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MALMBERGS
99 090 01
LOAD
BALANCING
CONTROLL
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MALMBERGS 99 090 01 Load Balancing Controller Instruction Manual

Contents

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MALMBERGS 99 090 01 Load Balancing Controller

Product Information

Technical Specifications

- Art.no.: 99 090 01
- Power supply: DC
- Connection: CT, WiFi
- Communication: IEEE802.11b/g/n
- LED indicator: WiFi power, 4G-LTE power, LAN Power, Status
- CT:
    - Single phase: 1x CT clamp (CT ratio: 5000:1)
    - Three phase: 3x CT clamps (CT ratio: 5000:1)

Product Usage Instructions

Installation
Follow the wiring instructions provided in the manual to connect the load balancing controller using the appropriate CT clamps and communication methods (WiFi, 4G, or Ethernet).

Configuration to Network

To configure the load balancing controller to the network, follow these steps:

1. Access the settings menu on your device.
2. Select Load balance and make the necessary adjustments.
3. Save the configuration settings.

Load Balancing Strategy
The load balancing controller offers two main strategies:

- **Full Load Priority:** In this mode, the available current is prioritized to certain chargers based on predefined settings.

- **Charged Equally:** In this mode, the available current is distributed equally among all connected chargers.

FAQ

Q: How many CT clamps does the load balancing controller support?
A: The load balancing controller supports up to three CT clamps for three-phase systems.

**Q: What communication methods are compatible with the load balancing controller?**
A: The load balancing controller supports WiFi, 4G, and Ethernet communication methods.

NOTE! Please read through the manual carefully before using the appliance and keep it for future reference.

LOAD BALANCING CONTROLLER

PRODUCT OVERVIEW

This gateway device is a novel load-balancing controller with multiple current distribution strategies that improve the stability of your charging system. The load-balancing controller has three CT connections and supports three different communication methods (WiFi, 4G, and Ethernet), allowing it to be used in a variety of installation scenarios.
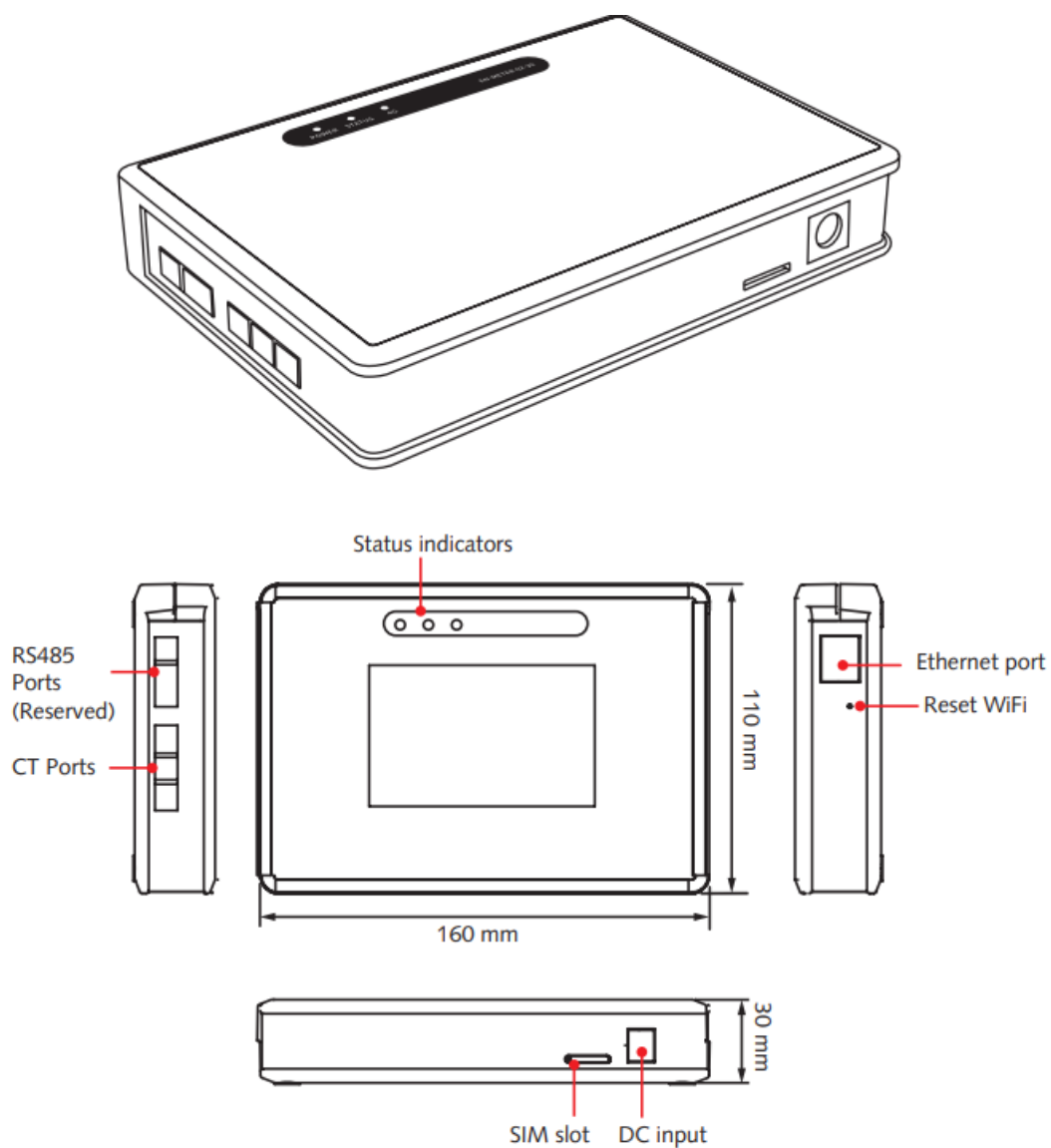
TECHNICAL SPECIFICATIONS

|		
	Art.no.	99 090 01
Power supply	DC	5V DC (±5%)/3000mA Isolation
Connection	CT	Single phase: 1x CT clamp (CT ratio:5000:1) Three phase: 3x CT clamps (CT ratio:5000:1)
Communication	WiFi	2412-2472MHz IEEE802.11b/g/n
	WiFi power	<20dBm
	4G-LTE	FDD B1/B3/ B5/ B7/B8/B20
	4G power	<23dBm
	LAN	RJ45 port
LED indicator	Power	Indicator "on" upon power on
	Status	Indicator "on" upon transferring data
	Communications	Indicator "on" upon 4G communications
Protection	Ingress protection	IP20

PACKING LIST
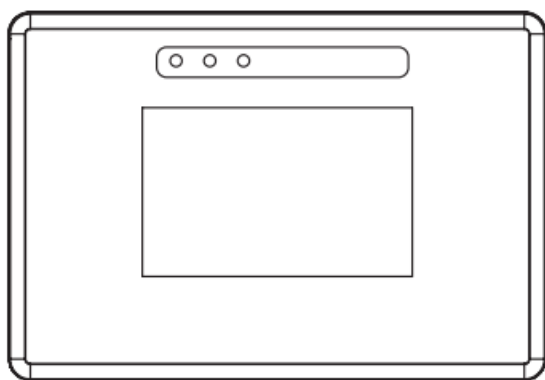
Load balancing controller
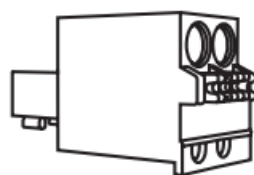

Wall mounting screw
x2
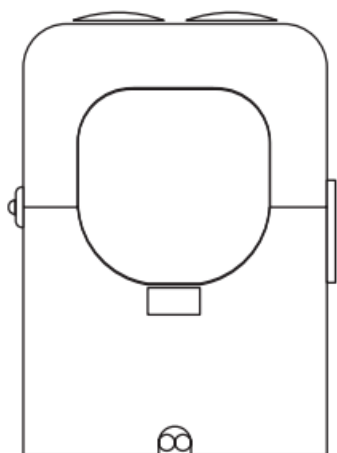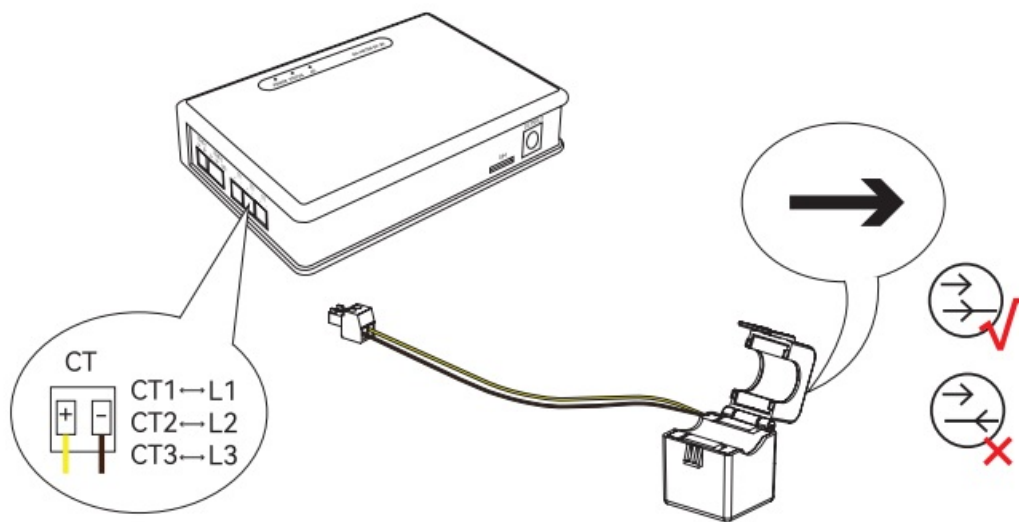

Wall plug
x2
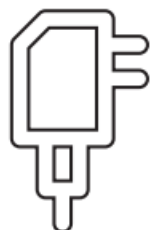
Power adapter
x1

User manual
x1

CT connector
x4

CT CLAMP DESCRIPTION

CT clamp is a spare part, you need to configure it based the actual needs.

Art.no.	Specification
99 090 02	50A CT clamp 5000:1
99 090 03	100A CT clamp 5000:1
99 090 04	400A CT clamp 5000:1
99 090 05	600A CT clamp 5000:1
99 090 06	1000A CT clamp 5000:1

WIRING

Note: The direction of the "arrow" MUST be consistent with the direction of actual current.

CONFIGURATION TO NETWORK

If you select WiFi or 4G for communication, you need to use the AP mode to configure the network for the load-balancing controller.

The AP mode, which is similar to a local area network, operates the internet locally between you mobile phone and load balancing controller.

Configuration steps as below:

1. Set your phone to flight mode and make sure that the WLAN is turned on.
2. Restart the power supply of the load balancing controller to activate the hotspot.
3. Locate the load balancing controller's WiFi hotspot (wifi name: the serial number of the load balancing controller) in your phone's WiFi list.
4. Enter the password to connect the load balancing controller to your phone (a dedicated password is 8-digit depending on the SN of the load balancing controller, which is case sensitive and can be found on the last page of the manual). 5. To access the Login page of AP mode, enter the IP address 192.168.4.1 in a browser, followed by the 4-digit network password: a PIN number, which can be found on the last page of this manual.

The hotspot of the load balancing controller remains available for 15 minutes after it is restarted.

Your load-balancing controller will automatically restart once the network configuration is complete, ending communication between your phone and the load balancing controller.
At this point, your phone may automatically join other WiFi hotspots, preventing you from accessing the network configuration page.
As a result, before accessing the network configuration page, please ensure that your phone is connected to the WiFi hotspot of theload balancing controller.
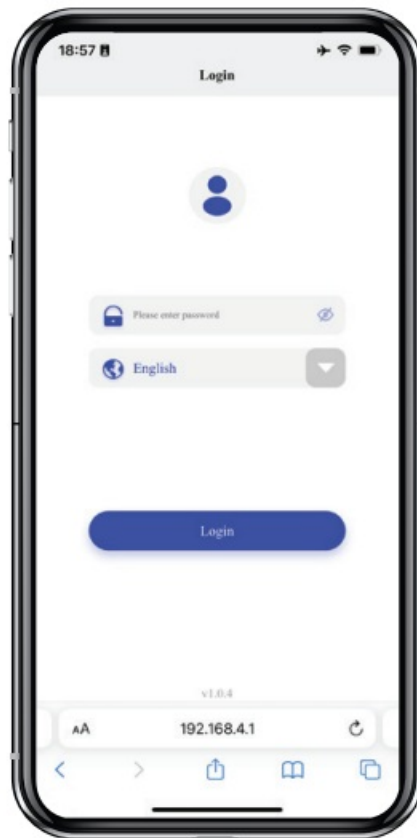
Select communication mode Use WiFi for communication
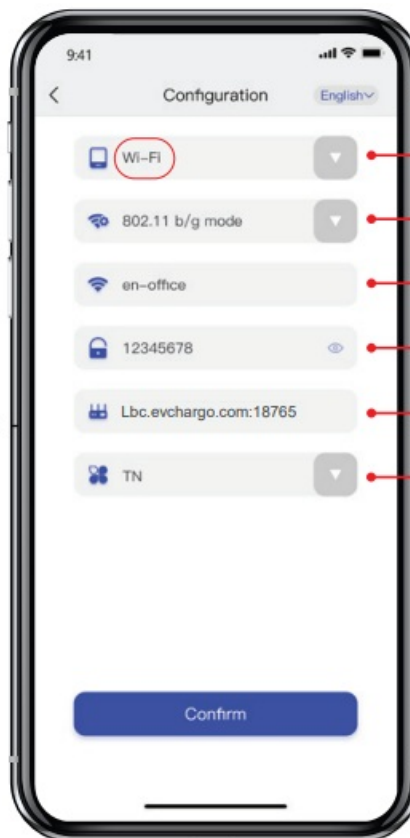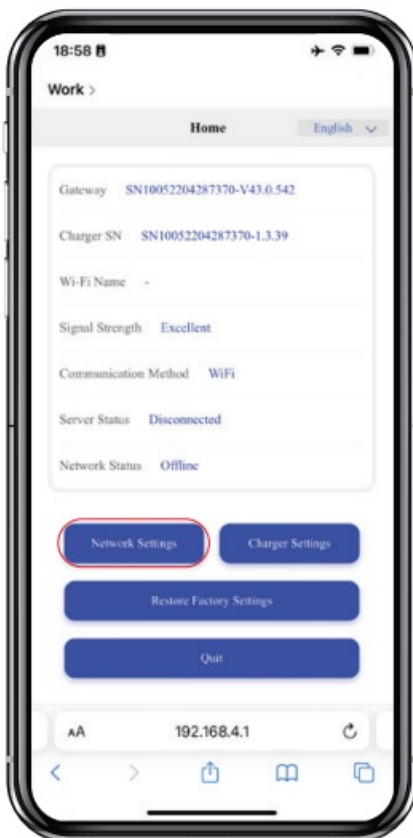
Select WiFi to configure network

Keep default settings

Find the WiFi you want to connect

Enter the WiFi password

Lbc.evchargo.com:18765

Select the grid type: TN, TT, IT.

Support 2.4G WiFi only. If your router uses WiFi 6, make sure the LBC is linked to a 2.4G WiFi hotspot with compatible settings.

Use 4G for communication
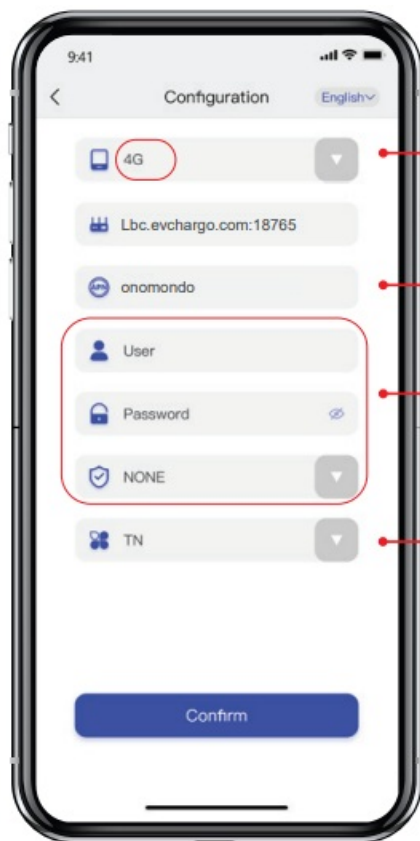
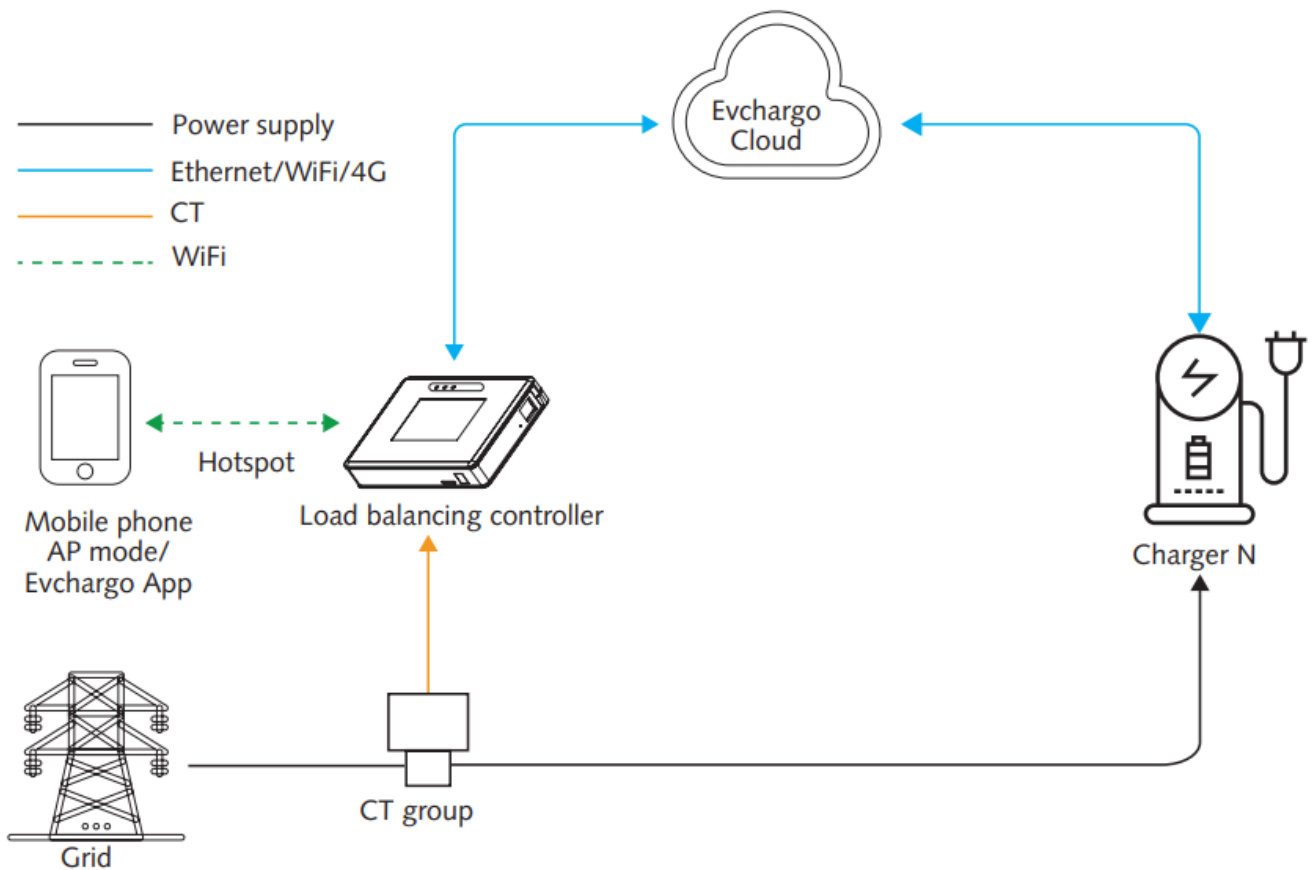|	
Select 4G to configure network	
Obtain the APN from the operator of the card	
Keep default settings	
Select the grid type: TN, TT, IT.	

APPLICABLE SCENARIOS

Residential Scenario
Residential load management is recommended for home-based installations with cloud, load managed via Evchargo APP.
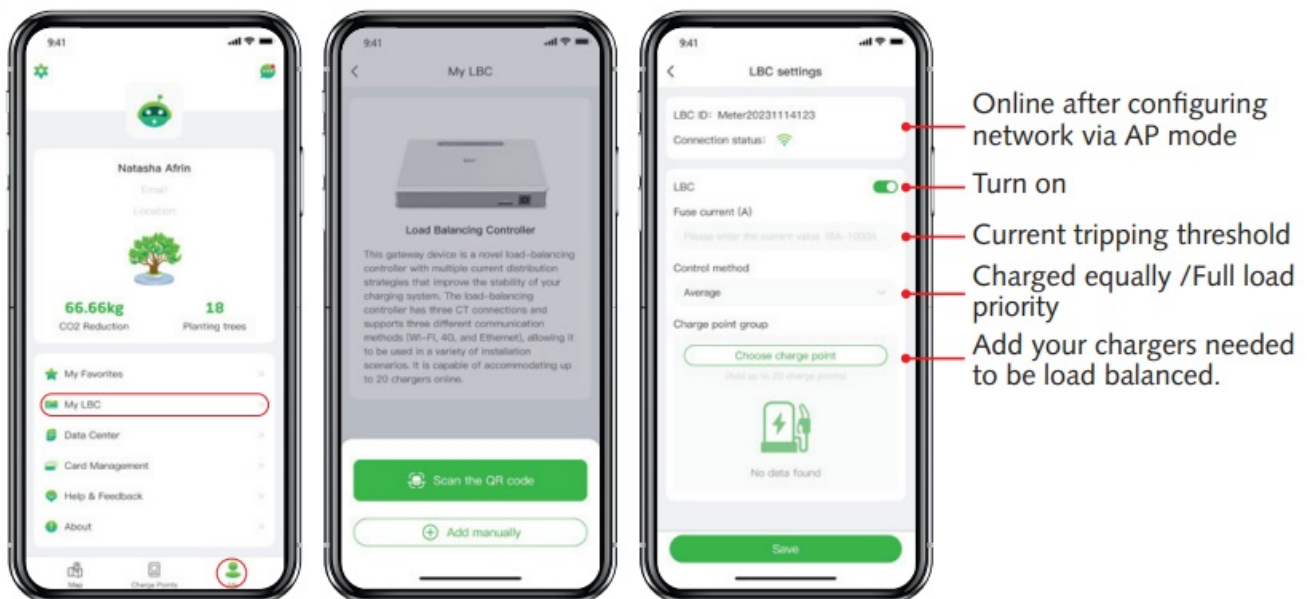
This scenario is compatible with all kinds of chargers that support OCPP 1.6J running on the EVchargo platform.

Settings in AP Mode
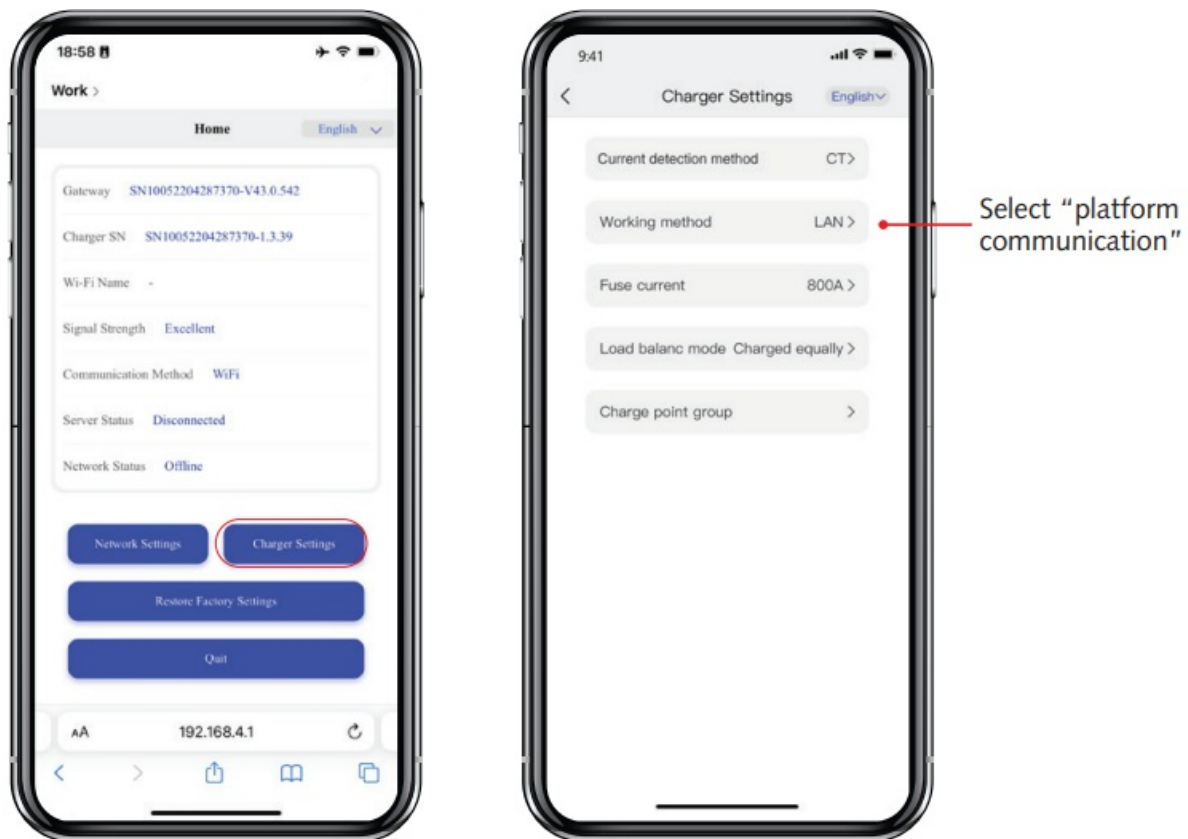
When you select to control the load through the Evchargo cloud, you only need to configure the working mode to platform communication and disregard the other options.

App-Based Load Balancing

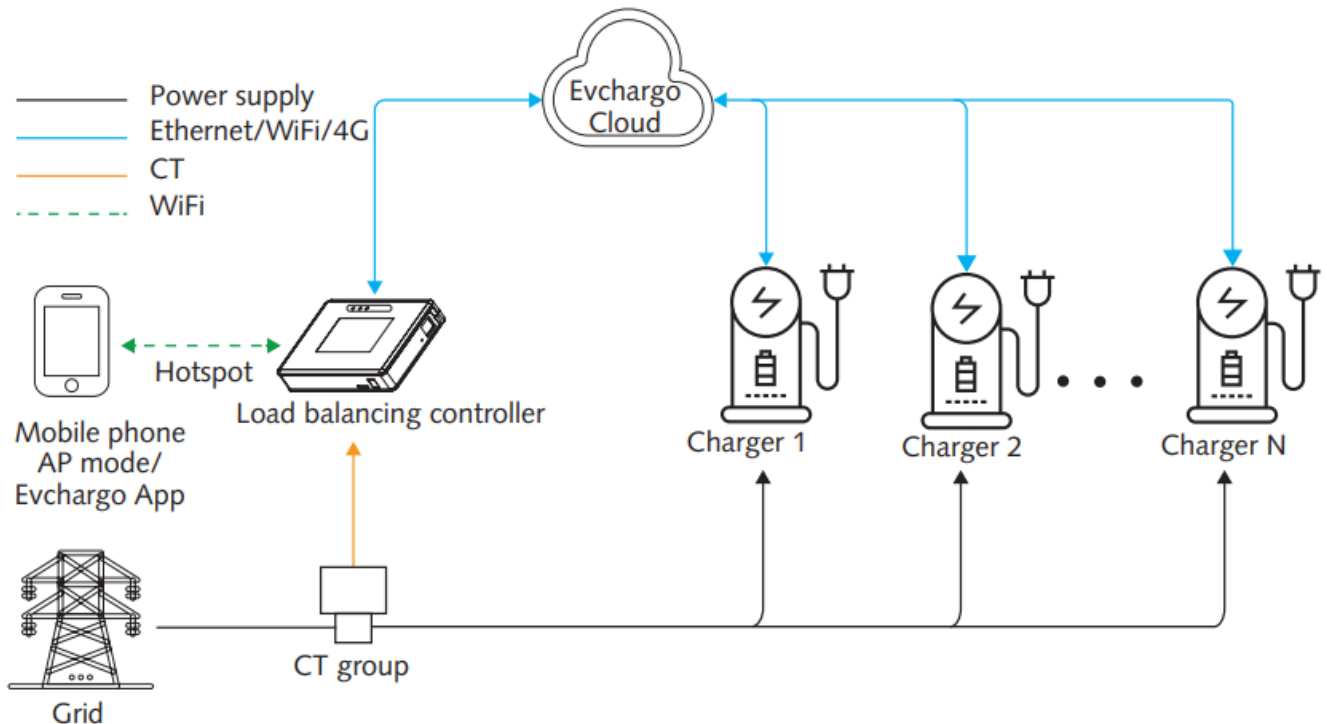For details, please download the Evchargo App and refer to the instructions.

Evchargo App   App instructions

Commercial Hybrid Scenario

Hybrid load management is recommended for multiple charger installations. Load managed via Evchargo cloud.

Power supply
Ethernet/WiFi/4G
CT
WiFi

Evchargo Cloud

Mobile phone
AP mode/
Evchargo App

Hotspot

Load balancing controller

Charger 1   Charger 2   •••   Charger N

Grid

CT group

This scenario is compatible with all kinds of chargers that support OCPP 1.6J running on the EVchargo platform.

Connect Load Balancing Controller To Evchargo Cloud

The load balancing controller must be associated with your charging station via Evchargo cloud. There are two steps to complete the configuration:

1. Add load balancing controller information to Evchargo cloud by clicking LBC > Add LBC > Save.

2. Link the load balancing controller with your charging station by clicking Charge station > … > Home page > Settings > Load balance (Edit) > Choose load balance > Save
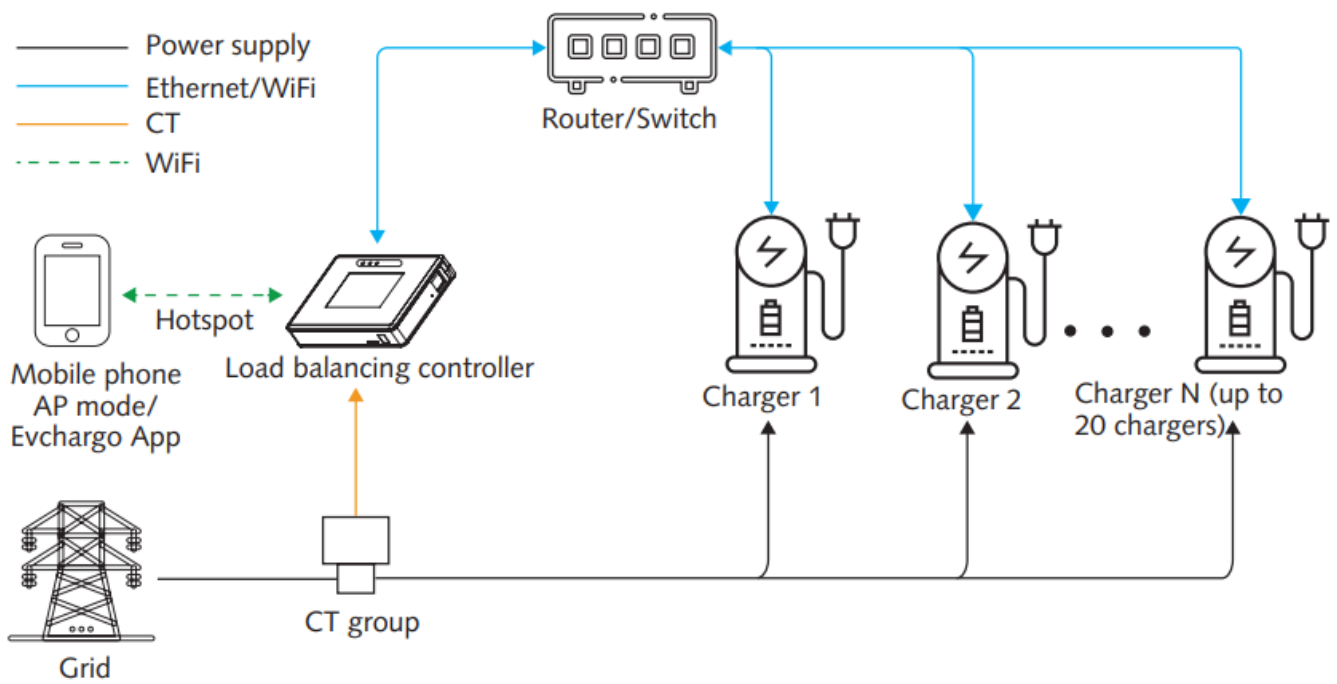
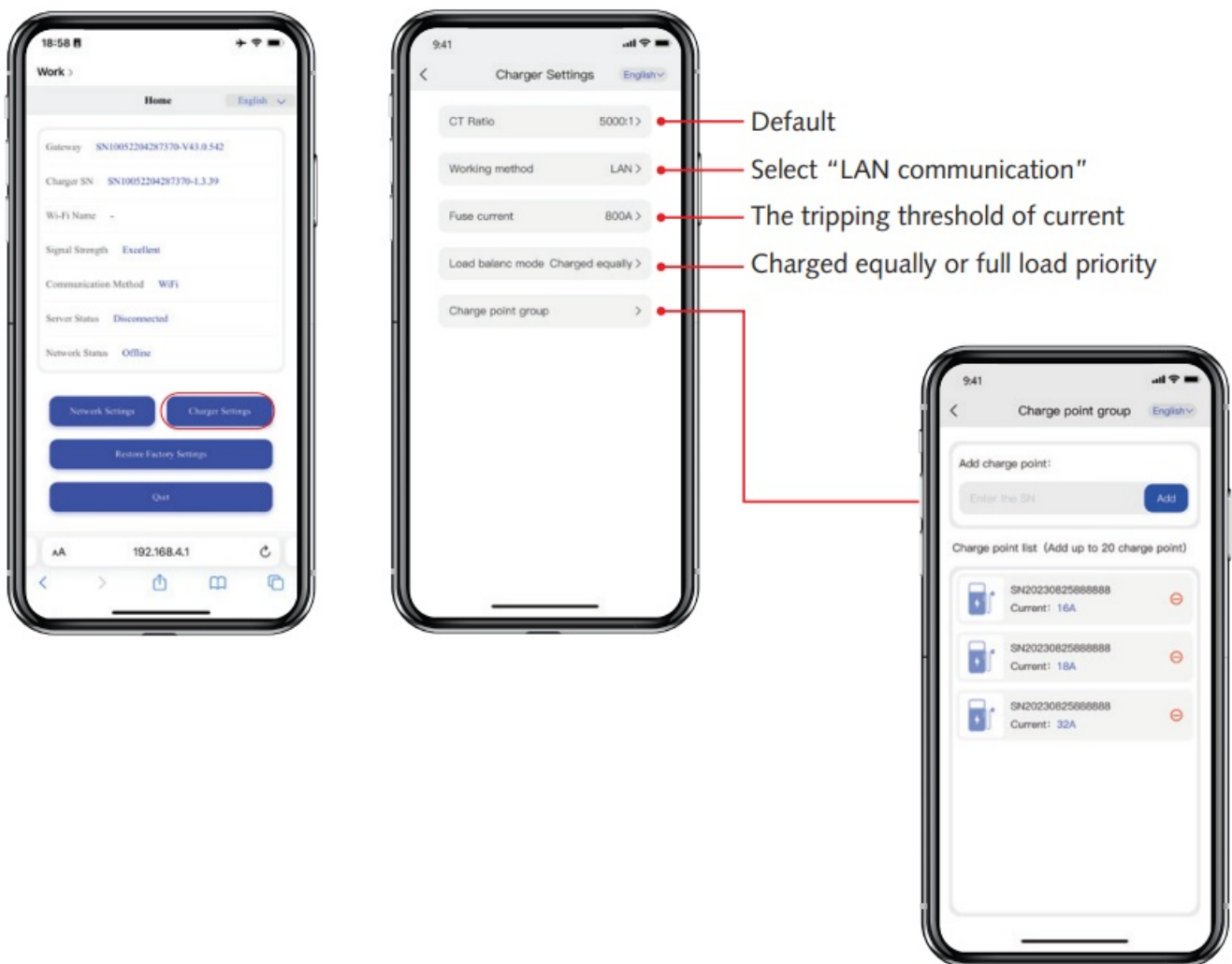For details, please scan the QR code with instructions for Evchargo cloud.

Instructions for Evchargo cloud

Commercial Local Scenario

Local load management is recommended for multiple charger installations without cloud connections.

Legend:
- Power supply
- Ethernet/WiFi
- CT
- WiFi

Router/Switch

Mobile phone AP mode/ Evchargo App

Hotspot

Load balancing controller

Charger 1   Charger 2   Charger N (up to 20 chargers)

Grid

CT group

Load Balancing via AP Mode

- Default
- Select "LAN communication"
- The tripping threshold of current
- Charged equally or full load priority

If you have logged out of the AP mode interface, please log in again according to the network configuration method, and then do the settings.
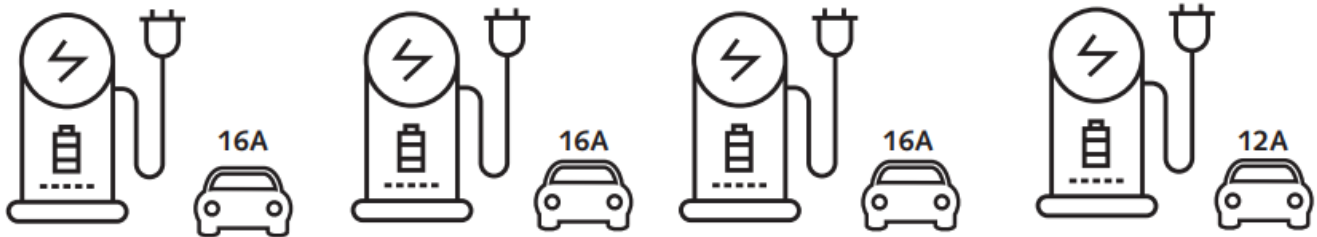
LOAD BALANCING STRATEGY

Full Load Priority

Sample scenario:
Assume that the quota of fuse current is 60A, and the rated current of the charger is 16A.
Four chargers.
In this scenario, the first three cars begin charging at the rated current, while the fourth car begins charging at 12A.
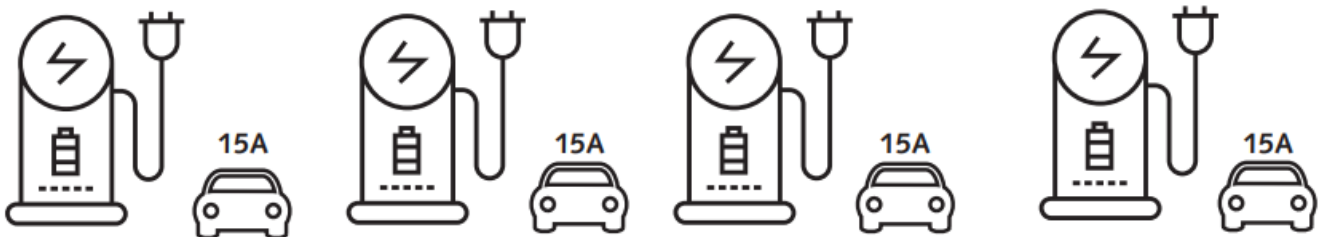
Charged Equally

Sample scenario:
Assume that the quota of fuse current is 60A, and the rated current of the charger is 16A.
Four chargers.
In this scenario, the 60A will be distributed equally to every car.

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Documents / Resources

MALMBERGS 99 090 01 Load Balancing Controller [pdf] Instruction Manual
99 090 01 Load Balancing Controller, 99 090 01, Load Balancing Controller, Balancing Controller, Controller

References

- 🌐 art.no
- M **Webbutik - Malmbergs Elektriska AB**
- **User Manual**