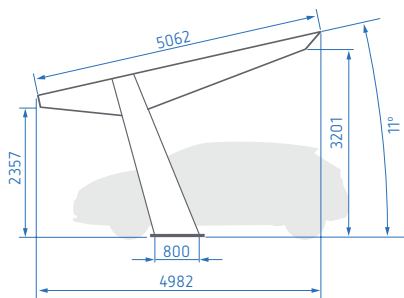


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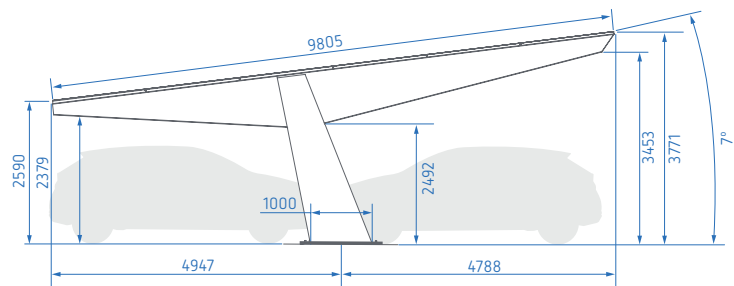
### 5 m + module



## PVS Dimensions



PVS 2



PVS 4

# PVM

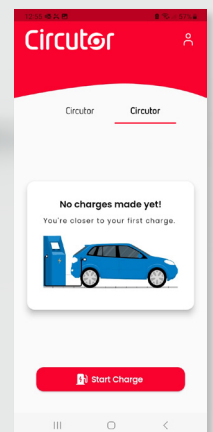
## Single-pitch modular canopies

The PVM series consists of 2 models: PVM 2 and PVM 4.

This series is ideal for large covered parking areas with solar photovoltaic production. The canopy maintains the constructive characteristics of the PVS family and offers a lighter solution with a Magnelis surface finish.

The PVM R series consists of 2 models: PVM 2-R and PVM 4-R.

The charging point integrated in the photovoltaic canopies has been designed to simplify the charging process in the working environment.



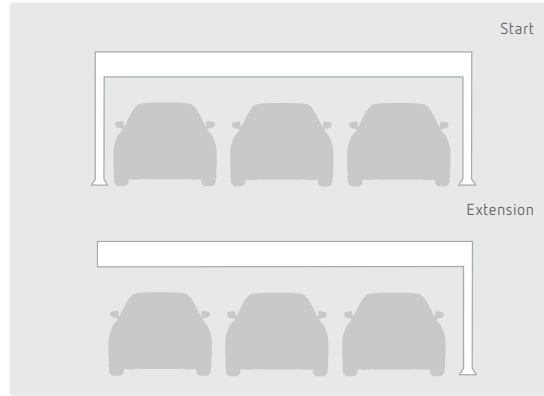
- › Charging authorization via App, which allows users to charge their electric vehicle without having to interact with the charging point.
- › Includes MID meters and integrated electrical protection for each charging point (40 A and 30 mA).
- › The maximum input current is 32 A single-phase and the maximum power is 7.4 kW.
- › Application designed to control and configure the charging point. Interconnected to the customer's accounting management system to facilitate billing.
- › Four type 2 electrical sockets per charging point.

## Configurable PVM modules

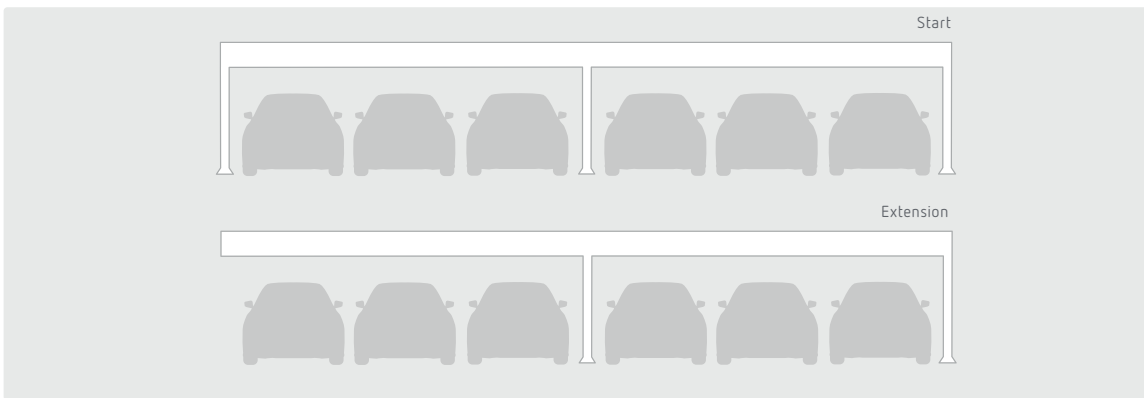
### 5 m module



### 8 m module

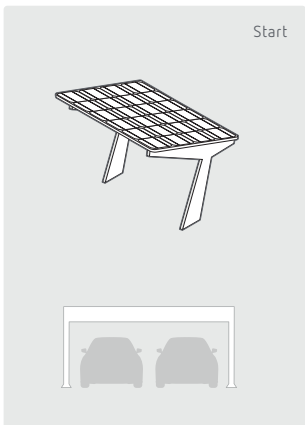


### 15 m module



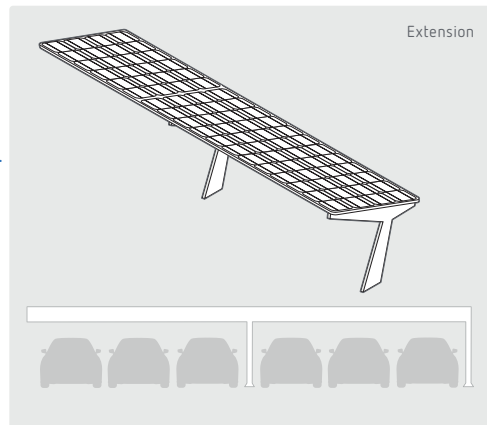
## PVM combinations

### 5 m module



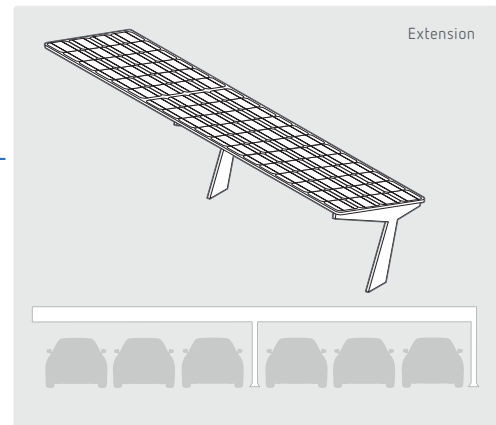
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### 15 m module



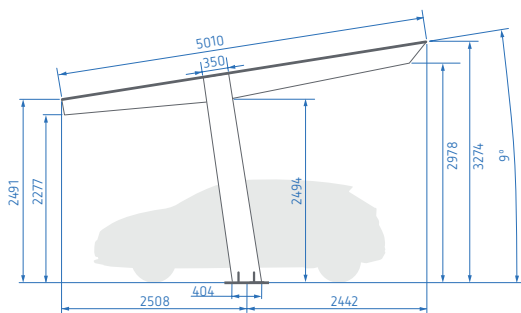
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### 15 m module

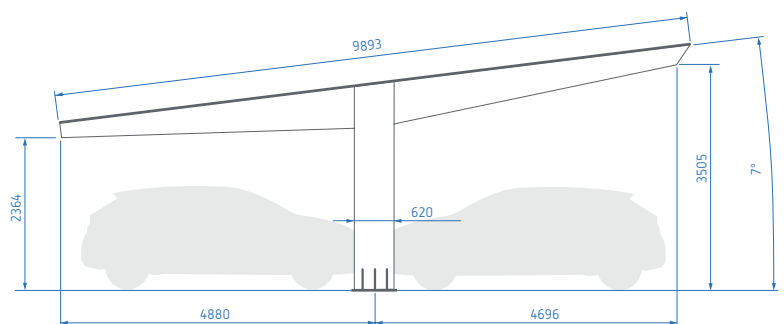


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## PVM Dimensions



PVM 2



PVM 4

# PVT

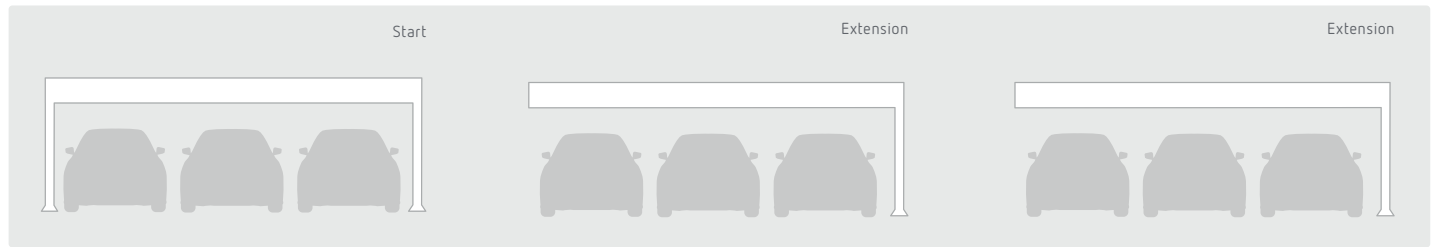
## Constant-tilt modular PVingPark

The **PVT** series was developed for use in high surface area projects with high power demands. It consists of standard beams and can be adapted to the most demanding environments. It complies with the standards and offers the quality features of the previous series.



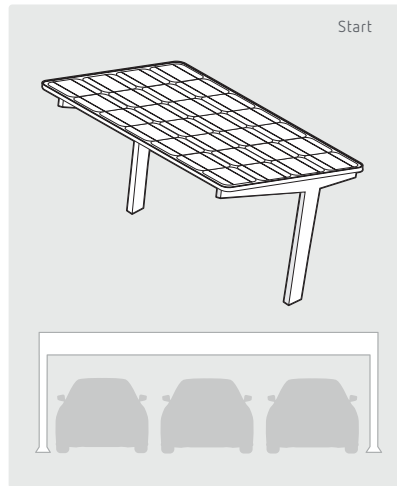
## Configurable PVT modules

### 7.5 and 8 m modules

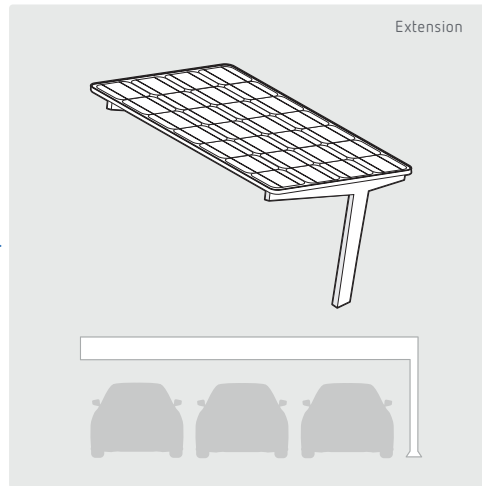


## PVT 2 combinations

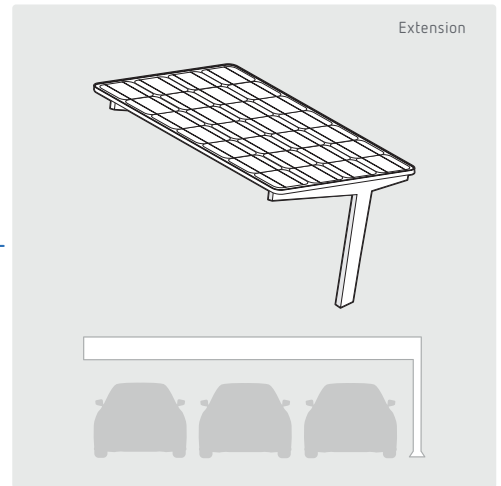
### 7.5 m modules



### 7.5 m modules

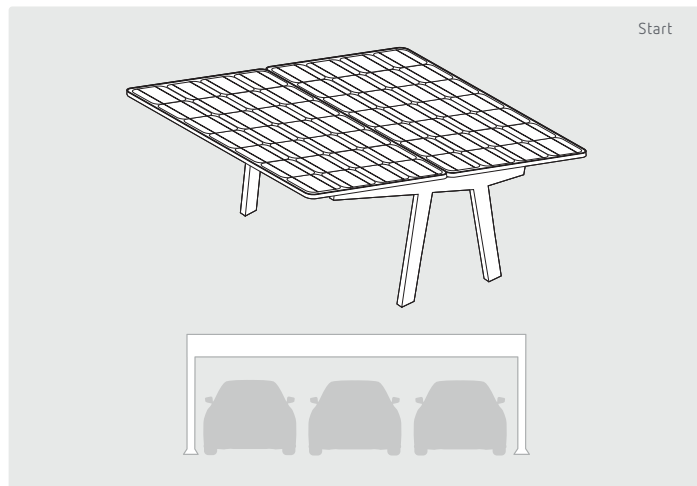


### 8 m modules

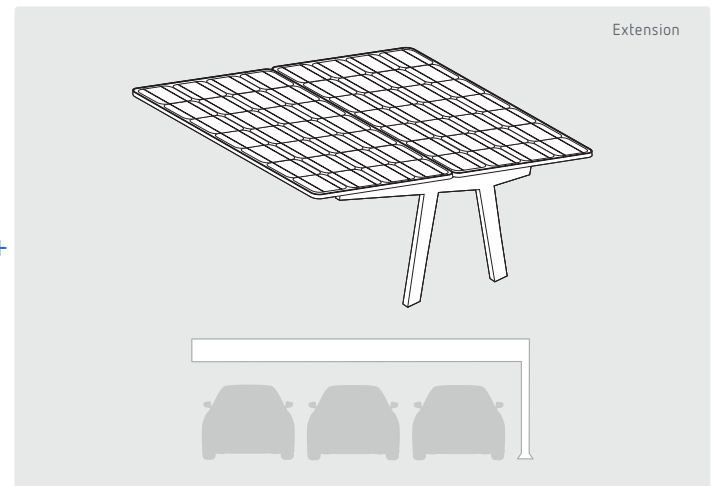


## PVT 4 combinations

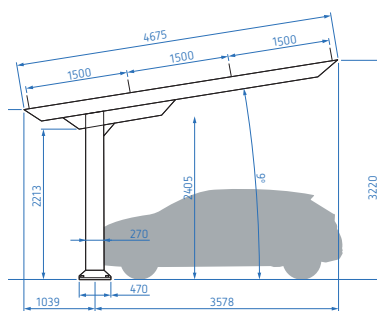
### 8 m module



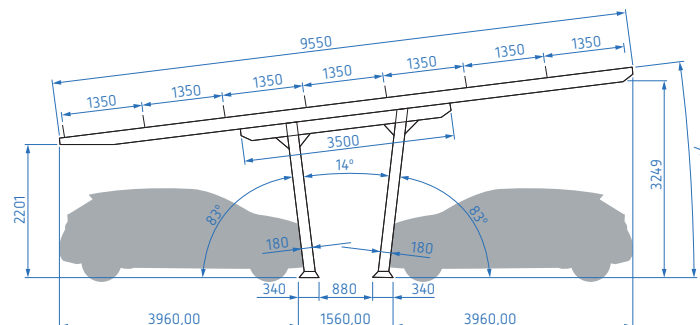
### 7.5 and 8 m modules



## PVT Dimensions



PVT 2



PVT 4

# Electric vehicle charging

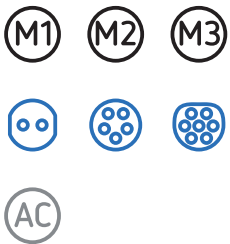
In addition to generating photovoltaic energy, the canopies incorporate an advanced charging system for electric vehicles, thus adding more features to the structure.

There are two types of systems for charging electric vehicles associated with the solar photovoltaic canopies. On the one hand are the **WallBox**, or charging boxes, which are integrated directly into the base of the canopy; and on the other is a choice between the following options: **Urban** external AC charging posts with up to two plugs and a **RAPTION** fast-charging station with dual plugs and built-in communications, giving the user the freedom to choose the installation site, since it is not integrated into the primary structure of the canopy.



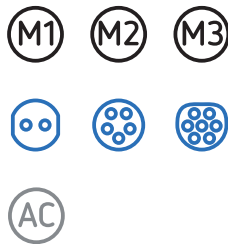
## Smart Wallbox

The WallBox range has been designed for multi-user environments and wall installations. This range is the most versatile in terms of configurability.



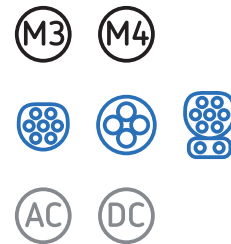
## Urban

URBAN posts are designed for outdoor charging where the objective is a robust yet attractive unit.



## RAPTION

The RAPTION 50 and 100 quick charging units allow vehicles to be charged on the go when quick recharging is required.







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