



CHARGE AMPS

Amp Guard™



Installation Manual



# Amp Guard™ version 4.9

## Technical specification

Measuring range (current)	0–100 A (Home), 0–400 A (Public)
Measuring range (voltage)	Future feature
Network	LAN, WiFi
Power supply	230VAC/400VAC 50/60Hz (via the voltage/power supply terminal)
Installation	DIN (6 modules) or standalone
Dimensions (mm)	108 × 97 × 57

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## For the professional installer

This installation manual is intended for qualified Amp Guard installers and describes how to install the product safely and properly.

Installation may only be carried out by a qualified installer who follows:

- Basic safety precautions for safe and correct installation.
- Local, regional and national installation regulations.
- The instructions in this Amp Guard installation manual.

## Safety precautions

The installation manual contains important instructions on how to install the product. In addition to the instructions in this manual, basic safety precautions, including all applicable local, regional and national laws and regulations, must be complied with when installing, repairing and maintaining the product.

## About Amp Guard

Amp Guard is a measuring instrument for measuring current in a meter cabinet for use in a load-balanced Charge Amps installation. When the current consumption reaches the preset levels, Amp Guard automatically reduces the available charging output in conjunction with the load balancer. When Amp Guard is used together with current-generating equipment such as solar cells, it operates as a fully featured, bi-directional Smart meter.

## Contents of the package

- Amp Guard
- One Amp Guard installation manual
- One Amp Guard (Home or Public)
- Three current transformers (blue 0–100 A for the Home version and black 0–400 A for the Public version)

### Provided by the installer

- Small screwdriver
- Computer, mobile phone or tablet with internet connection



## Installation instructions

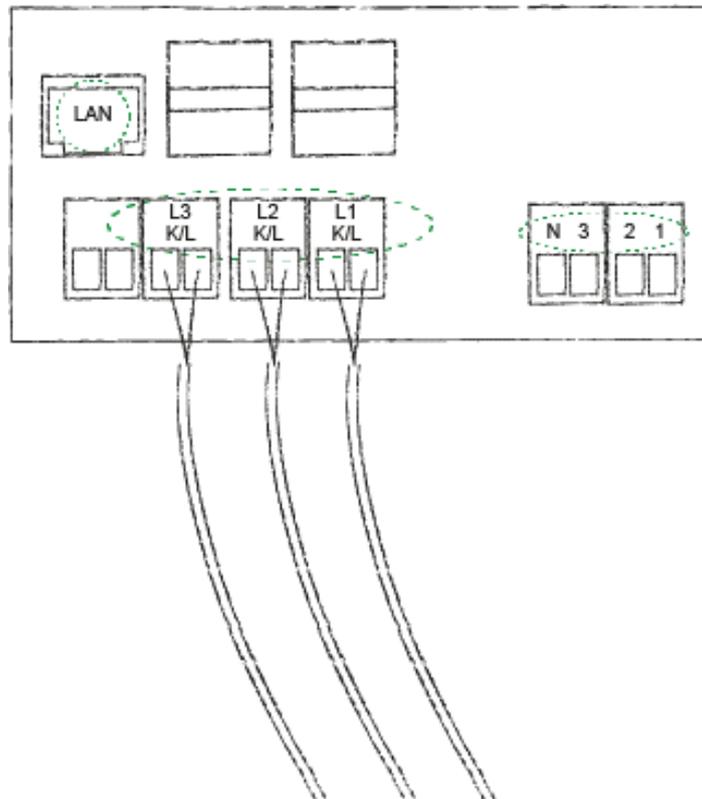
Amp Guard must be connected to the internet in order to supply data for the load balancer. If the option is available, preferably connect Amp Guard with a LAN cable for a more secure internet connection. WiFi connection is also possible, but this requires a high signal strength. No firewalls normally need to be changed.

When Amp Guard is powered up and connected to the internet, it will start to communicate and supply data.

### Electrical installation

Amp Guard has four inputs for current measurement (N, L3, L2, L1), three inputs for voltage measurement/power supply (N,3,2,1) and an input for connecting the network cable (LAN).

Connect Amp Guard as follows:

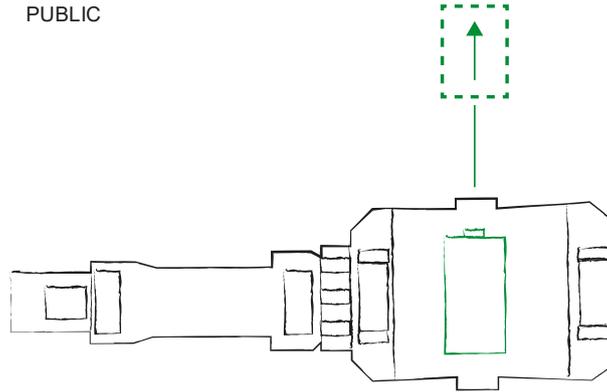


Current measurement: Clamp the current transformers around the incoming phase cables in the distribution board – one for each phase. Then connect the sensor cables to the current measurement terminal for the phase concerned.

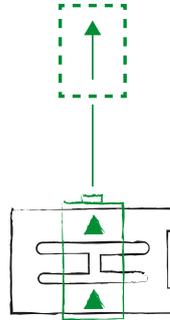
NOTE: It is extremely important for the sensors to be connected to the correct phase and for them to be positioned according to the current direction concerned when they measure the current. See arrows showing the direction concerned for Amp Guard Home and Amp Guard Public below:



PUBLIC



HOME



Sensor cables for the Home version are white (K)/red (L), with white being connected to the left (K) and red being connected to the right (L) in the terminal concerned.

Sensor cables for the Public version are black (K)/red (L), with black being connected to the left (K) and red being connected to the right (L) in the terminal concerned.

Voltage measurement/power supply: To supply power to the unit, connect at least one phase and one neutral conductor to the contact on the right-hand side of the unit marked N321 (right-hand side in the illustration).

In installations with current generation such those in which solar cells have been installed, all phases and neutral must be connected to the terminals in the right order (N321). Otherwise the current direction is not measured correctly.

To finalise the electrical installation, the installation program needs to configure the load balancer in the cloud configuration, see below.

## LAN installation

Connect a (Cat 6) network cable to the LAN port. (The network should have DHCP activated to ensure an IP address is automatically assigned).

## WiFi installation

1. Before starting, make sure you have the SSID/password for the WiFi network you intend to use.



2. Go to mobile settings > WiFi and select the WiFi network Amp Guard\_\*\*\*\* (\* = Specific to Amp Guard's serial number).
3. Connect using the password that is specific to your Amp Guard.
4. Enter the following address from a web browser: <http://192.168.251.1>
5. Enter the SSID (name of the WiFi network) and Password in the form on the configuration page and click Send.

192.168.251.1

CHARGE AMPS

WiFi Setup

SSID  Password

Submit

## Configuration in the cloud

In order for Amp Guard to work correctly, it is necessary to set the parameters in what is known as a load balancer group via the Charge Amps cloud service my.charge.space.

This is done via a partner account in the Charge Amps cloud service and must be carried out by the installer.

If the installer does not have access to a partner account, it is possible to gain access to such an account. Create a normal user account in my.charge.space. Then email [support@charge-amps.com](mailto:support@charge-amps.com) to be allocated a partner account, (one partner account per installation company).

## Importing Amp Guard

1. Log in as a partner at <http://my.charge.space/partner>.
2. Select "Amp Guard" from the menu and click "Add":

Serial No  Organization

Name  CLEAR SEARCH

**AMP GUARDS** Add

Serial No	Name	Description	Organization	Active
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3. Enter the serial number, password and the organisation where Amp Guard will be located.



### Add amp guard

Serial number

PIN code

Organization

4. Click “Search” to find the newly imported Amp Guard.
5. Click the serial number to go to the information page.
6. Click “Activate” to activate Amp Guard.

### Add Amp Guard to a load balancer group for chargers

1. Log in as a partner at <http://my.charge.space/partner>.
2. Select “Load balancer” from the menu and create a new group or select an existing one.
3. Edit the group (the load balancer group must be deactivated to do this).
4. Select the newly imported Amp Guard and enter the correct values for the installation, see information below.

#### NEW LOADBALANCER GROUP

Name <input type="text"/>	Phases <input type="text"/>
Organisation <input type="text" value="Select"/>	Max Current Per Phase <input type="text"/>
Description <input type="text"/>	Min Current Per Charger <input type="text"/>
Socket (Schuko) Enabled <input type="checkbox"/>	Supply Max Current (Amp Guard) <input type="text"/>
Chargers included in measurements <input type="checkbox"/>	
Amp Guard <input type="text" value="Select"/>	
Loadbalancer Type <input type="text" value="Select"/>	

5. Click Save and activate the load balancer group.

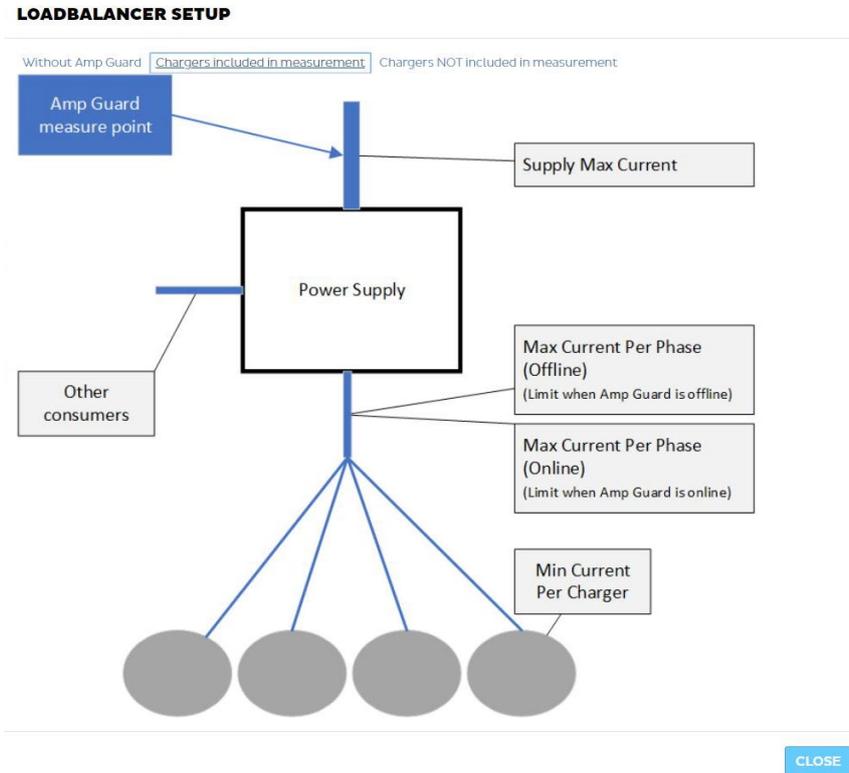
### Maximum current per phase – settings

A higher total current per phase is permitted when an Amp Guard is installed, since the Load Balancer automatically reduces the charging output if required. There is, however, always a risk that Amp Guard



will stop sending data (network problems, current switched off, etc.). In that case, the load balancer does not use the maximum current that the system can handle, since other users may also be active on it.

Example:

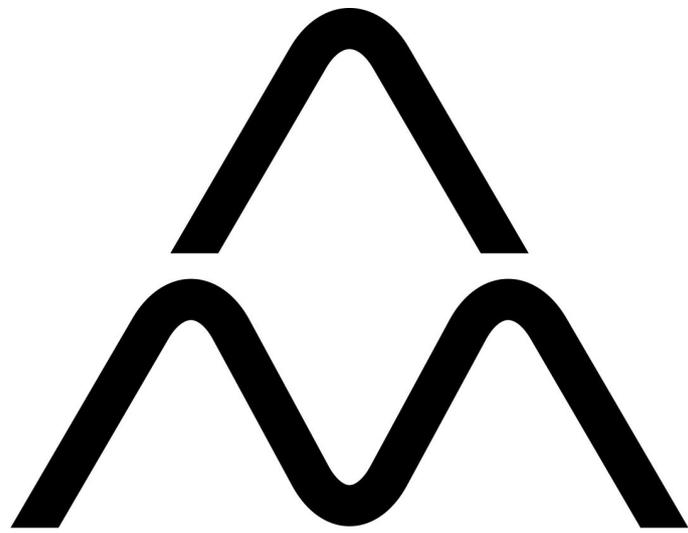


A distribution board dimensioned for 25 A is used. There are other users on the system who are expected to use up to 15 A. A suggested setting would be as follows:

- Maximum current per phase (standalone): 10 A (allows other electricity consumers to be active).
- Maximum current per phase (Amp Guard): 25 A (when other electricity consumers can be measured, Amp Guard can compensate for them).

### Instructions for customers

The customer must provide an internet connection via a network cable or SSID and a WiFi password for the selected network. See previous section.



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