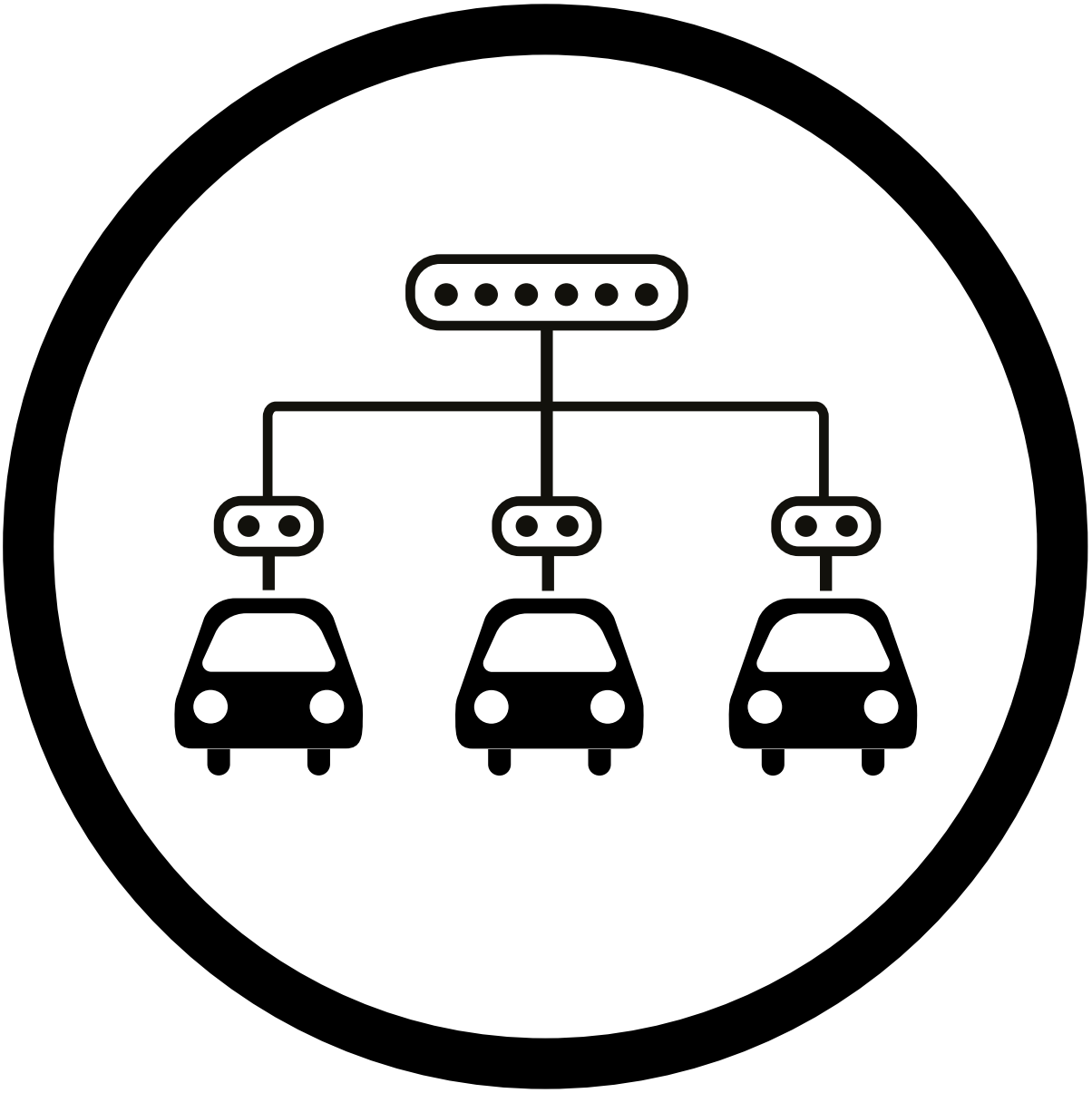


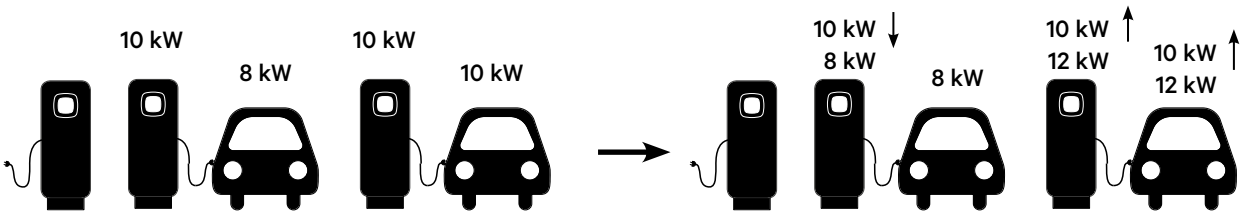
POWER SHARING

Installation Guide

wallbox

INDEX

Technical Datasheet



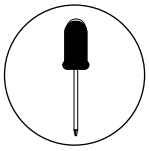
Name	Power Sharing
Purpose	Sharing the available power of the system among several charging stations
Power Sharing Logic	Measurement of each charging process and dynamic adjustment
Charger Priority	Equal Distribution
Troubleshooting	The myWallbox App gives insights on the status of the network
Stand Alone	If a charger loses communication with the network, it will still charge at minimum power
Total number of chargers	25
Communication between chargers	CAN Bus
System Configuration	One time setup on single Primary charger using the myWallbox App
Compliance	Compliant with NFPA 70 NEC Article 625
Compatibility	Compatible with all commonly available EVs
Additional device	None
Required internet connection	None
Extendable	Yes
Recurrent costs	None

Required Tools and Materials

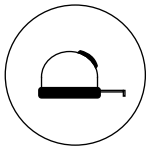
Devices

2+ Pulsar Plus
(See the Installation Guide for installation instructions for the charger)

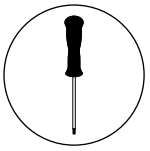
Tools (Power Sharing Installation)



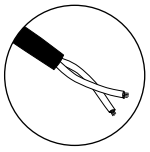
Small, flat Screwdriver



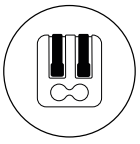
Measuring Tape



T20 Screwdriver or Bit



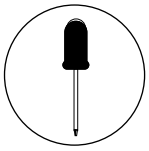
Twisted Paired wiring for CAN-Bus
(Ethernet Class 5E no shield, 1 pair) with required length for daisy chain



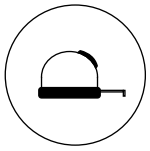
Two pole lever connectors
(for small communication wires)

Multimeter

Tools (New communication's conduit)

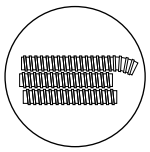


Small, flat Screwdriver



Measuring Tape

3/4 Conduit Hub



Conduits

Preparing the chargers

Install the chargers according to the instructions included in the charger's Installation Guide.

Versions	Installation Guide section	Steps to be excluded	Additional step to be included
Hardwired	Hardwire Installation	Closing the charger	None
Plug-in	NEMA Plug-in Installation	None	Opening the charger. See Preparing Your Charger sub-section in the Hardwire Installation part.

After you have mounted your charger according to the instructions in the Installation Guide, ensure that:

1. The cover is not attached to the charger

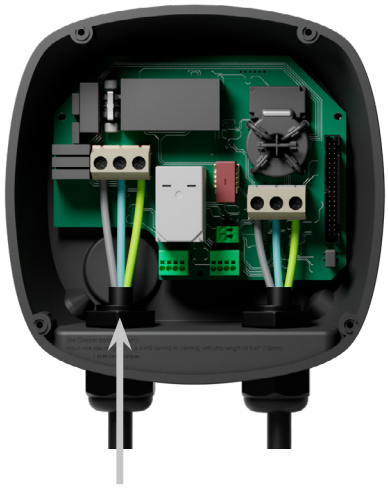
2. The charger is electrically wired

For easier handling, you can proceed to install the holster (see the Installing the Holster section in the Installation Guide).

The Power Sharing communication cabling can be drawn through:

Hardwired model

The same conduit that has been used for the hardwired installation (recommended)



or

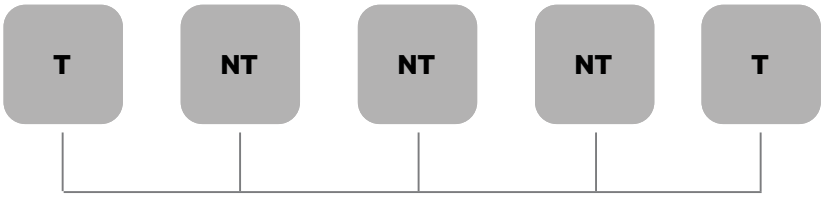
Plug-in model

For both the Plug-in and Hardwired versions you can use the small opening located at the bottom of the charger between the power input and output cables.

For that, remove the existing screw-plug first. Hold the lock-nut placed within the charger with a wrench and then unscrew the lock-nut from outside with a large flat screwdriver.

Wiring

The chargers communicate through a cabling system in form of a daisy chain that connects the chargers with two Terminating **(T)** chargers and the rest of Non-Terminating **(NT)** chargers as shown in the image below.

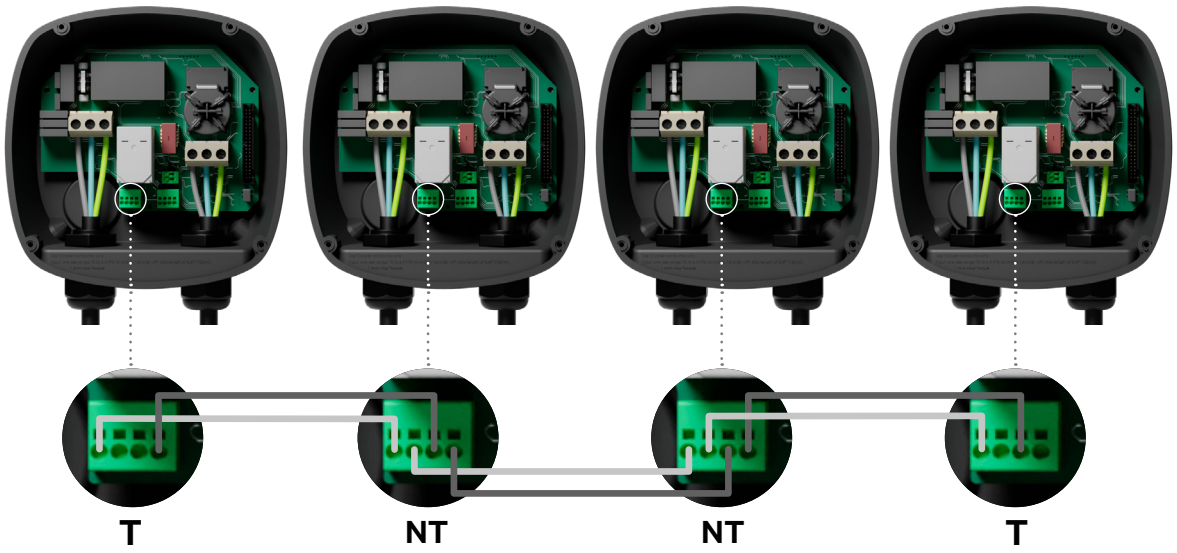


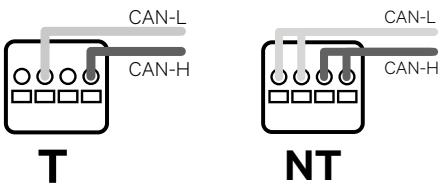
Installation

Draw the communication cables between the chargers through the selected conduit (see Preparing the Chargers section above) as shown below. Ensure that the total length of the cable is no more than 820ft.

The cabling consists of a pair of a CAN-low (CAN-L) and a CAN-high (CAN-H) line.

We recommend to use the following cable-type: Ethernet Class 5E no shield, 1 pair.





The cabling polarity must always be respected:
CAN-H must be connected to CAN-H terminal.
CAN-L must be connected to CAN-L terminal.

Wiring

If the system is intended to be extended over time we have two options:

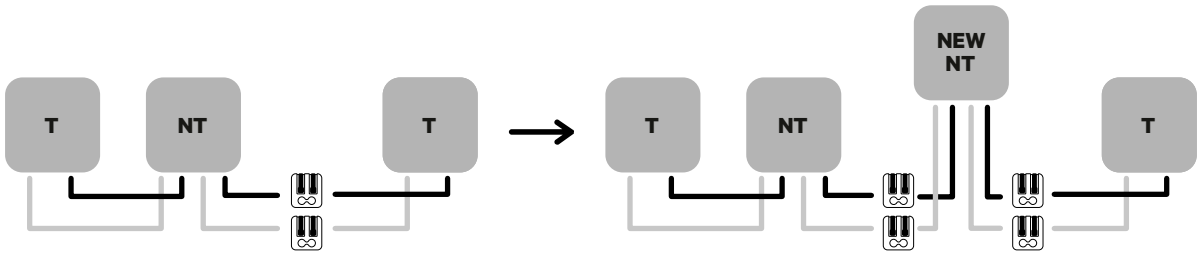
1. It is suggested to leave the option of bus disconnection to accommodate future extensions
2. Truncate the existing bus to add new charger(s)

This avoids the need of reopening the existing chargers.

The new chargers can be physically placed anywhere as long as:

1. The daisy chain is maintained
2. The cabling polarity is respected

It is very important to keep the daisy chain. For example, in the below image, the new NT charger can be placed anywhere as long as the above mentioned points are respected.



Configuration

The T or NT configuration (depending on selected position of the wiring) is to be set by a switch in the charger, as shown in figure below. If the system is intended to be extended over time, it is suggested to configure two chargers as “T” and all the following chargers as “NT”.

Each Power Sharing system consists of one Primary charger and up to 1-24 Secondary chargers.

The Primary charger will be the only unit in the system that needs to be configured, and is the central control of the system.

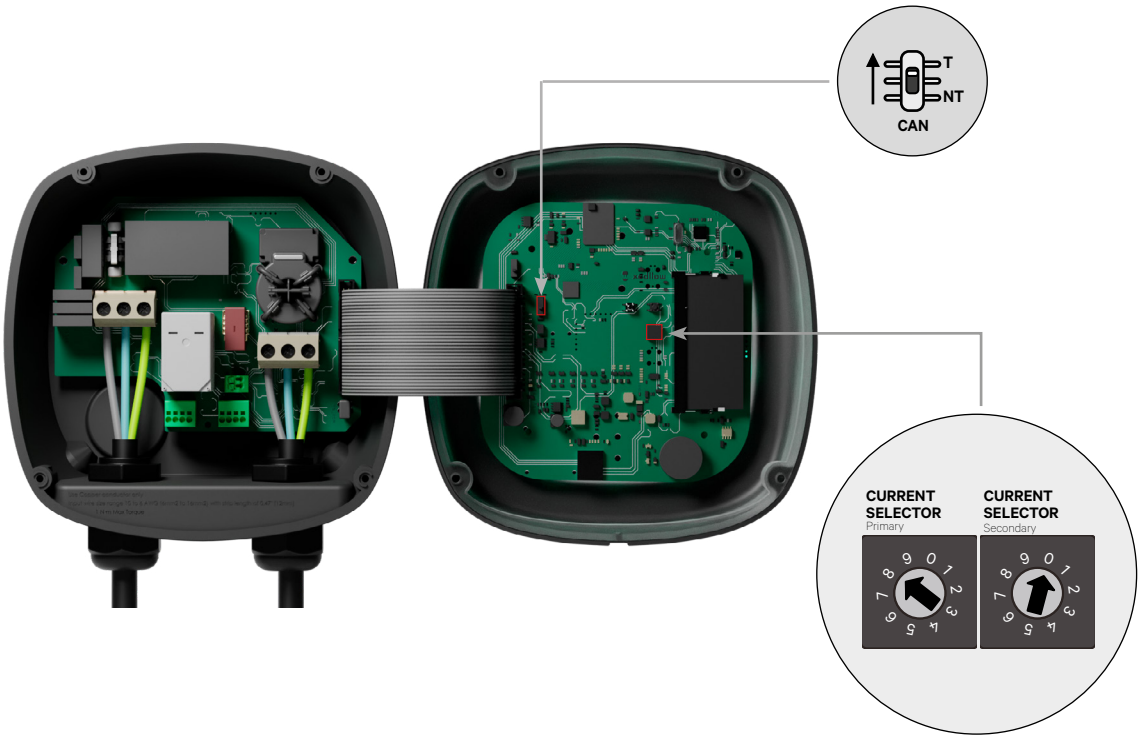
The Primary charger can be set at any position within the group (T or NT).

The configuration is done using the rotary switch (see figure X) using the following configuration:

Position	Configuration
0	**Secondary**
8	**Primary**
Any other	**Stand-alone** (see Installation Guide)

For **Power Sharing installations**, the maximum current has to be adjusted through the **myWallbox app** and not through the current selector.

For more information on current adjustment through the app, please visit: *https://support.wallbox.com/na/knowledge-base/adjust-the-charging-current/*



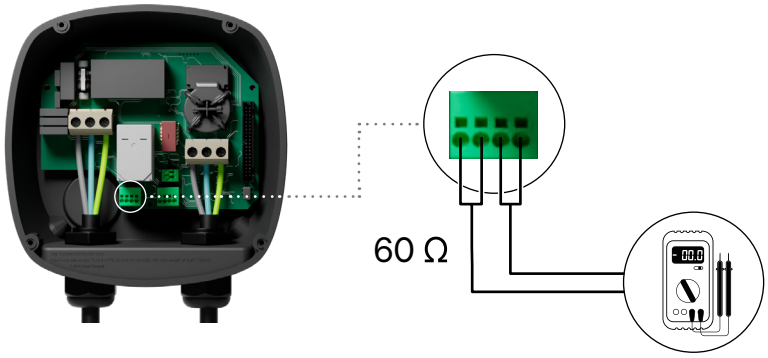
To ensure a proper set-up, the measured **resistance between CAN-H and CAN-L must be near to 60 Ohms**. If it differs from that, recheck the proper wiring and the T/NT configuration.

Configuration

Finish Electrical Setup

Once all chargers are configured (Primary/Secondary unit and N/NT) as well as wired, proceed to close the charger as described in the charger's Installation Guide (section "Closing the Charger").

Terminal/No Terminal



SETTING UP

Primary Charger

Once the system has been powered on, it has to be configured on the Primary charger (the single unit that has been configured on its rotary switch to position 8).

Until the network is not properly configured the chargers will stay in the “UNCONFIGURED POWER SHARING” status.

myWallbox Account

A myWallbox account is needed in order to connect to the charger via the myWallbox app. For more information see the corresponding support articles. (see Download the myWallbox app, Create a myWallbox account, and Connect via Bluetooth articles on the support site: *https://support.wallbox.com/na/*).

After you have completed setting up the system, you can unlink your account from the charger, to enable it for the end-user. (see how to unlink the charger on the support site *support.Wallbox.com*)

myWallbox App

Once connected, access the POWER SHARING box in the settings menu

The Power Sharing system has three parameters to be set.

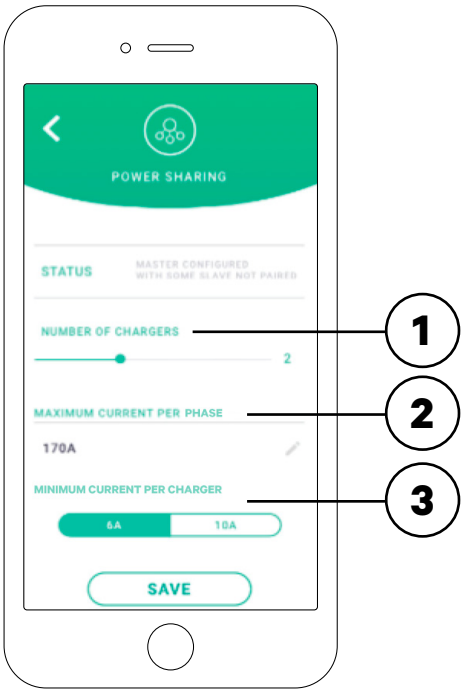
1. Number of chargers in the Power Sharing System

This number must include the primary charger.

2. Maximum Current Per Phase

This value determines the maximum current that the dedicated circuit can carry. This maximum current sets the maximum available power to the system.

EXAMPLE: if you select 100A you require a protection and circuit of 125A



CAUTION To reduce the risk of fire, only connect your system to a circuit with a branch circuit over-current protection of 125% of the selected max amperage settings in accordance with ANSI/NFPA 70 (US) C22.2 NO 280 13 (Canada).

3. Minimum Current Per Charger

- While the standards define a minimum current of 6A (default value), some cars need to have a minimum current of 10A.
- Default value is 6A.

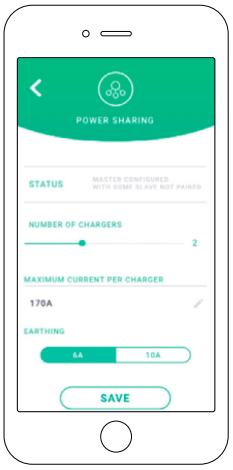
After you have entered all values, press “SAVE”. It will take up to 1 minute until the system gets configured.

OPERATING

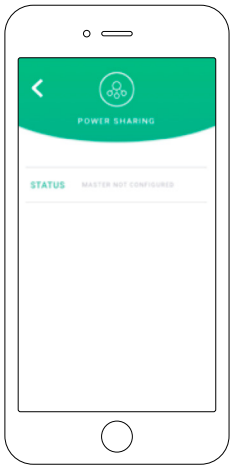
Status

After the chargers have been powered on and configured they can show different states.

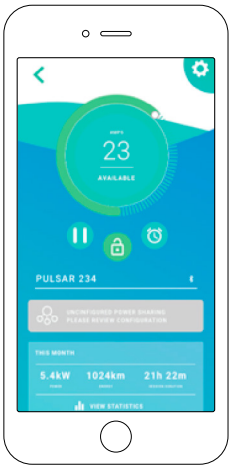
This can help to understand if the installation has not been done correctly or to show to the user why the charger is charging possibly slower.



App Settings
Status: Primary unit



App Settings
Status: Secondary unit



App Charger Dashboard:
POWER SHARING status

Status Text	Shown in	Description
PRIMARY CONFIGURED WITH ALL SECONDARIES PAIRED	App Settings	Only on Primary unit. The network has been successfully set. All chargers are connected with the Primary.
POWER SHARING ACTIVATED	App charger dashboard	The network has been successfully set. The unit is connected to the primary unit.
PRIMARY CONFIGURED WITH SOME SECONDARIES NOT PAIRED	App Settings	Only on Primary unit. The network has been successfully set. Some Secondary units are not connected. Verify that the setting "number of chargers" in Primary unit coincides with the number of chargers in the system. Verify wiring.
UNCONFIGURED POWER SHARING	App charger dashboard	This is the initial status after powering on the set-up. The unit is paired with the Primary unit but it detects that it is pending to be configured. The chargers will blink in red.
PRIMARY NOT CONFIGURED	App Settings	
PRIMARY NOT PAIRED	App Settings	Only on Secondary unit. The number of chargers in the configuration are not consistent with the ones that are connected with the Primary. Review sections names 2 and 3 to make sure all steps are being understood.
SECONDARY PAIRED WITH NETWORK	App Settings	Secondary connected with the Primary. The installation has been successful.
SECONDARY NOT PAIRED WITH NETWORK	App Settings	The secondary is not successfully connected with the primary on the Power Sharing network. This state is reached after 30 seconds without successful communication. In this state, the Pulsar Plus will have a fast blinking Halo. Remember that in this state the secondary can only charge at 6 A.
POWER SHARING ACTIVATED WAITING ASSIGNATION	App charger dashboard	Not enough power available for this charger. If the power has already been reduced to the minimum, the newly plugged cars will go into this state. Once the system has enough power available (e.g. a car has been fully charged) it will start charging. The charger will be slowly blinking.

OPERATING
Troubleshooting

Charger(s) have a red halo

- After the start up, this is the default color on a PowerSharing Smart net. If it lasts more than around 30 seconds,then check that the Power Sharing network/system is configured properly. If not, set the networkconfiguration and wait from 5 to 30 seconds.
- Make sure that the number of chargers include the Primary charger.
- Make sure that the maximum current per phase is setproperly and that is higher than the minimum current to be assigned.

Charger(s) have a blinking green halo

- Poor contact on the communication cables. Check that allthe communication cables are properly connected on the chargers (see the *Wiring* section above).
- Wrong resistor value between communication lines. Power off all the chargers and measure the Ohm resistor between CAN-H and CAN-L, it must be around 60 Ohms. If not, please check again the *Wiring* and *Configuration* sections above.

Resistor's value between communication lines is different than 60 Ohms

- If the resistor's value is higher than 60 Ohms, there is only one charger in the T configuration.
- If the resistor's value is lower than 60 Ohms, there are more than two chargers in the T configuration.
- The Power Sharing system must have both the end chargers in T configuration. All the other chargers should be in NT configurations.
- If the Primary charger is not placed at either of the ends and is placed at any other position in the daisy chain, it should have a NT configuration.
- If the resistor value is not near to 60 Ohm but the configuration is correct, a charger may be faulted. For the ease of finding the fault:
    - Remove the CAN cables from all chargers.
    - Change the switch position to T for all chargers.
    - Check the resistor value for each charger.
- The T chargers should have a 120 Ohms resistance between lines.
- The NT chargers have open lines or zero resistance.

OPERATING
Troubleshooting

Erratic behaviour

- Reason: Poor contact on the communication cables. Check that all the communication cables are properly connected on the chargers.
- Wrong configuration on the Primary.
- Wrong resistor value between communication lines. Power off all the chargers and measure the Ohm resistor between CAN-H and CAN-L, it must be near to 60 Ohms. If not, please check again the *Wiring* and *Configuration* sections above.

Charger keeps waiting for assignation

- The current assignation may last up to 30 seconds.
- Make sure that no schedules are programmed.
- Check that the Primary and Secondarys are all paired. If not, the maximum current per phase will be diminished 6A per charger not paired.
- Verify the configuration of “Maximum Current per Phase” (*Configuration* section above). Consider that the vehicle will not charge if less than 6A is available. In an extreme example, if you have 12A as a maximum current defined, and 2 vehicles are charging, the third vehicle will go into queue.

Service

Need more assistance? Contact Wallbox customer service:

(888) 787-5780

support.wallbox.com service.na@wallbox.com