EV-CHARGINGSOLUTIONS

# whyWallbox

SMARTCONTROLS thinkquestioncreatedeliver

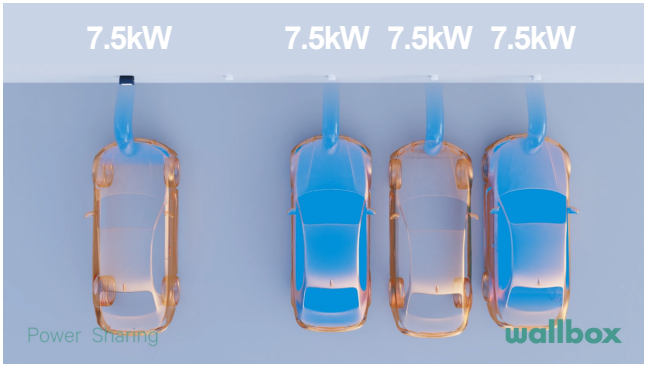
## For Apartment Complexes

THE MOST COMPLETE EV CHARGING SOLUTION FOR MULTI-TENANTED CARPARKS AND APARTMENT COMPLEXES

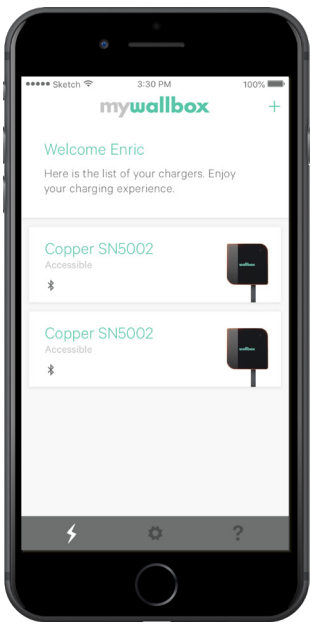

### EV Charging Solutions – The e-Mobility Experts

EV Charging Solutions has the skills and knowledge of how things work and what is required to ensure an installation is reliable and safe. Being 100% privately New Zealand owned and operated we are able to do things differently to other businesses.

Whether you are a private citizen or a business thinking about installing EV charging infrastructure, we can help with selection, planning, and installation. Our e-Mobility team is the newest division of Smart Controls Limited and they are all very well equipped to assist you with your installation from start to finish.




We understand the challenges faced by both sides of the market and have worked very hard to ensure a range of solutions that suit all parties. We searched the globe for the smartest and smallest EV chargers that could offer a solution for private and semi-public installations without any fuss. We have partnered with Wallbox of Spain, a very clever team who are ahead of the curve when it comes to the technology they offer and what they'll be able to offer in the future without having to retrofit their charge stations. We have also listened to the concerns of the electricity networks around the impact the increased demand will have on their networks, we have designed and built a number of products to help combat the impact.




Wallbox not only offer the high quality and aesthetically pleasing hardware, they have the mastered the brains behind it all. With the myWallbox and myWallbox Corporate software, Wallbox has made it very simple for asset owners to manage and control their charge infrastructure from the basics of controlling access right through to monitoring of usage and reporting for billing and reimbursement (for corporates with company cars being charged at employees homes).

Wallbox is the game changer, the range includes; Pulsar, Commander and Copper

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### Features

- Load sharing – using a 240 amp 3 phase supply, easily add 10,000km of range across 75 cars in a 10 hour charge time. Flexible settings work within the constraints of your existing electrical installation. (Note: all chargers are single phase).
- One administrator login to corporate myWallbox account with no limit of individual users or myWallbox accounts linked to the main administrator.
- Cloud based software
- Back up and support from both Wallbox (service@wallbox.com) & EV Charging Solutions (contact@evchargingsolutions.nz)
- Logging of all charging session information allows easy cost allocation to the individual users.
- Access to all logged data and user information via myWallbox software or android/IOS app.
- Individual users have full access to all charging stations they are allocated to. Allocation is easily completed by the building body corp or Managers. It is not possible to use a charge station they are not allocated to. Full control of who uses what and when is with the administrator to ensure the system does not overload the building.
- Main administrator has full access to all charge station and individual user cost and power use. Access via myWallbox administrator login
- Individual users can only see the information relating to the charging station they are allocated to.
- Easily add or remove users using the Wallbox software
- Individual users have the choice of Wallbox model (Pulsar, Commander or Copper)
- The complete package, hardware and software. No ongoing subscriptions or yearly fees to access t problems resolved with one call or email

**kW - Kilowatts.** This is power. Power is instantaneous and is otherwise referred to as load. People often think that they need more power to charge an EV. Most of the time this is not the case. Buildings are designed to be able to provide a maximum amount of power, but for most of the day the power used is not close to the maximum power the installation can provide. If EV charging is done at the correct time, and at the right power load, then in most cases a building has enough power without doing costly upgrades.

**kW/h - Kilowatt Hours.** This is energy. A building will use more energy when charging EV. The same amount of energy can either be used in a short time with a lot of power, or with less power over a longer time.

Why are these two terms important? Because power costs a **lot** of money in infrastructure build, so if you don't **need** more, don't get more.

The national average for how far someone drives a day is only 28km. So designing an electrical installation so that everyone could drive 400km a day is not wise in most cases. The following table converts a 3-phase supply into the amount of range that can be added. Each individual charging station is single phase only, which is a more economic use of the supply.

| 3 phase supply | 6 hours charge time | 8 hours charge time | 10 hours charge time |
|---|---|---|---|
| 240 amps | 5760km | 7680km | 9600km |
| 200 amps | 4800km | 6400km | 8000km |
| 150 amps | 3600km | 4800km | 6000km |
| 100 amps | 2400km | 3200km | 4000km |
| 50 amps | 1200km | 1600km | 2000km |
| 20 amps | 480km | 640km | 800km |

*km – kilometers of range added per charge session.

**The speed of charge is limited by any one car to around 40-50km per hour, making the maximum range added for any one vehicle 500km in a 10 hour charge session.

An example of how to use this table:

### Km driven per day X No. of apartments = total km driven

Example. 28km X 50 apartments = 1400km needing to be added a day. Use this in the table above then 50 amps (3 phase) is all you would need.

## Load Sharing

Maximum current per phase is set depending on how much is allocated for EV charging. The current setting can be between 20 and 240 amps. EV will share the available current, when an EV is unplugged or finishes charging more current is automatically allocated to the EV's still on charge.

The minimum charge current for an EV is 6 amps. If there is not enough current available to give 6 amps to all EV, there is a 'first in first served' system for the cars waiting to be charged

Charging stations can be set to not charge during peak times.

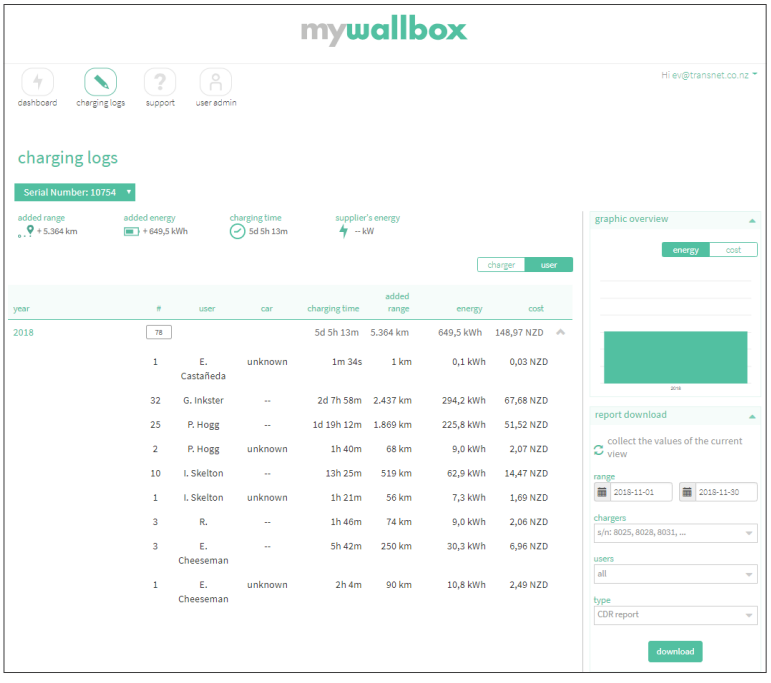
## So what will a typical apartment installation look like?

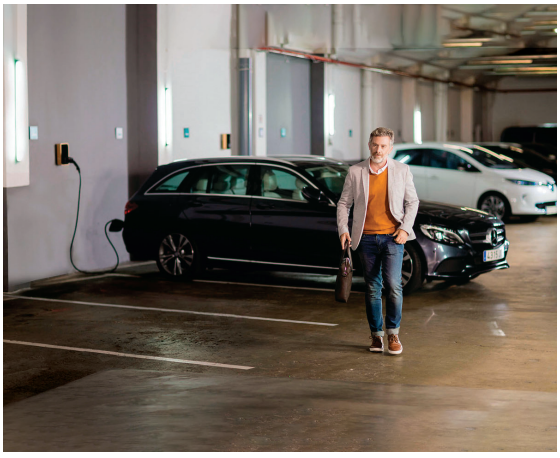
The building owner or body corporate installs the EV distribution switchboard(s) to make the complex EV ready. Payment for energy used for charging EV can either be handled by the body corporate or by a 3rd party management company. These requirements can be tailored to suit requirements of the customer.

When a tenant/apartment owner wants to install an EV charger in their carpark, they purchase a Wallbox and a termination kit. The termination kit consists of all the components required to connect a charging station to the EV distribution switchboard. The installation includes all testing, and connection to the load sharing network.

## How does it work for the end user?

The owner of the carpark simply plugs into the EV charger when they park, they unlock the charging station using their phone/a pin number on the front screen/facial recognition (depending on the model) and the system will do the rest. The owner can check on the added charge via the app. If they are not sure if they plugged in, they simply open the app and check. All charge costs will be logged for them to see against their individual account. Information accessible via the myWallbox app or the cloud based software.



**Above**: Wallbox charge network installed in multi-tenanted carpark.

**Left**: Corporate myWallbox software makes monitoring and control of your network fast and simple.

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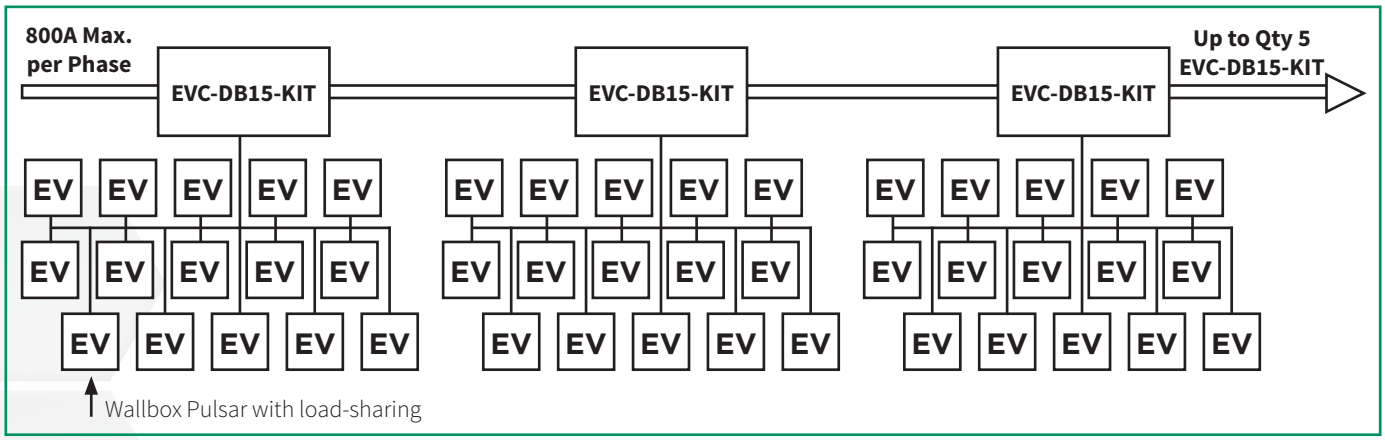
EVC-DB15-KIT DISTRIBUTION BOARD KITSET

The EVC-DB15-KIT can supply up to 15 Single Phase chargers at full capacity from a single 3-phase supply. The distribution board also allows you to supply further EVC-DB15-KIT distribution boards in a 'daisy chain' configuration. The maximum input current for the string is 800A per phase, supplying 15 chargers with up to 160A per phase. Loop out at up to 630A per phase to the next string of EVC-DB15-KITs*.


Each EV charger supply from the EVC-DB15-KIT is fitted with a specified number of 32A Type-B RCBOs for the correct electrical protection of connected EV Chargers. See WorkSafe documentation on Electric Vehicle Charging Safety Guidelines.

Up to 75x Single Phase EV car chargers can be supplied from five daisy-chained EVC-DB15-KIT distribution boards. If the incoming supply is restricted to less than 800A, then the chargers can be configured with load-sharing to restrict the total load of the entire installation to that of the available supply. A twisted-pair control cable must be run between each charger to allow this feature to function.

The EVC-DB15-KIT makes easy work of multiple EV charger installations where either the supply is fed from a single point or from multiple feeders, using the same distribution board for all configurations, up to 75 chargers.




- Maximum Cable terminations dimensions: Incoming/Loop M12 Terminals; 800A/630A; 3ph+N+PE EV Supply (15qty): Up to 16mm2; 32A; single phase
- Cabinet Dimensions (mm): 1000W x 875H x 235D
- Cabinet Material: Powder-coated Aluminium.
- Cabinet IP rating: IP44. (Suggested indoor/outdoor use not exposed to direct rain)
- Cable Entry & Exit: Top and/or Bottom
- Standard: AS/NZS 3439.1. AS/NZS 3000

| Max. # of EV | Min # of EVC-DB15 -KIT Distribution Boards | Min. Supply Capacity per Phase WITHOUT Load Sharing | Min. Suggested Supply Capacity per Phase WITH Load Sharing |
|---|---|---|---|
| 15 | 1 | 160A | 30A |
| 30 | 2 | 320A | 60A |
| 45 | 3 | 480A | 90A |
| 60 | 4 | 640A | 120A |
| 75 | 5 | 800A | 150A |

*Consultation of fuse design requirements for multiple EVC-DB15-KIT installations is required.

contact@evchargingsolutions.nz | 021 764 205 |
www.evchargingsolutions.nz