



## GARO GLB Wallbox

Assembly instructions / End User Instruction (EN)



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## Warnings

This document contains general descriptions which are verified to be accurate at the time of printing. However, because continuous improvement is a goal at GARO, we reserve the right to make product and software modifications at any time.













Latest manual can always be found at [www.garoemobility.com/support](http://www.garoemobility.com/support)

-  Dielectric Voltage Withstand Test is not allowed on GLB Wallbox
-  This equipment should not be used by anyone (including children) with reduced physical, sensory or mental capacity, or anyone lacking in experience or knowledge, unless they are provided with supervision or prior instruction in how to use the equipment by the person responsible for their safety.
-  The GLB Wallbox range of charging stations is designed exclusively for charging electric vehicles.
-  The GLB Wallbox must be grounded according to local country installation requirements.
-  Do not install or use the GLB Wallbox near flammable, explosive, harsh, or combustible materials, chemicals, or vapors.
-  Turn off the electrical power at the circuit breaker before installing, configuring or cleaning of the GLB Wallbox.
-  Use the GLB Wallbox only within the specified parameters.
-  Never spray water or any other liquid directly at the GLB Wallbox. Never spray any liquid onto the charge handle or submerge the charge handle in liquid. Store the charge handle in the dock to prevent unnecessary exposure to contamination or moisture.
-  Do not use this equipment if it appears to be damaged or if the charging cable appears to be damaged.
-  Do not modify the equipment installation or any part of the product.
-  Do not touch the GLB Wallbox's end terminals with fingers or any other objects.
-  Do not insert foreign objects into any part of the GLB Wallbox.

## Cautions

-  Do not use private power generators as a power source for charging.
-  Incorrect installation and testing of the GLB Wallbox could potentially damage either the vehicle's battery and/or the GLB Wallbox itself.
-  Do not operate the GLB Wallbox in temperatures outside its operating range – see technical specifications.

## Notes

-  All installation must be carried out by an authorised installer and comply with local installation regulations. If any questions, please contact your local electrical authority.
-  Ensure that the GLB Wallbox's charging cable is positioned so it will not be stepped on, driven over, tripped on, or subjected to damage or stress.
-  Unroll the charging cable to prevent it from overheating.
-  Do not use cleaning solvents to clean any of the GLB Wallbox's components. The outside of the GLB Wallbox, the charging cable, and the end of the charging cable should be periodically wiped with a clean, dry cloth to remove accumulation of dirt and dust.
-  Be careful not to damage the circuit boards or components during installation.
-  Refer to local standards and regulations not to exceed charging current limitations.
-  The front cover must always be locked in its upper position in order to ensure compliance with IP Code IP44.
-  Avoid to install the GLB Wallbox in direct sunlight to avoid any heat-problems.
-  To even out the load, it is important to rotate the phases when connecting several of GLB Wallboxes to the same system. Note that 1-phase charging is common in electric vehicles and L1 in the GLB is used for this purpose.
-  Ventilation signal from EV is not supported.
-  Adapters for charging connectors are not allowed to be used.
-  Cord extension sets for charging cable is not allowed to be used.

## ASSEMBLY INSTRUCTIONS

Mandatory: Supply cable, 1-phase or 3-phase depending on GLB model

Cable entrance from bottom side

Custom (only when extra functions in use):

- Twisted pair cable for Modbus energy meter
- Twisted pair cable for Datalink communication
- 2-wire signal cable for remote control function
- TP Cat6 for LAN connection

## Tools and materials required

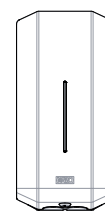
Before installing the Garo GLB-Wallbox, gather the following tools and materials:

- Pen or marker
- Hole punch (optional, to push through cardboard template)
- Wire cutter
- Voltmeter or digital multimeter (to measure AC voltage at the installation site)
- Small flathead screwdriver
- Medium flathead screwdriver
- Large flathead screwdriver (optional, to remove plastic knock-outs on backside of GLB Wallbox)
- T20 Torx driver
- 3 screws (and plugs) suitable for wall type
- Ferrules (the diameter of the ferrule depends on the diameter of the power wiring and the construction)
- Level
- Power drill
- Twisted pair cable (Optional only when DIM is used) Cable: Suitable for Modbus communication.
- Cable gland for communication cable (Optional only when knock-outs on backside of GLB Wallbox is used)

## Box content



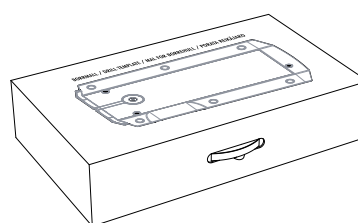
Keys



GLB Wallbox



Manual



Drill template  
(see the back of the box)

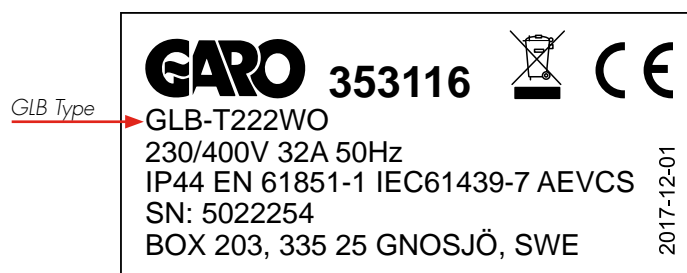


Language  
labels

## Important information

The GARO GLB Wallbox is an AC charge-station enabling Mode 3 charging which complies fully with the requirements of IEC 61851-1 and IEC TS 61439-7. The product complies with IP Code IP44, with a closed front.

It is to be fitted to a wall or GARO Wallbox stand, and all installation must be carried out by an authorized installer and comply with local country installation regulations.



Type Label example

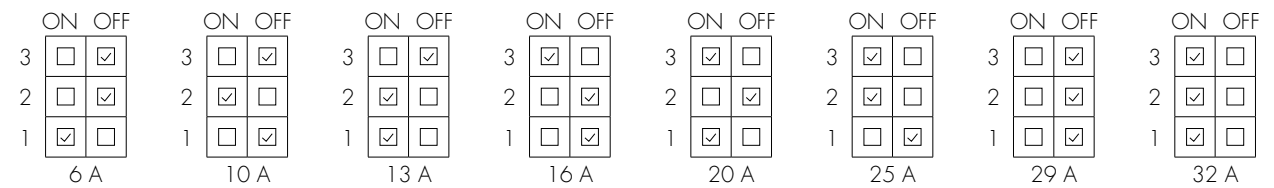
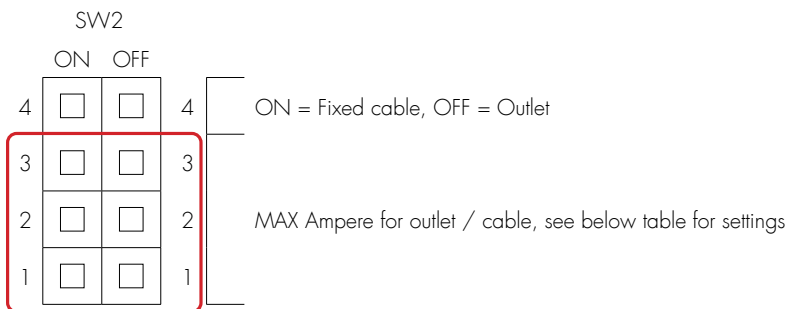
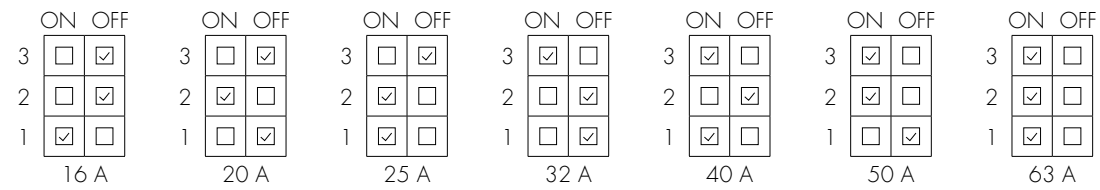
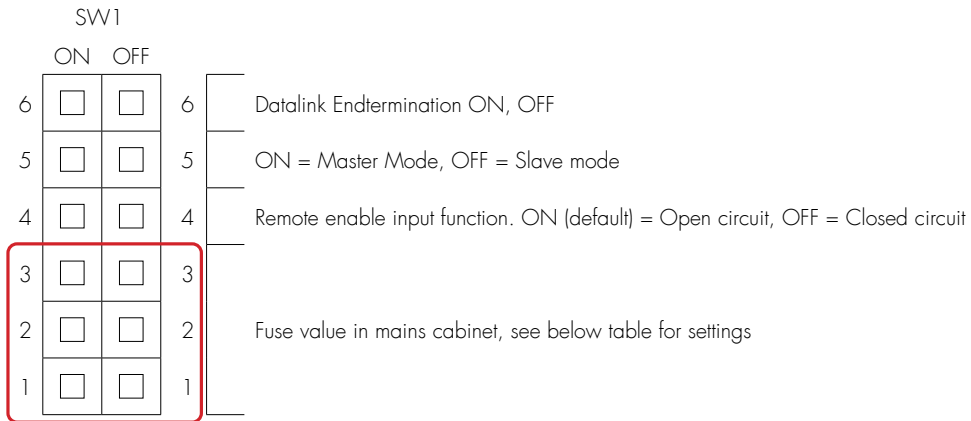


### GLB Wallbox protection type

GLB Type	Protection type						
	1-phase	3-phase	No RCBO or RCCB	RCBO	RCCB type A	RCCB type B	DC-fault protection
GLB...37.. <sup>2) 4)</sup>	●			●			
GLB...74.. <sup>2) 4)</sup>	●			●			
GLB...22.. <sup>1) 2)</sup>		●	●				
GLB...22...A <sup>2) 3)</sup>		●			●		
GLB...22...B <sup>3)</sup>		●				●	
GLBDC...37.. <sup>4)</sup>	●			●			●
GLBDC...74.. <sup>4)</sup>	●			●			●
GLBDC...11.. <sup>1)</sup>		●	●				●
GLBDC...22.. <sup>1)</sup>		●	●				●
GLBDC...22...A <sup>3)</sup>		●			●		●

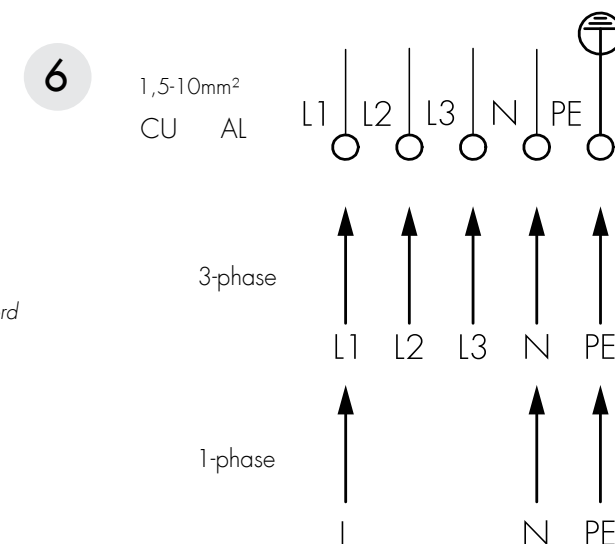
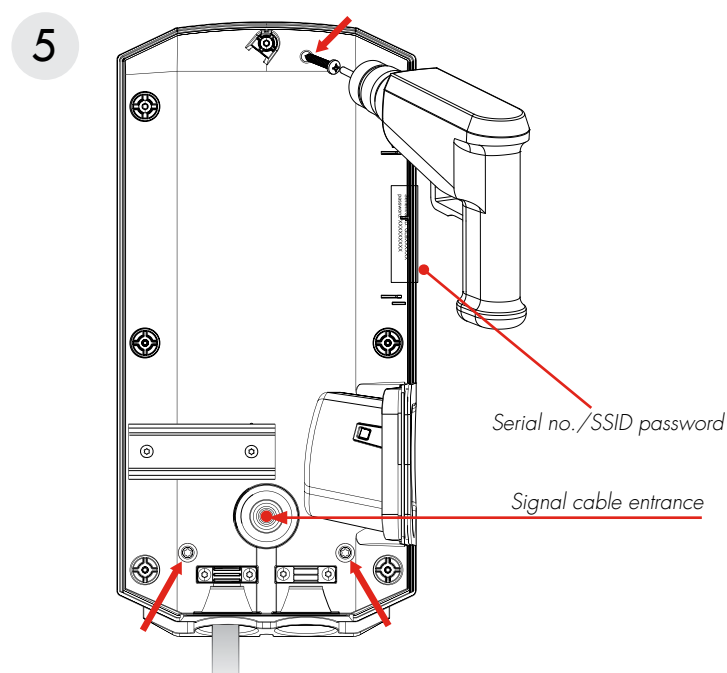
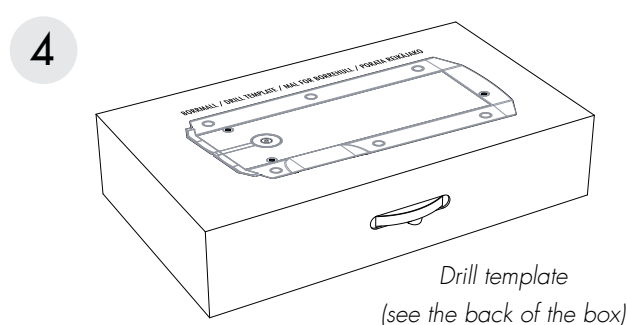
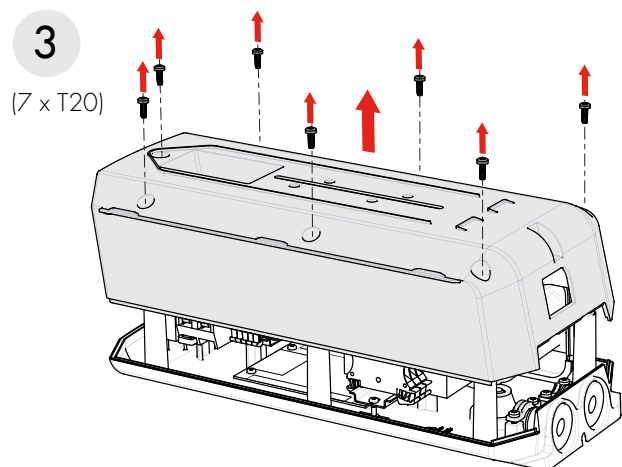
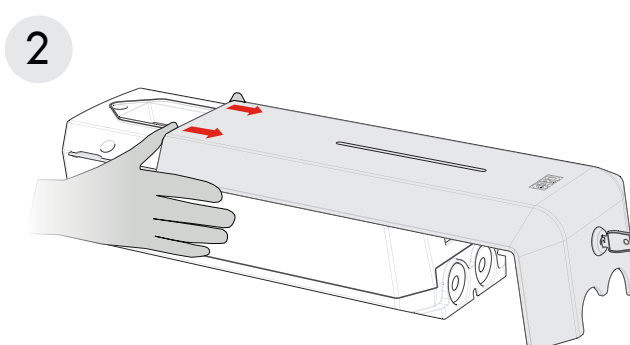
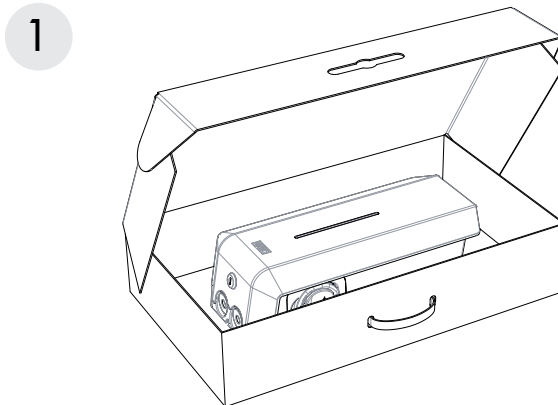
- 1) GLB Wallbox without RCCB or RCBO included in the enclosure must have Residual Current protection and must be protected with a max 32A fuse in the supply distribution box.
- 2) GLB Wallbox without RCCB Type B fitted or DC fault protection in the enclosure must in accordance to IEC 60364-7-722 be protected with a Residual Current Device (RCD) Type B.
- 3) 3-phase GLB Wallbox equipped with a Residual Current Circuit Breaker (RCCB) must be protected with a max 32A fuse in the supply distribution box.
- 4) 1-phase GLB Wallbox fitted with a Residual Current Breaker with Overcurrent Protection (RCBO) can be connected in parallel. This group of chargers must be protected by a backup fuse in the distribution box. The backup fuse shall not exceed 125A.

### Dip Switch Information



## Step by step guide

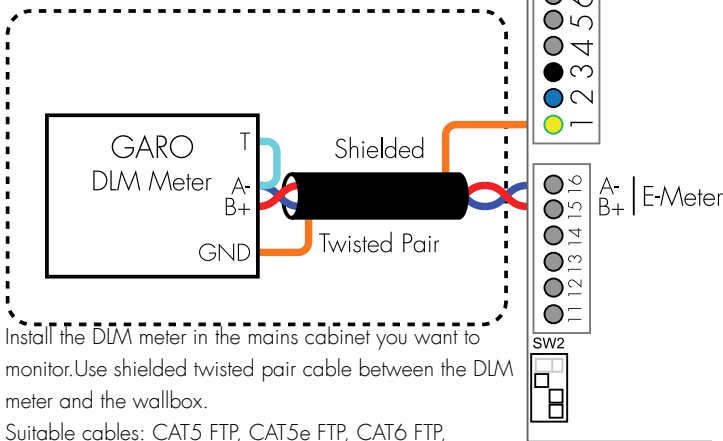
1. Select the appropriate group fuse (1x6A - 3x32A) and cable area for the electrical installation. Some countries require earth fault breakers to be installed. Follow local country regulations and select the appropriate earth fault equipment for the electrical installation. **NOTE!** Due to high currents for a long time in the cable, there is a high risk of voltage drop if the cable is under-dimensioned which can damage the electronics in an EV.
2. Fill in the information in the Warranty form.
3. Install the wallbox according to the installation pictures **1 - 5**
4. Install the electrical supply cable according to local regulations picture **6**
5. Follow the instructions in pictures **7 - 13**



Option

7

DLM Meter installation (Accessory)



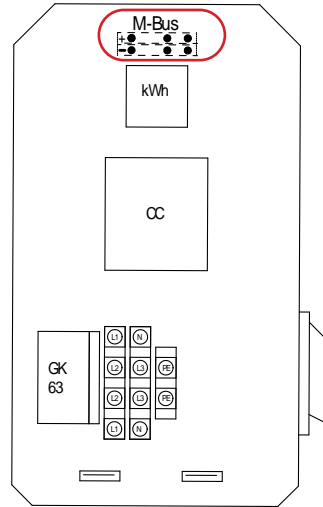
Install the DLM meter in the mains cabinet you want to monitor. Use shielded twisted pair cable between the DLM meter and the wallbox.

Suitable cables: CAT5 FTP, CAT5e FTP, CAT6 FTP, ELAKY-S, ELAQBY-S or similar.

For full DIM manual and settings: [www.garoemobility.com/support](http://www.garoemobility.com/support)

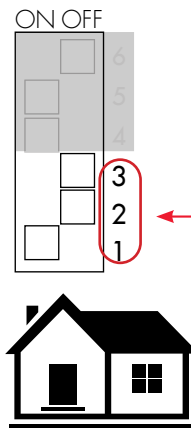
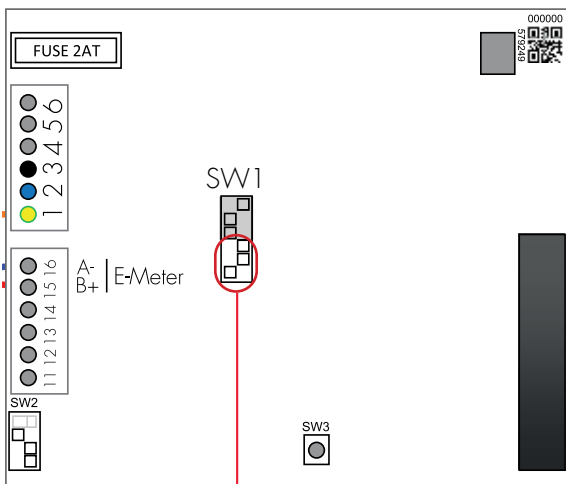


MBUS connection



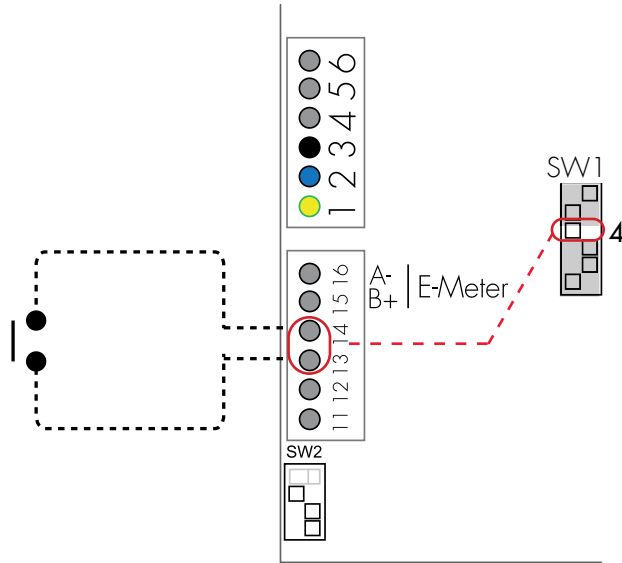
8

Set SW1 DIP1-3 to same Ampere as the main fuse in mains cabinet.



	ON	OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	16A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	20A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	25A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	32A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	40A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	50A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	63A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	

9 Remote enable setting



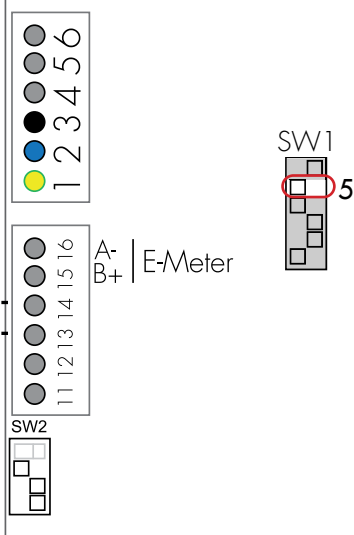
4  ON  OFF

ON (default): Use when not connected to external enable relay.

4  ON  OFF

OFF: Use when connected to external enable relay.

10 Master / Slave settings



5  ON  OFF

ON (default): Master

5  ON  OFF

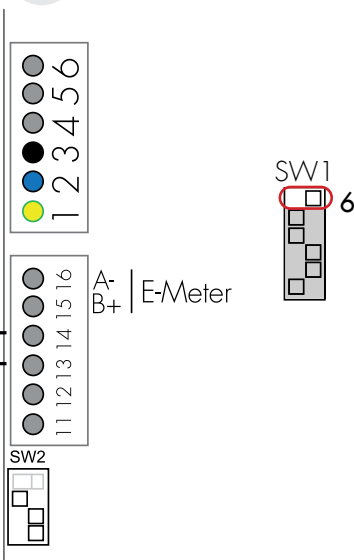
OFF: Slave

Stand alone installation = ON

Cluster installation = See Full manual at [www.garoemobility.com/support](http://www.garoemobility.com/support)

11 Datalink End termination settings

N/A for stand alone installation)



6  ON  OFF

ON: Datalink end termination resistor active.

6  ON  OFF

OFF (default): Datalink end termination resistor not active.

No function for stand alone installation.

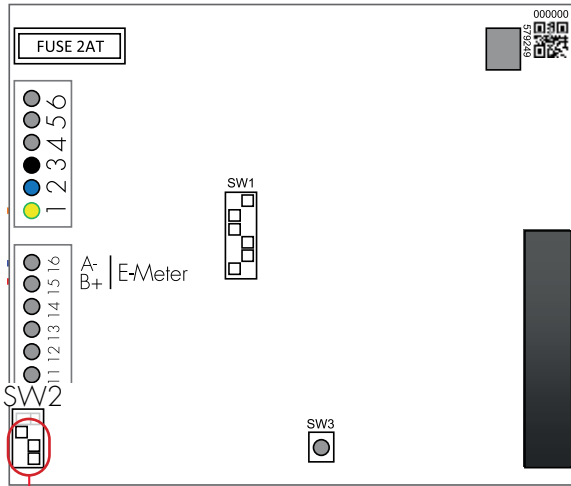
Only for cluster installation via Datalink

Cluster installation = See Full Guide at

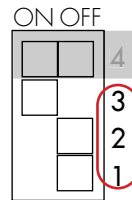
[www.garoemobility.com/support](http://www.garoemobility.com/support)

**12** Set SW2 DIP1-3 to Max charge current (A) to vehicle.

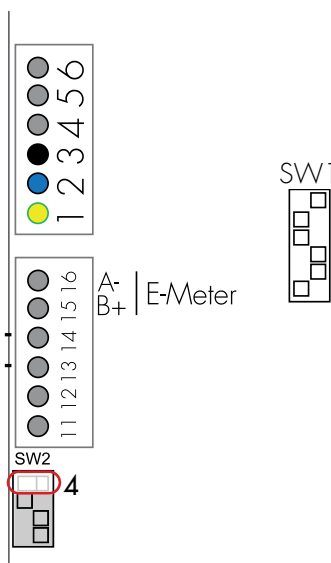
SWITCH 2



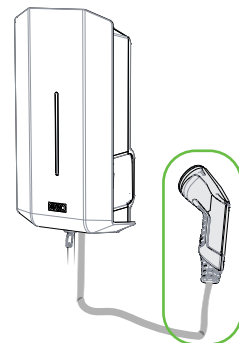
	ON	OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	6A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	10A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3=OFF	13A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	16A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	20A
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2=OFF	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	25A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1=OFF	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3=ON	32A
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2=ON	
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1=ON	



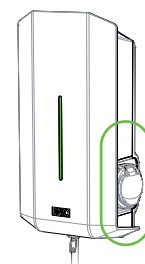
**13** Wallbox type



ON: Fixed cable



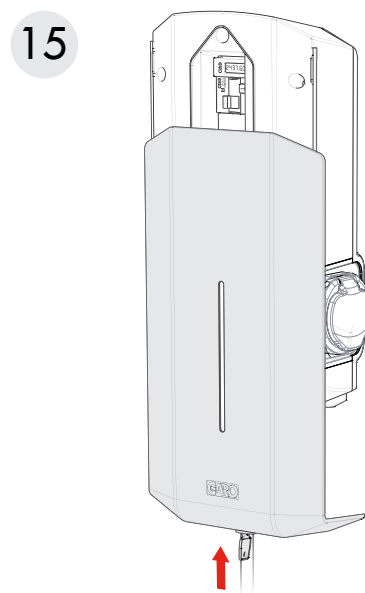
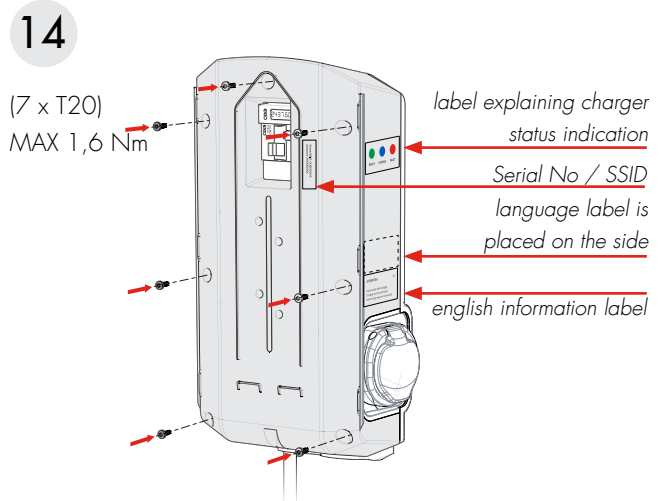
OFF: Outlet





Note: Limit of charge current in order to avoid overload of main fuse is possible via SW1 and SW2 DIP1-3, picture 12  
 Turn off the power before changing the DIP switches.

6. Fill in the serial number in the warranty form, picture 14  
 Serial No / SSID
7. Mount the GLB front cover and lid, picture 14 - 15
8. Turn on the power to the wallbox.
9. For GLBW... and GLBDCW... models: Connect a mobile device (PC/Tablet/Mobile) to the GLB Wallbox Wifi network. You find SSID and password on the rating label. Type in 172.24.1.1 in your web browser and check that the GLB webinterface is visible. This action confirms that the GLB Wallbox communication module is working properly.
10. Test the charger with a test instrument or test to charge an electric vehicle to ensure that the charger is working properly.
11. Doublecheck that the Warranty Form is filled in completely, sign with name, date and company that the warranty is valid.



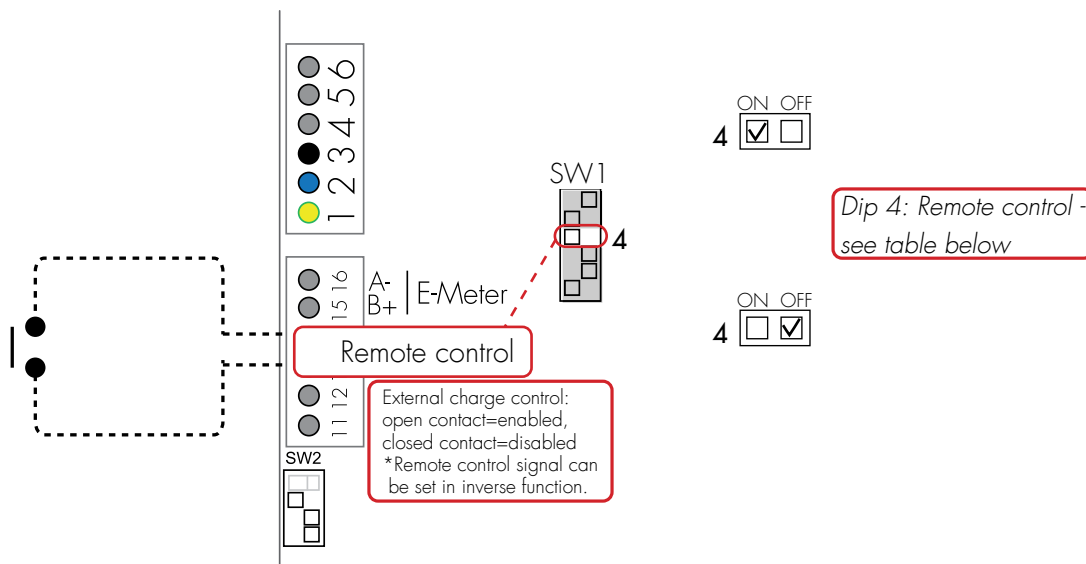
**Example of ampere settings**

Main fuse	16A	20A	25A	32A	40A	50A	63A
SW1(DIP 1-3)	16A	20A	25A	32A	40A	50A	63A
SW2(DIP 1-3)	MAX13A	MAX16A	MAX20A	MAX25A	MAX32A	MAX32A	MAX32A

## Remote enable function

An external relay can be connected to the Remote control terminals to remotely enable the wallbox.

- The wallbox can be enabled in two ways:
- Enable charging by opening the circuit between the Remote Control connection blocks. This option is the factory setting.
- Enable charging by closing the circuit between the Remote Control connection blocks.



(figure 1)

### DIP Switch settings

Wallbox enabled via	SW 1 (DIP 4)
Open contact	ON (Factory setting)
Closed contact	OFF

## Dynamic Load Management (DLM) for Stand-Alone GLB Wallbox

Note: Do not change any settings on the internal energymeter

DLM reduces charging current when demand of current elsewhere increases. Simple to say, the GLB Wallbox balance the charging current that you will get as much power as possible to the EV that is available in the system without any risk to overload the mains fuses.

The following energy meters are approved:

- GNM1D-RS485
- GNM3D-RS485
- GNM3T-RS485 (current transformer 3-phase. Max current is based installed current transformer)
- CG EM 112
- CG EM 270
- CG EM 271

For use in systems with local electricity production (solar-, wind etc)

- GNM3D-LP RS485
- GNM3T-LP RS485N (current transformer 3-phase. Max current is based installed current transformer)

Note the energy meter's Modbus address must be set to 2, 100 or 101.

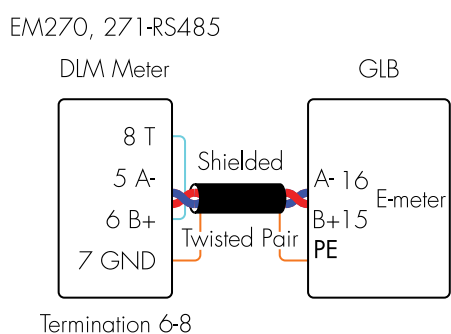
Adress 2: Recommended for a stand alone GLB Wallbox. Setting for SW1 CC2 is valid and charging process are paused if available current drops below 6A.

DLM meter with modbus adress 2 can be use with MAX63A mains fuses.

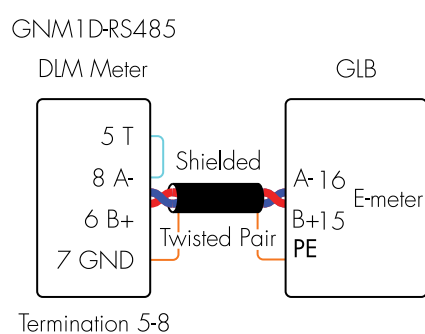
Adress 100 or 101: Only recommended when multiple GLB Wallbox are connected in a grid. Minimum charging current is 6A and charging process is not terminated by the DLM function. This mode require an installed wifi module.

The energy meter continually measures the total energy consumption for each phase. The data is transmitted from the mains cabinet to the GLB Wallbox, that then is reducing the charging current when necessary in order to prevent the mains fuses from tripping.

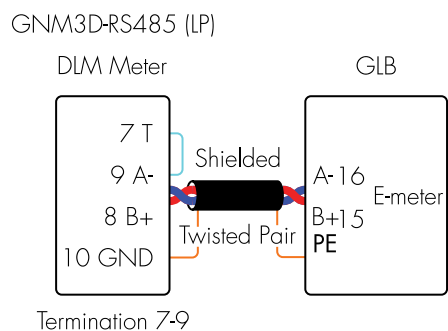
In one-phase systems, the energy meter needs to be installed to same phase as the GLB Wallbox.



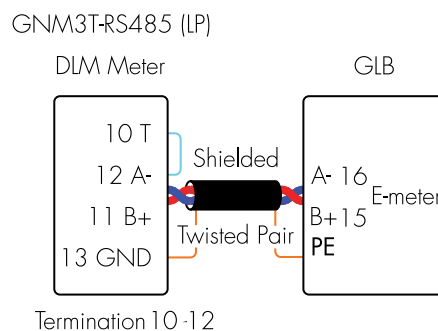
(figure 2)



(figure 3)



(figure 4)



(figure 5)

Commissioning:

- Connect central energy meter to GLB Modbus terminal "E-Meter" (refer to Mainboard simplified connection diagram)  
 Note: Modbus connection between energy meter and GLB must be connected as following: A- (energy meter) to A- (GLB "E-meter" terminal) and B+ (energy meter) to B+ (GLB "E-meter" terminal).
- Config energy meter in distribution box to Modbus address no.2 (9600 baud, no parity, one stop bit).
- Config SW1 (DIP 1-3) for max current (refer Setting the amperage for main fuses).

NOTE! If the wallbox has an internal energy meter installed, the Modbus connection of the external meter is to be connected in parallel with the internal energy meter (terminals "E-meter" on the main board).

Setting the amperage for main fuses

During installation of DLM, the amperage setting of the SW1 (DIP 1-3) must be adjusted to correspond with the size and strength of the main fuses. The SW2 (DIP 1-3) which controls the GLB Wallbox maximum permitted charging current should be set to the recommended current values outlined below, when DLM for individual chargers is activated.

Main fuse	16A	20A	25A	32A	40A	50A	63A
SW1(DIP 1-3)	16A	20A	25A	32A	40A	50A	63A
SW2(DIP 1-3)	13A	16A	20A	25A	32A	32A	32A

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6A		

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10A		

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
25A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
32A		

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16A		

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20A		

ON OFF		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
25A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
32A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
40A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
50A		

ON OFF		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
63A		

(figure 6)

## Dynamic Load Management (DLM) for GLB Wallboxes in group

Note: Do not change any settings on the internal energymeter.

To activate DLM for a group of GLB Wallboxes, a GARO Modbus energy meter must be installed in the supply distribution box. It is also possible to install a 2nd Modbus energy meter when you need to monitor the consumed energy at more than one place.

The following energy meters are approved:

- GNM1D-RS485,
- GNM3D-RS485
- GNM3T-RS485 (current transformer 3-phase. Max current is based installed current transformer)
- CG EM 112
- CG EM 270
- CG EM 271

For use in systems with local electricity production (solar-, wind etc)

- GNM3D-LP RS485
- GNM3T-LP RS485N (current transformer 3-phase. Max current is based installed current transformer)

Note the energy meter's Modbus address must be set to 100 and (101 for the 2nd energy meter).

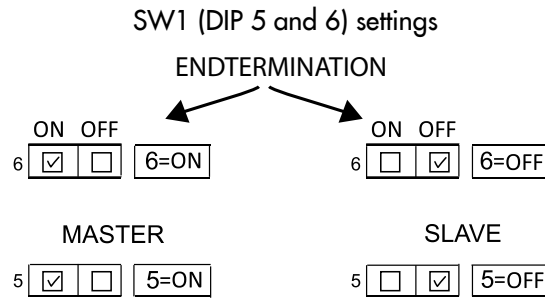
Address 100 and 101 require setting to be done in the web interface. SW1 is not valid. When less than 6A available current in the system, the wallboxes will not pause charging.

The energy meter continually measures the total energy consumption for each phase. Data is transmitted to the first wallbox (GLB Master), which controls the charging current per phase for the entire system in order to prevent the main fuses from tripping. When using a single-phase energy meter, the meter must be set to the same phase as all of the wallboxes.

A maximum of 50 GLB Wallboxes may be connected by a shielded twisted pair cable, which is connected to the GLB Wallbox connection terminal labelled 'Data Link'.

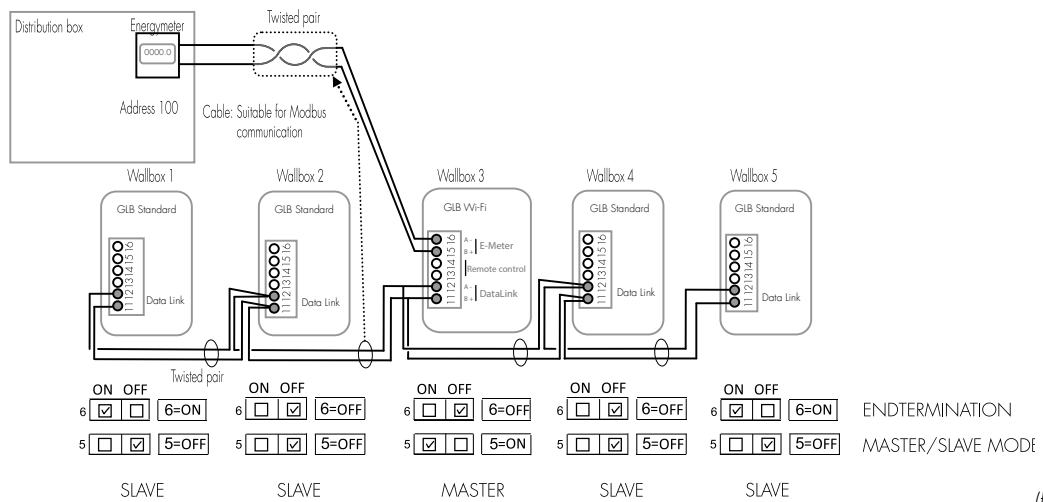
Installation of Datalink according to (figure 8)(figure 9).

First and last GLB Wallbox should be end-terminated by SW1 DIP6 (ON), (figure 7)  
 GLB Wallbox with wifi module should be Master, SW1 DIP5 ON.  
 All other boxes are slaves, SW1 DIP5 OFF.



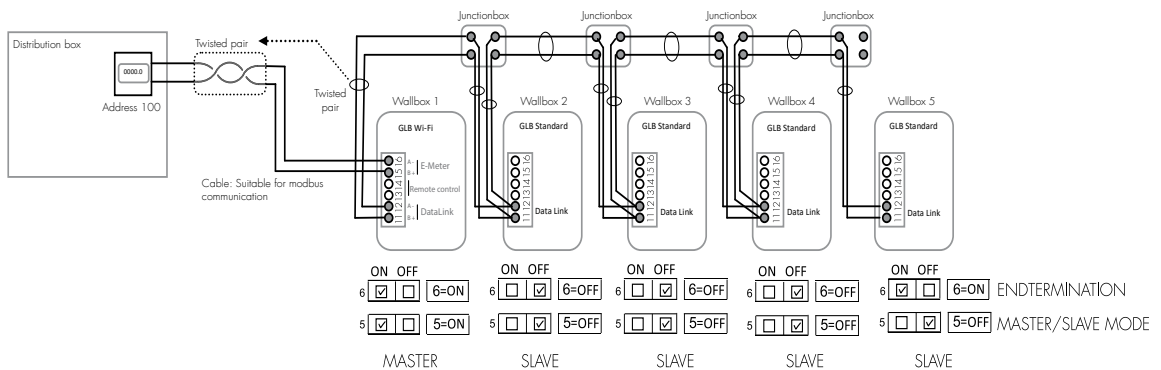
(figure 7)

**Example of Datalink and DLM installation**



(figure 8)

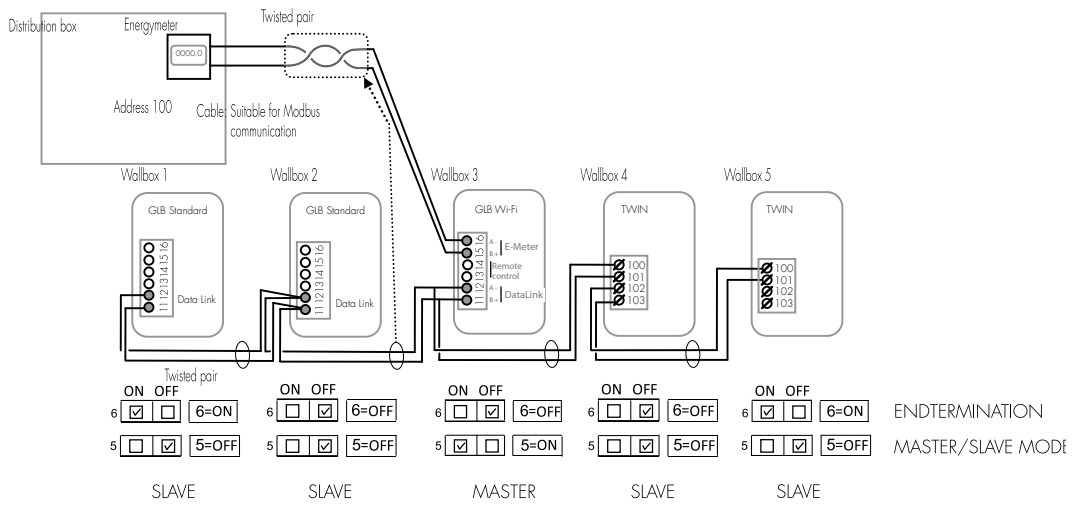
**Example of Datalink and DLM installation, Datalink connection via junction boxes.**



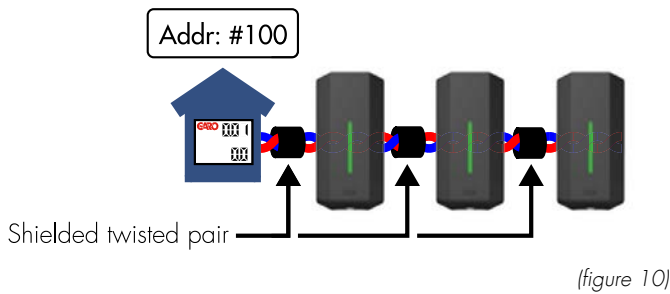
(figure 9)



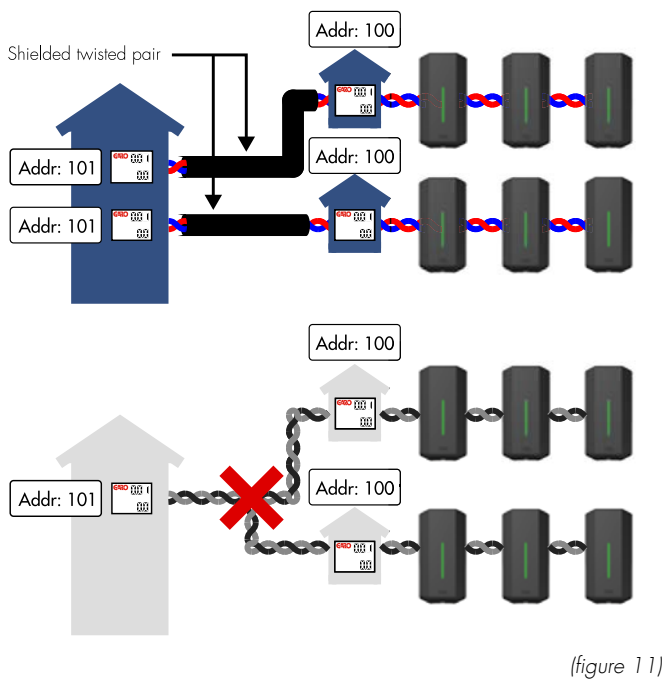
### Example of Datalink, GLB and TWIN installation



### Single DLM meter, multiple wallboxes



### Dual DLM meters, multiple wallboxes



Commissioning:

\* Note: All boxes in same system must have same PE potential.

- Connect the DLM meter to GLB Modbus terminal “E-Meter” with twisted pair cable. Note: Modbus connection between energy meter and GLB must be connected as following: A- (energy meter) to A- (GLB “E-meter” terminal) and B+ (energy meter) to B+ (GLB “E-meter” terminal)

When GLB Wallbox have internal energymeter, connect DLM meter A- and B+ in parallel with internal energymeter on the E-Meter terminals.

DLM meter should also be endterminated, see DLM meter manual.

- Connect Data Link via twisted pair cable to GLB Modbus terminal “Data Link” . Note: Modbus connection between GLB Wallboxes must be connected as following: A- to A- and B+ to B+ see (figure 8)(figure 9).

- Config SW1 (DIP 5-6) see (figure 7)
- Config energy meter in distribution box to Modbus address no. 100 (9600 baud, no parity, one stop bit).
- Config max current or max power (refer Dynamic Load Management (DLM) setting in the web interface). It should be noted that SW1 (DIP 1–3) does not have a function for group load balancing. Instead, group balancing is performed in the GLB Master’s web interface (see section entitled Load balancing settings in the web interface).

When connections lost eg. master loose connection from energy meter or master stops working, the slaves reduces the charging current to 6A. This state is indicated by a short sound signal and a short yellow led signal every 60 seconds.

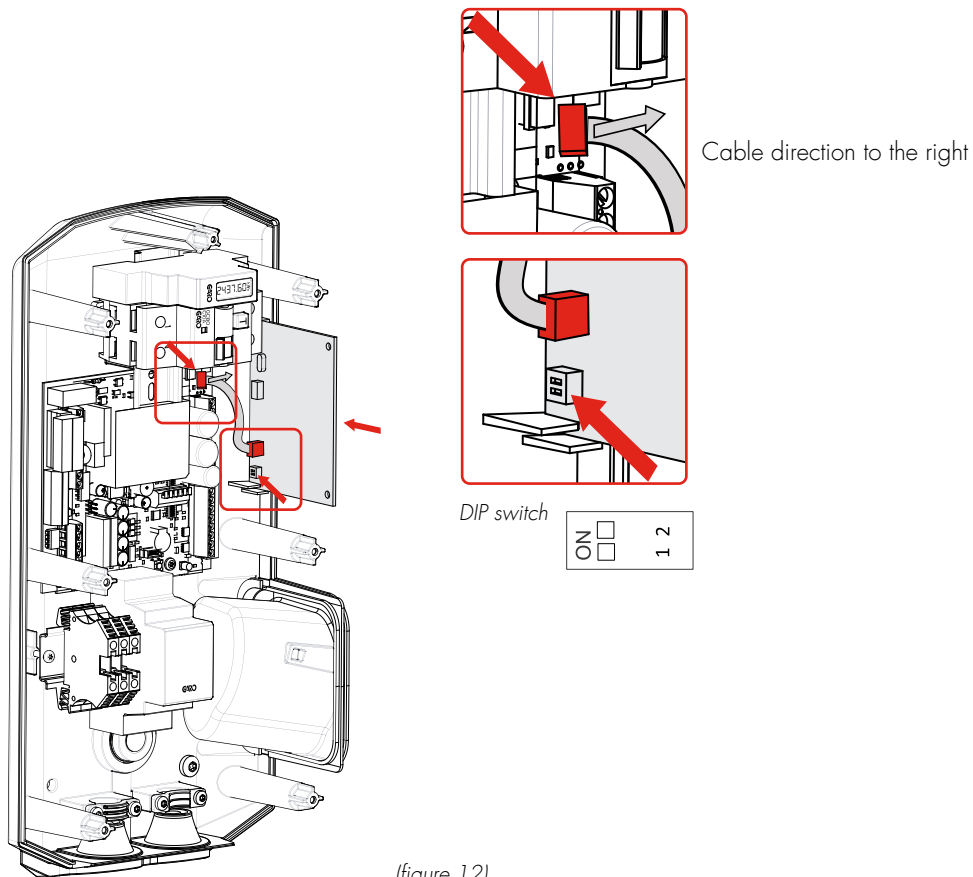
### Dynamic Load Management (DLM) settings in the web interface (GLB Master with wifi module installed)

All load balancing settings in groups are carried out via the wallbox’s web interface. To connect a mobile phone, tablet or computer to the wallbox, see the section entitled Connecting to the GLB Wallbox’s Wi-Fi access point (AP). The DLM meter connected – Group configuration’ option can be found under Settings. The Fuse rating contract can be set (A), as can the value of the power rating contract (kW), where relevant.

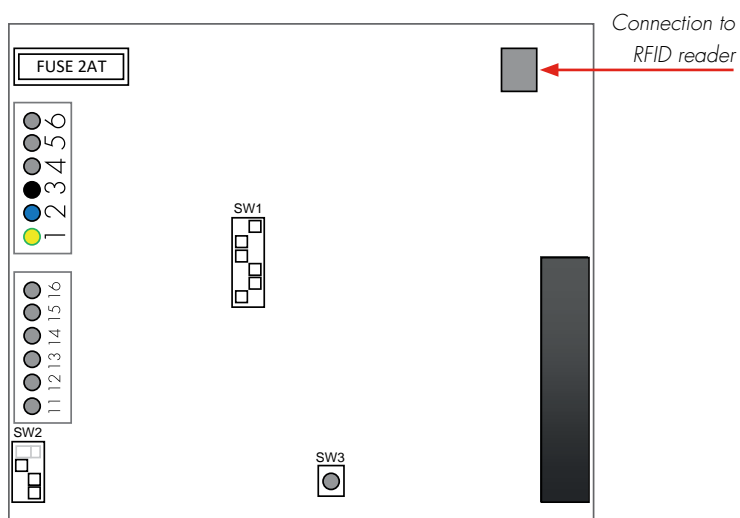
## Installing the RFID reader

Turn off the power to the GLB Wallbox

Install the RFID reader as shown in the image above. DIP switches on the RFID card should be set to ON mode.



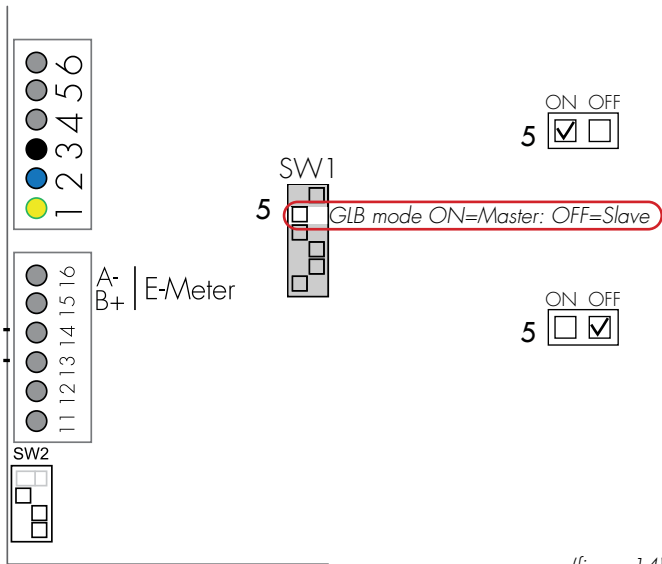
GLB huvudkort



(figure 13)

### DIP Switch settings for RFID reader on individual GLB Wallbox

To activate RFID reader on a GLB Wallbox that is stand-alone (not connected with other GLB Wallboxes), it is important to set the GLB-Wallbox as master (set switch SW1 (DIP 5) to 'ON').



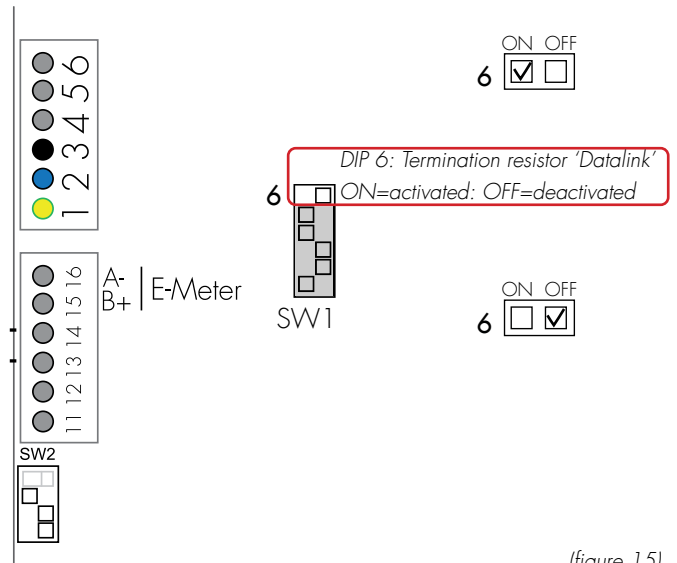
(figure 14)

If several GLB-Wallboxes are connected in group, all GLB slaves must be connected to the data link bus and be energized before the RFID function is activated. GLB slaves that are not plugged in or powered will not receive RFID command and remain open for charging and the RFID function is disabled.

RFID settings, see section Web interface in this manual.

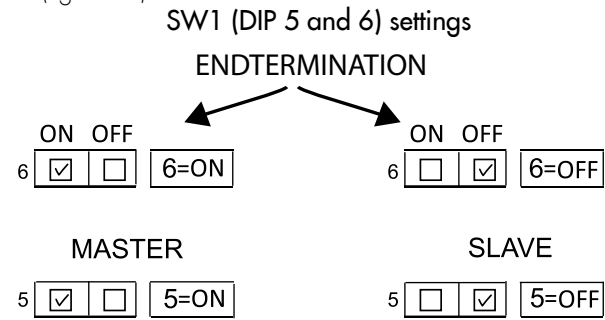
### RFID for multiple GLB Wallboxes in group

A maximum of 50 GLB Wallboxes may be connected together by a shielded twisted pair cable, which is connected to the terminal labelled 'Data Link'. The Data Link cable must be electrically terminated in the first and last wallboxes, via switch SW1 (DIP 6) on the main board, see (figure 15). To verify that the master wallbox is defined as master, ensure the switch SW1 (DIP 5) is set to 'ON' mode,(figure 14).



(figure 15)

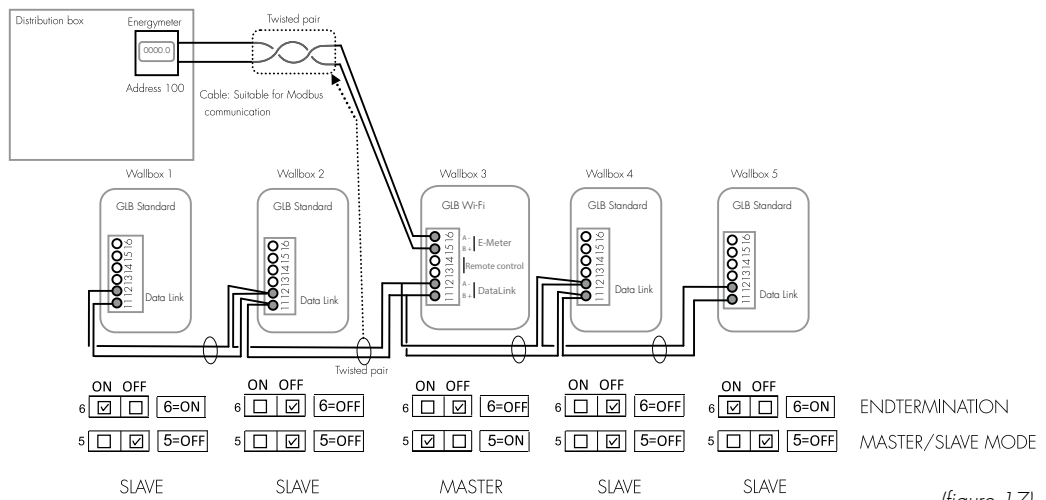
There must always be one (1 pcs) GLB Wallbox as "Master" in the installation and it is set by SW1 DIP5. All other boxes should be slaves and this is set by SW1 DIP6, see (figure 16).



(figure 16)

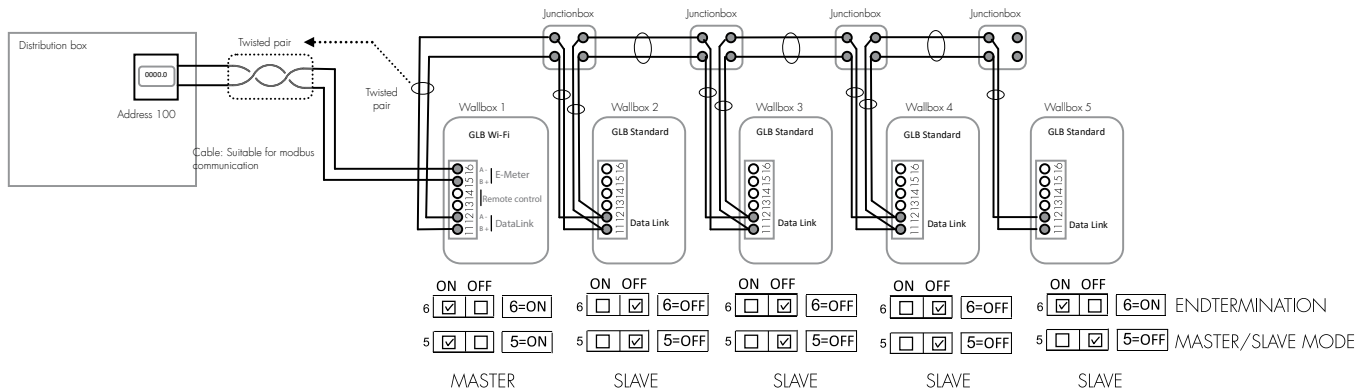
Datalink installation should be done according to (figure 17) or (figure 18)

**Example of Datalink and DLM installation**



(figure 17)

**Example of Datalink and DLM installation, Datalink connection via junction boxes.**



(figure 18)

Commissioning:

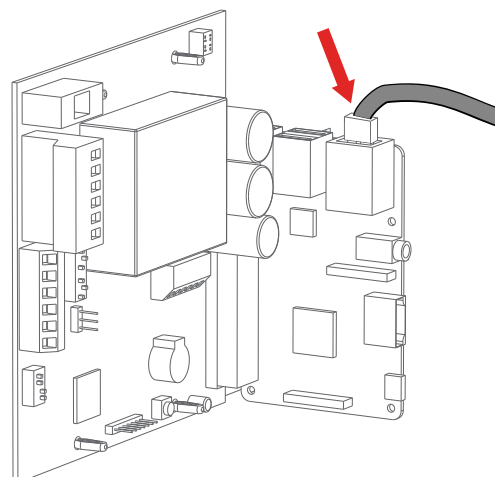
- Connect Data Link to GLB Modbus terminal "Data Link"  
Note, Modbus connection between GLB Wallboxes must be connected as following: A- to A- and B+ to B+ see (figure 17)(figure 18)
- Config SW1 (DIP 5-6) see (figure 16).

### LAN connection via RJ45

LAN connection via RJ45 ethernet-port on the wifi module (only for GLB with installed wifi module)

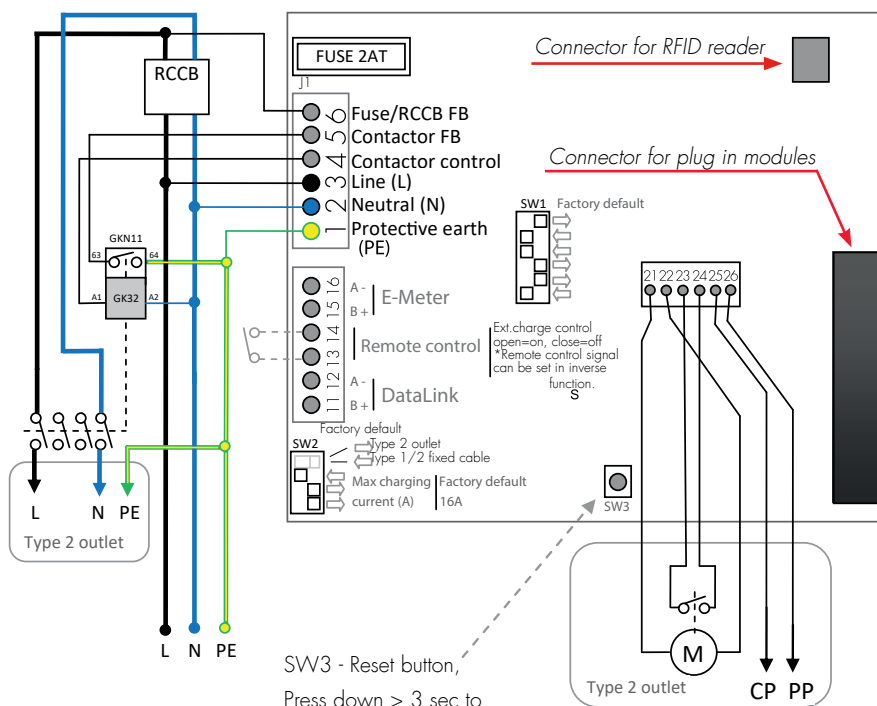
The ethernetport have DHCP as factory default.

Make sure that your local network uses a secure firewall to avoid unwanted access to the wallbox from internet.



(figure 19)

### Mainboard simplified connection diagram



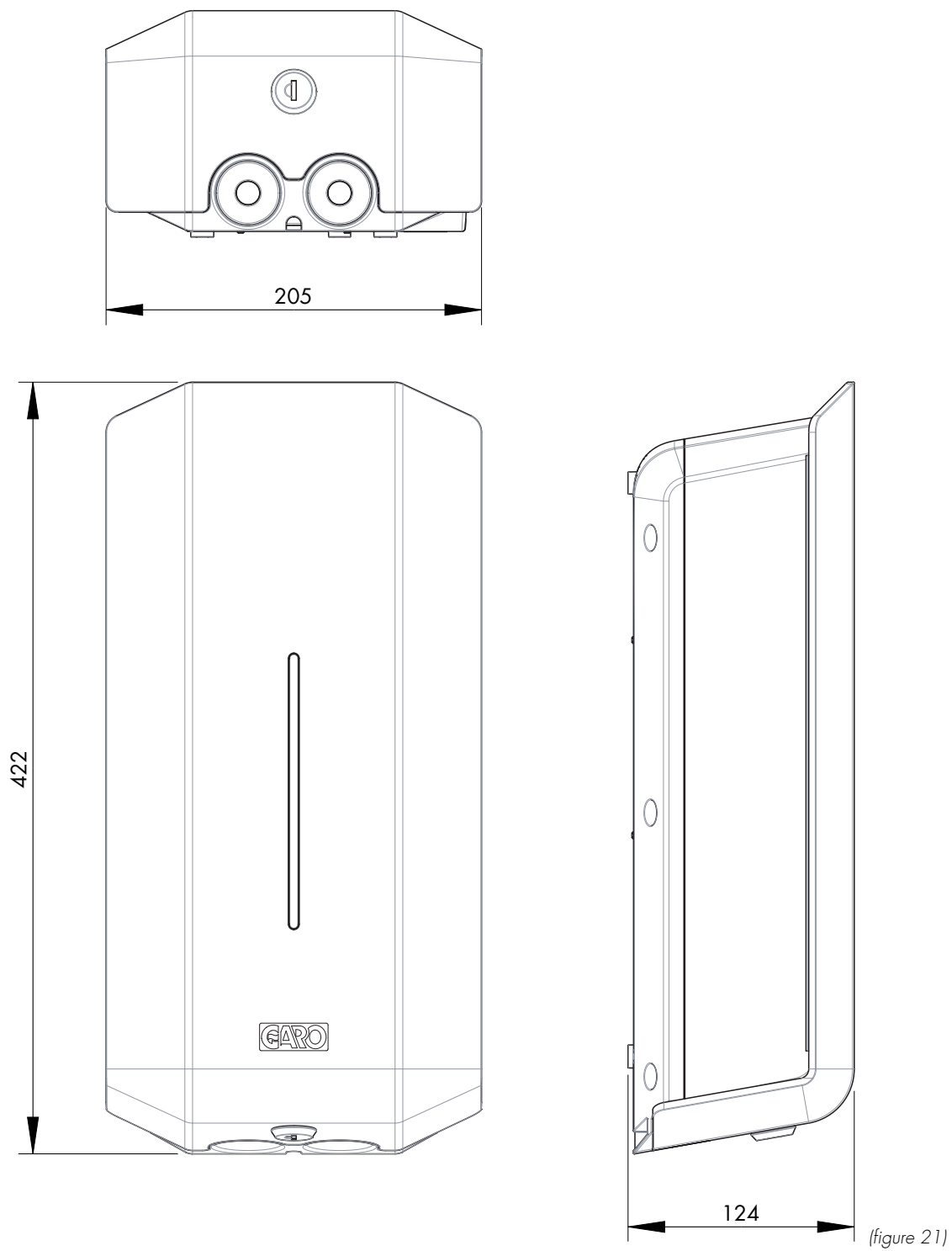
(figure 20)

SW3 - Reset button,  
Press down > 3 sec to  
reset WiFi back to default  
Access Point mode.  
See label behind sliding  
front cover for SSID name  
and password.

1. blue/brown
2. blue/red
3. blue/yellow
4. blue/green
5. white
6. red



## Dimensional drawing



## USER INSTRUCTIONS

Congratulations on selecting a GARO GLB Wallbox and contributing to a better environment. The GARO GLB Wallbox is an AC charge-station enabling Mode 3 charging which complies fully with the requirements of IEC 61851-1 and IEC TS 61439-7. The product complies with IP Code IP44, with a closed front. It is to be fitted to a wall or GARO Wallbox stand, and all installation must be carried out by an authorized installer and comply with local country installation regulations.

NOTE! Read all safety information before you start to use the GLB Wallbox

### Charging electric vehicles







1. Connect the GLB Wallbox to the vehicle using the cable.
2. When charging starts, shifting blue light intensity indicates charging in progress.
3. Stop charging. As a rule, the GLB Wallbox socket and vehicle inlet locks the cable. As a result, charging must be stopped from the vehicle before the cable is removed. Terminate charging according to the vehicles instruction manual, removing connector from car before removing connector at charger end.
4. After terminated charging, make sure cable is suspended.

Important information:

- It is your EV that decide how much energy the GLB Wallbox deliver to the EV.
- The GLB Wallbox can deliver max the kW according to the GLB Wallbox rating label.
- The EV also check the capacity of the charging cable that you use, and never exceed the capacity of the charging-cable.

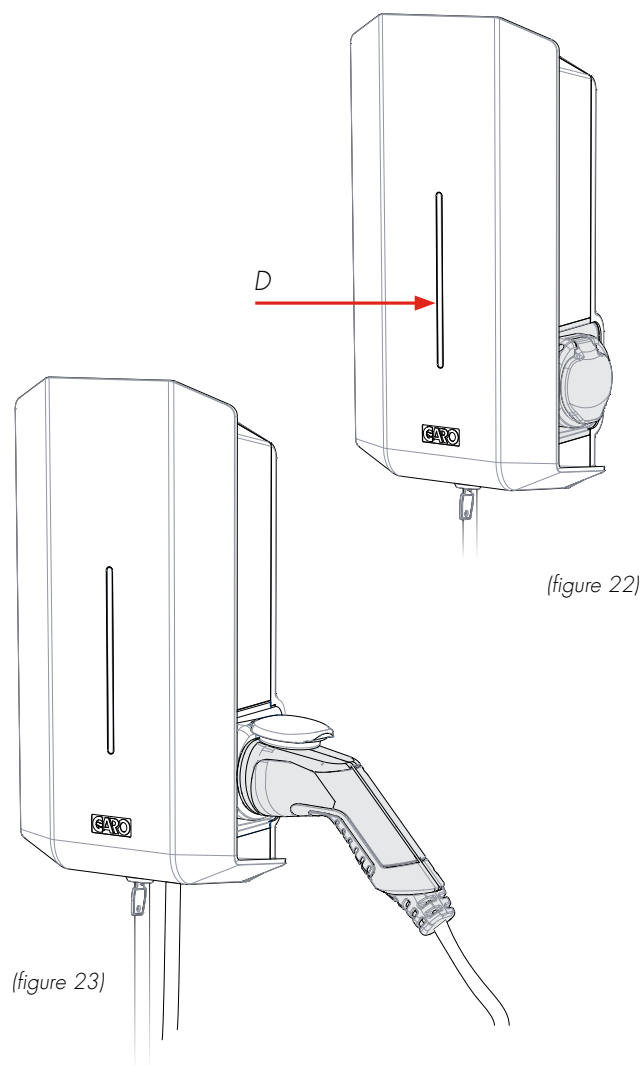
If your GLB Wallbox is equipped with a socket, it is important to use the right type of cable. For example, to charge at 32A, a 32A cable is required. There are both 1-phase and 3-phase cables on the market, make sure you use correct type for your EV.

The status of the GLB Wallbox can be obtained from the color of the Indication light (D).

-  Solid green light: charger ready, vehicle not connected.
-  Flashing green light: device connected to vehicle eg. status
-  Rapid flashing green: device waiting for authorization eg. RFID tag
-  Shifting blue light intensity: device connected to vehicle, charging in progress
-  Solid blue light: RFID accepted - waiting to start charging
-  Red/yellow light: fault. Refer to selection on Troubleshooting

Sound indications:

- Up beat tone: Charger power up or begin charging process.
- Down beat tone: Charger fault.
- Ticking tone: device waiting for authorization eg. RFID tag.



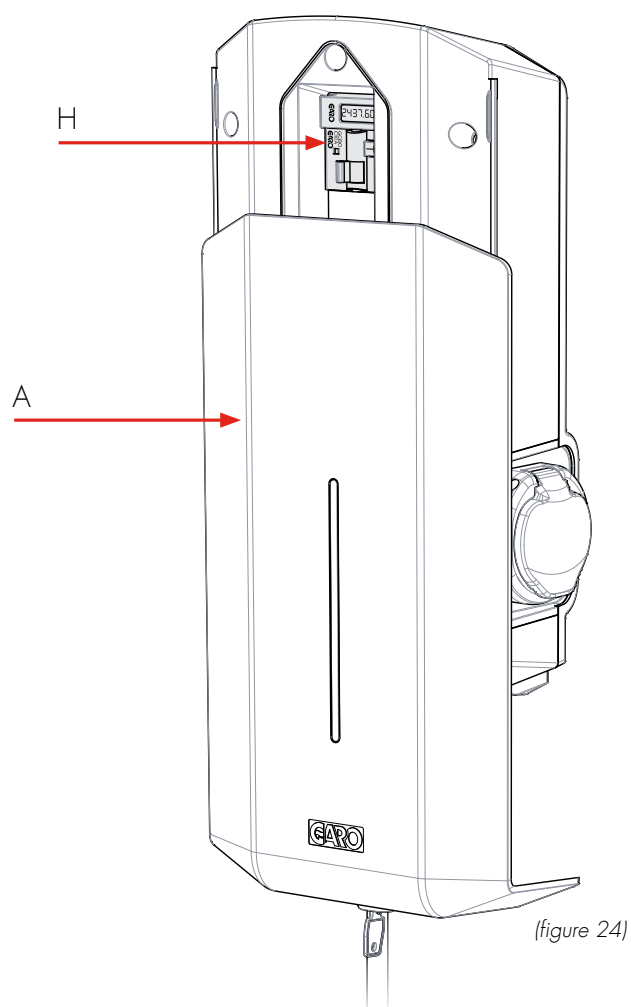
## Resetting/Conditioning of RCCB or RCBO

If the GLB Wallbox is equipped with a RCCB or RCBO (H) (figure 24). In the event of overload/earth fault, these can be tripped. These components must also be conditioned every 6 months.

Procedure for resetting/conditioning:

1. Disconnect the car.
2. Unlock the front cover with the key provided.
3. Open the front cover (A) (figure 24) by sliding it downwards.
4. Reset the circuit breaker. When conditioning press the test button, then reset the circuit breaker.
5. Close the front cover by sliding it upwards.
6. Lock the front cover with the key.

The front cover must always be locked in its upper position in order to ensure compliance with IP Code IP44.



## Web interface

In the GLB Wallbox's web interface, you can access several features. Below are some examples. (Due to continuous development, there might be more features in the web interface than listed below and the pictures can vary)

Warning! GARO recommend that settings only are made by a person with enough knowledge of this product. Wrong settings can cause disturbances or overload of your electrical installation.

Note: When the GLB Wallbox is connected to your local network, you should use the address `chargebox.garo.se` in the web browser. Your mobile/tablet/PC must be connected to same network as your GLB Wallbox.

- DLM settings (Dynamic Load Management and require external energy meter installed)
- Scheduled Limited Charge Current settings (not active when external energy meter installed)
- Naming functions for GLB Wallbox and RFID tags
- Activating and deactivate RFID function
- Activating and deleting RFID tags
- Connecting to local Wifi or LAN settings
- G-Cloud information and settings (only for G-Cloud systems)
- Energy consumption (only master GLB, require installed energy meter)
- Updating of the GLB Wallbox firmware
- Schedule functions
- Activate/deactivate GLB Wallbox

## Reset of wifi settings

If problem to connect to GLB accesspoint or other similar problem, press SW3 on main board "(figure 20)" on page 22 for 3sek to reset all wifi settings to factory default (performed by a person with necessary knowledge).

## Connect mobil/tablet/computer to GLB web interface

### General information

GLB Wallbox Conditions

- Installed wifi module
- Electrified wallbox

Note: Please wait up to 3min before the wifi module is ready after power on.

The wifi module is set to "Accesspoint" as default and in this mode you should search after the wallbox SSID in your device.

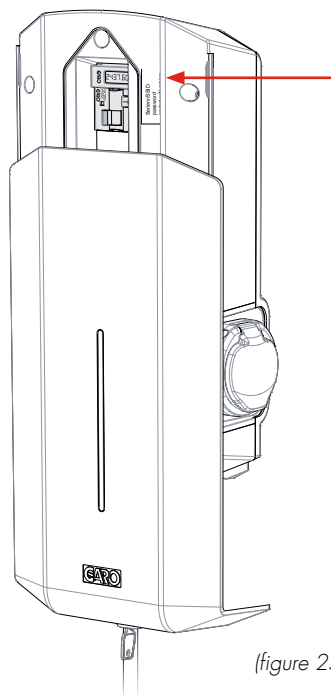
SSID and password are written on the label inside the black front on the GLB.

You can connect the wifi module to a local network via wifi or LAN (ethernet port).

In this mode, your device need to be connected to same network to have access to the web interface.

### Connect device to GLB Wallbox access point

1. Search for the GLB Wallbox SSID and press connect. Type in the password located on the wallbox label. The label is located inside the black front on the GLB.
2. Open a web browser. If the web interface does not appear, type in "172.24.1.1" in the address field.

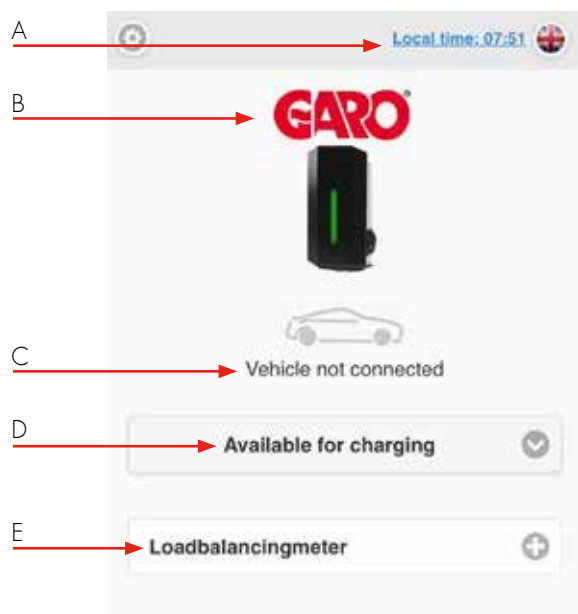


(figure 25)



(figure 26)

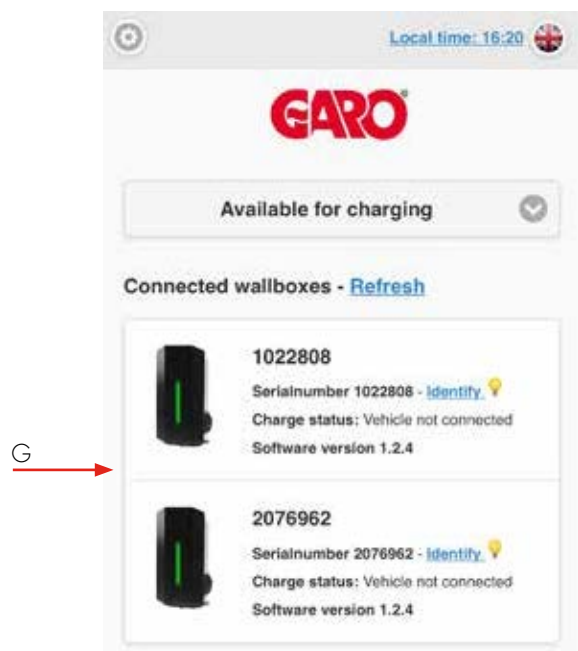
## Home meny



- A. Click to set time
- B. Double click GARO logo for extended information.
- C. Wallbox status
- D. Dropdown list \*:
  - Available for charging
  - Not available for charging
  - Schedule
- E. An installed DIM meter is visible here. Note, it can take up to 5min before the DIM meter is visible after power on.
  - \* N/A for older wallboxes

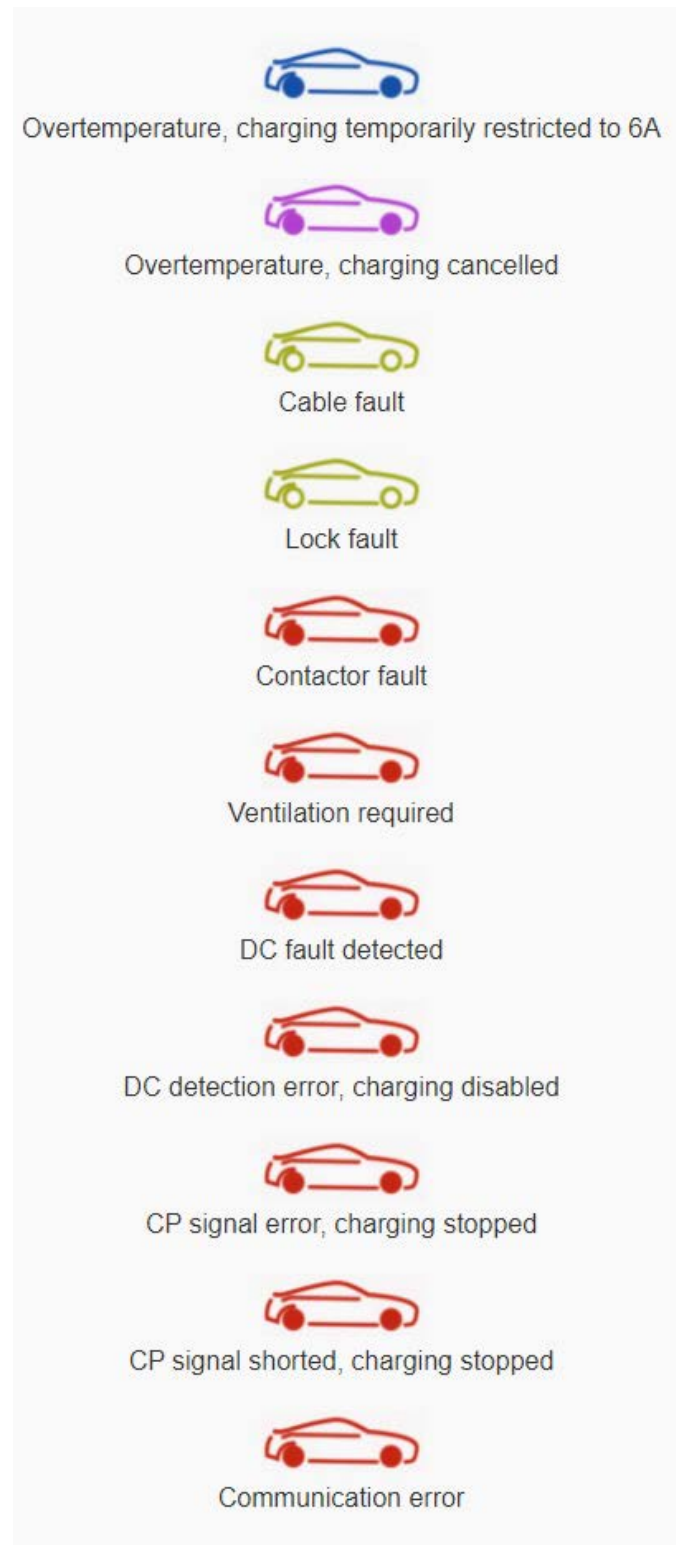
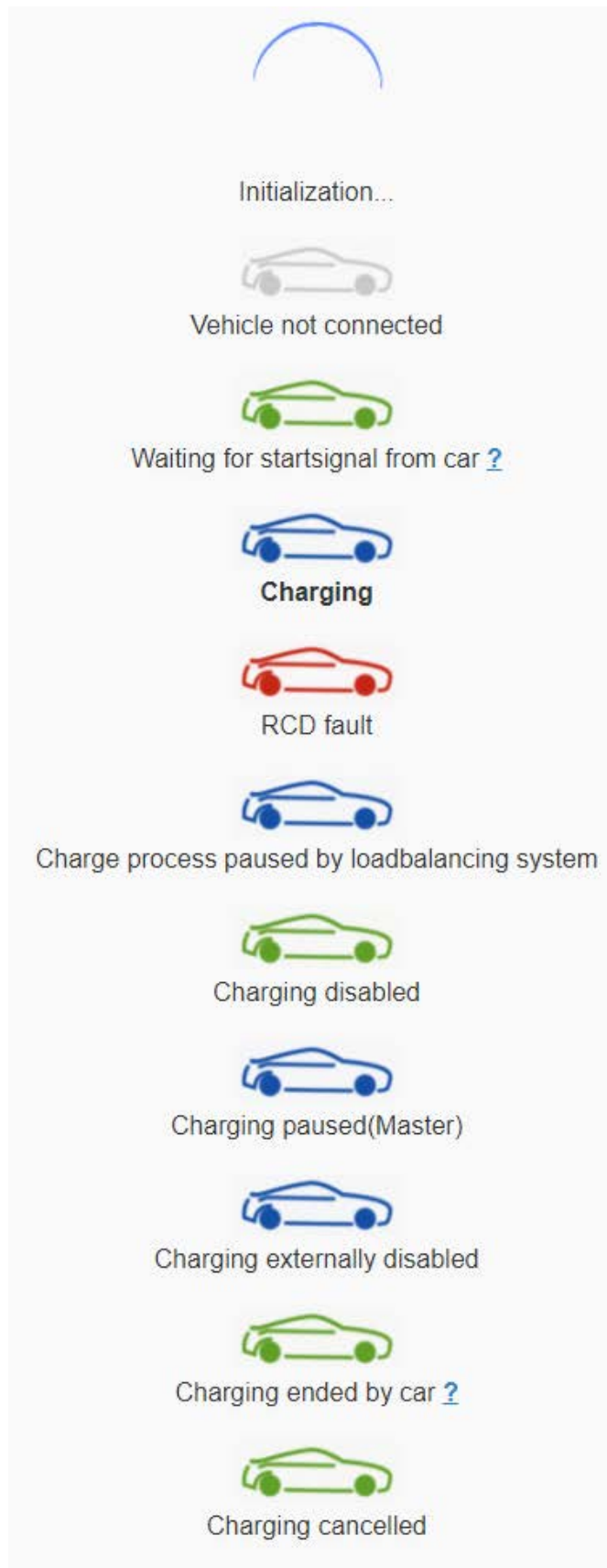


- F. Car and text shows present status.
- G. In systems with multiple connected wallboxes, the status is shown under the serial number for each box.

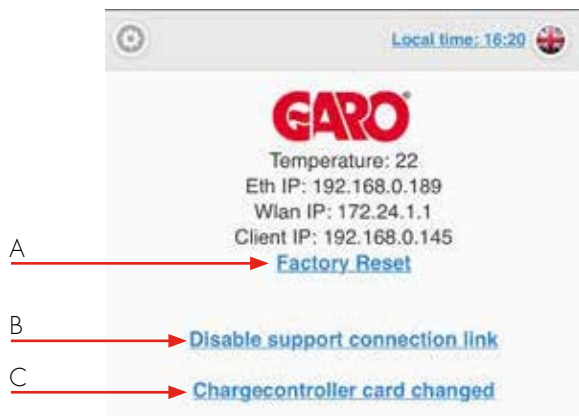


## Home meny

List of all different statuses



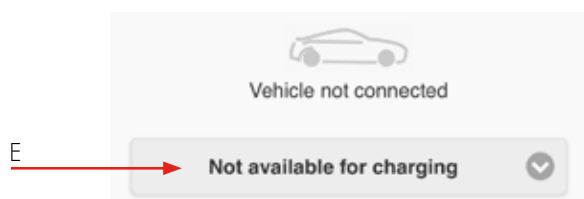




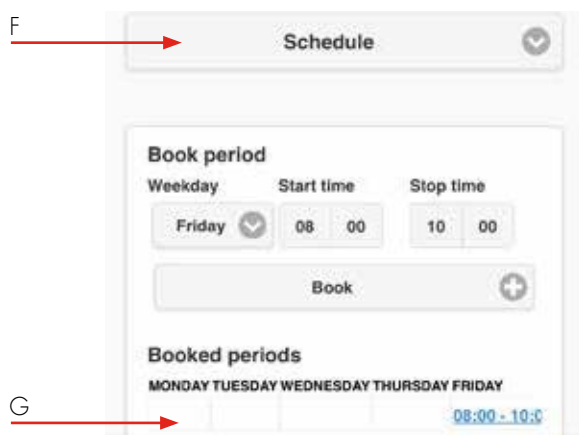
- A. Factory reset means that all settings will be set as factory default.
- B. Enable or Disable support connection... means that support can have access to the wallbox over internet. GLB Wallbox need to be connected to internet.
- C. Chargecontroller card changed. Click here if you want to copy all old charging history to the chargecontroller card.



D. Available for charging means that the GLB Wallbox is activated.



E. Not available for charging mean that the GLB Wallbox is deactivated. \*



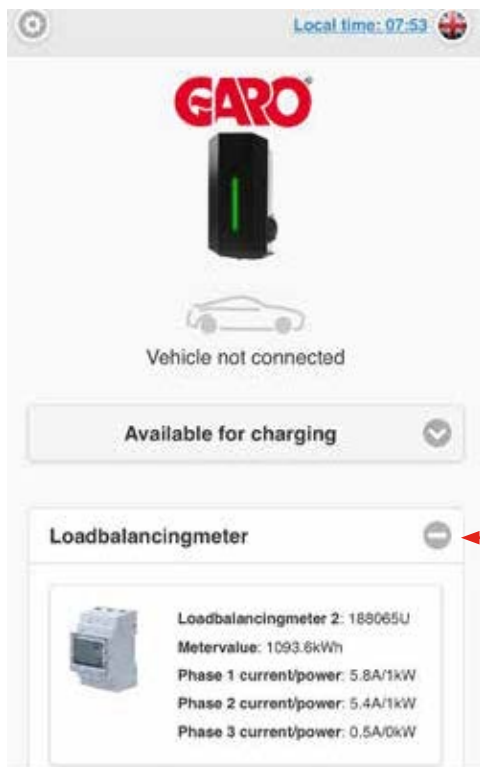
F. Schedule means that you can set periods when the GLB Wallboxes should be activated.

Choose wanted period and press Book. \*, \*\*

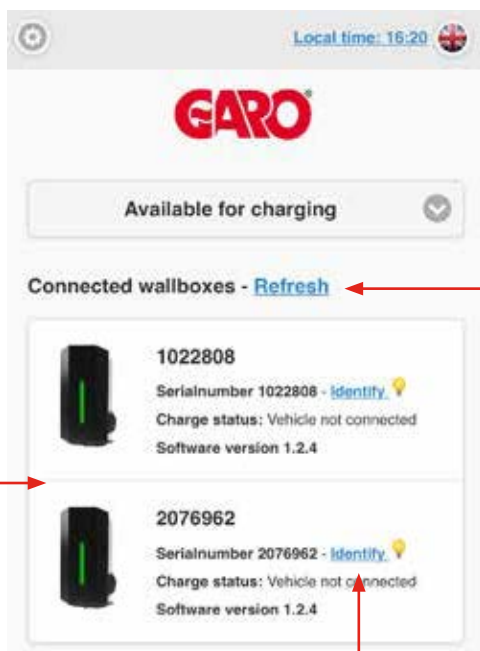
G. Click on a period to delete it\*

\* N/A for older wallboxes

\*\* Same schedule is valid for all connected boxes



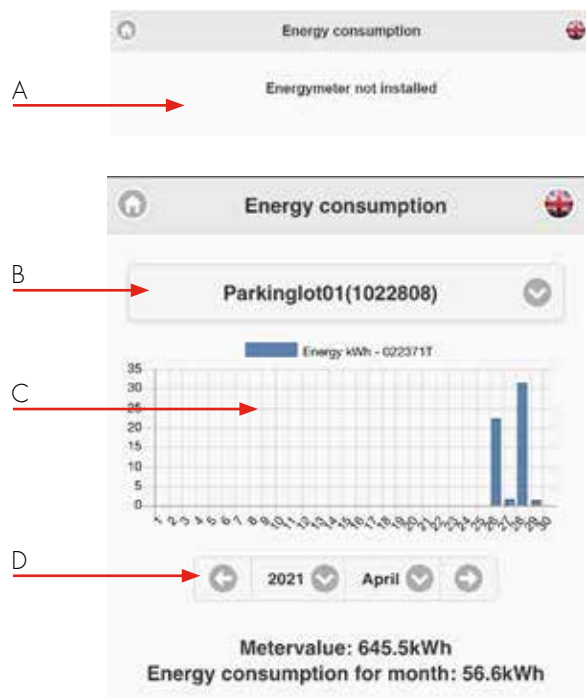
- A. Click the + to show extended information. The information is updated every minute (only displayed with installed DLM meter)
- B. Click Refresh to search for connected wallboxes
- C. Multiple connected wallboxes are shown in a list
- D. Click Identify to start white blink and ticking sound from chosen wallbox. It is a simple way to identify a specific wallbox in the list.



C

D

### Energy meny



- A. In wallboxes without internal energymeter, Energy meter not installed is shown.
- B. Choose energy meter
- C. GLB Wallbox with internal energymeter show energy consumption here.
- D. Choose consumption period

### Settings



- A. Click + to see extended information.

## Wifi settings



- A. Dropdownlist:
- Local accesspoint (default)
  - Connected to router
  - Wifi disabled (only visible for LAN connected wallbox)
- B. Accesspoint password – more information shows wifi modules MAC-address.
- C. Field for own password.
- D. Enable internet hotspot (only visible for LAN connected wallbox).
- E. Click Save after changed settings.

## Connect GLB Wallbox to local wifi network

### General information

Make sure that your local network uses a secure firewall to avoid unwanted access to the wallbox from internet.w

Only 2,4GHz wifi network are supported.

5GHz wifi network is not supported.

Firewall/router must handle outgoing request to:

\* 8.8.8.8 via ICMP(ping)

\* 85.11.39.104 (www.webel-online.se) via ICMP(ping), TCP port 80 and TCP port 443

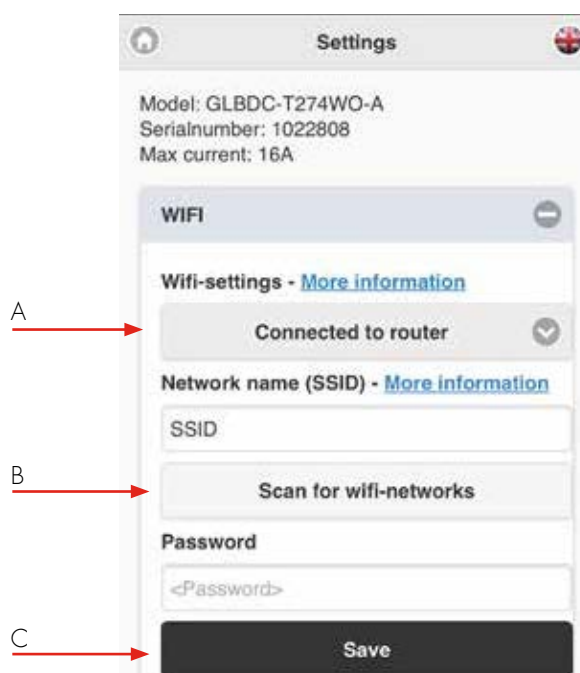
Make sure your router/firewall does not block this traffic.

WPA/WPA2 encryption is supported. WPA2 Enterprise is not supported.

Local wifi network must have a password. The wallbox can not connect to an open wifi network that does not request a password.

- A. Connect wallbox to local wifi network. Choose Connected to router in the dropdown list.
- B. Click Scan for wifi-networks. Click wanted network, type in password and click Save.
- C. Save

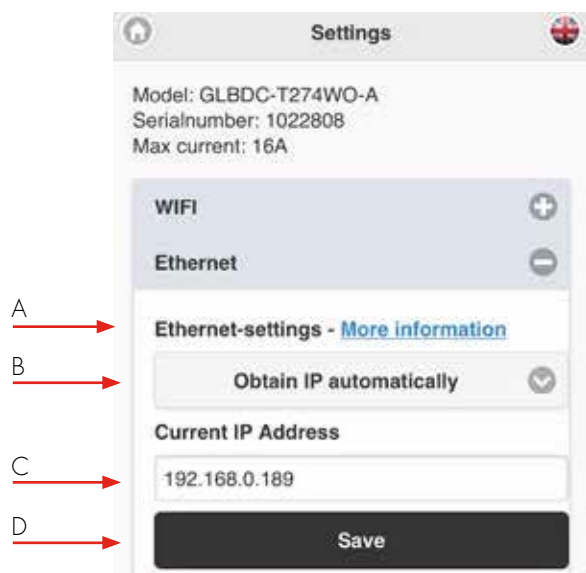
Make sure your unit is connected to same network as your wallbox. Type in chargebox.garo.se in a webbrowser and follow the instructions.



## Ethernet settings

You can connect the wallbox to a LAN via wifi modules ethernet port.

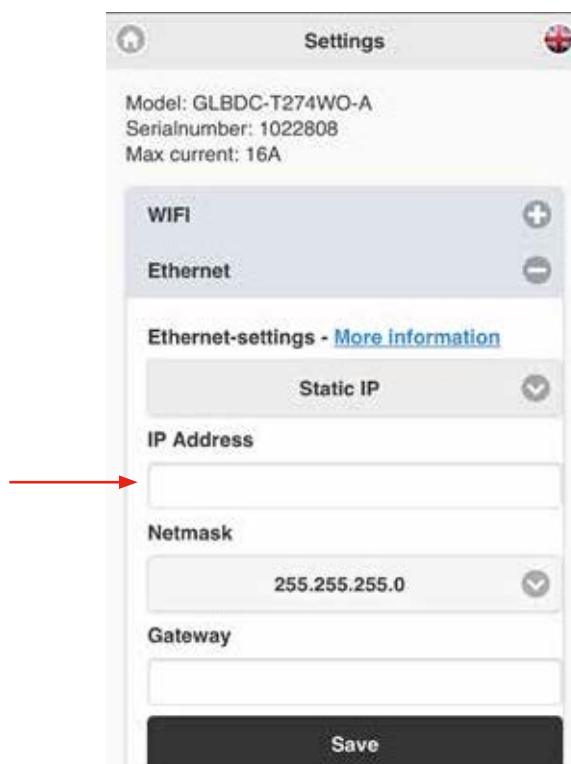
Make sure that your local network uses a secure firewall to avoid unwanted access to the wallbox from internet.



- A. Ethernet-settings – More information shows the Ethernetports MAC address.
- B. Dropdown list
  - Obtain IP automatically
  - Static IP
- C. Current IP address.
- D. Click Save after changed settings.

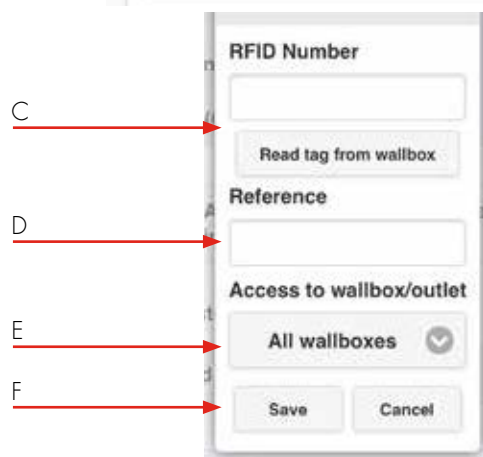
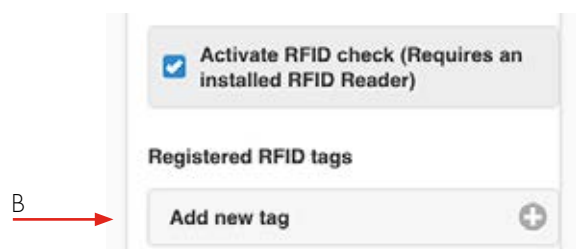
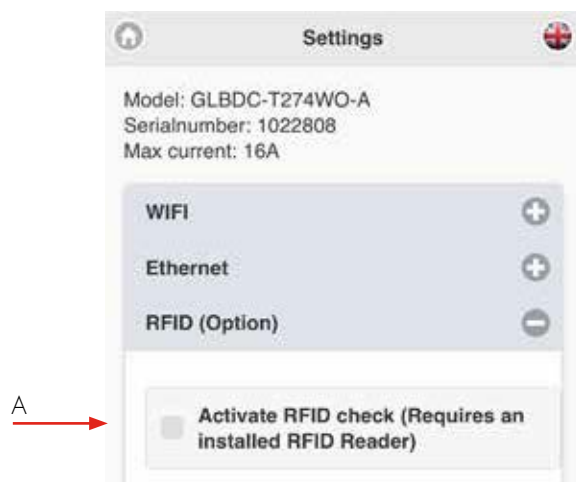
Static IP require manual type in IP adress, Netmask and Gateway.

Click Save after changed settings.



## RFID (option)

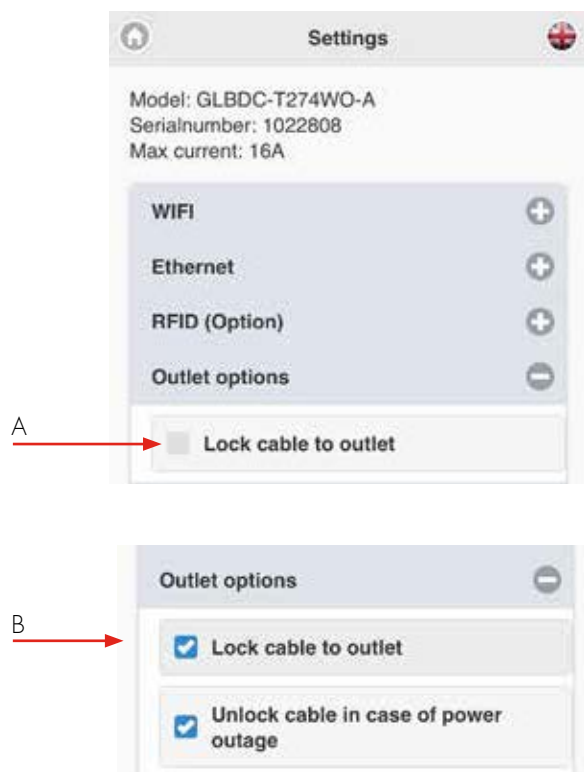
Note, require installed RFID reader.



- A. Tick Activate RFID Check box to activate the RFID authentication function.
- B. Click Add new tag.
- C. Type in or read the RFID tag number from the wallbox. By click Read tag from wallbox, the RFID reader can read the tag number you hold in front of the reader.
- D. Add a referens to each tag..
- E. Choose selected a specific wallbox or all wallboxes. For Twin, you can choose left or right hand side.
- F. Click Save for each registered tag.

## Outlet options \*

Note, only for standalone Master wallbox with outlet.



- A. Tick Lock cable to outlet in cases when you want to cable to be locked to the outlet. The wallbox will lock the cable at next charging session.
- B. Untick Unlock cable in case of power outage if you want the outlet to lock the cable in case of power outage.

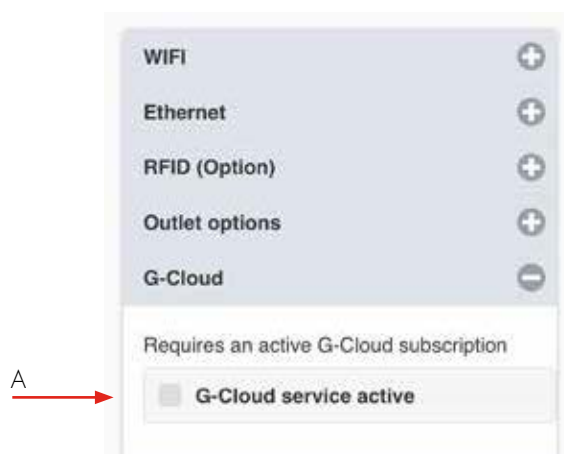
## G-Cloud

G-Cloud is a service for legal persons and require a subscription and internally energymeter in the wallbox.

The service means that the wallbox will be connected to a cloud server. The energy consumption is stored in G-Cloud. Via G-Cloud website, you can create energy reports for each energymeter.

G-Cloud subscription is ordered at garoemobility.se

- A. Tick the box to activate the function.

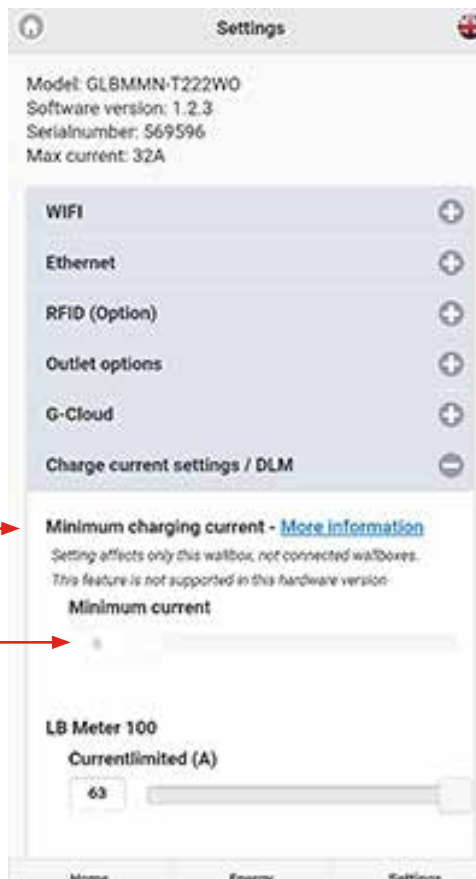


## Charge current settings / DLM

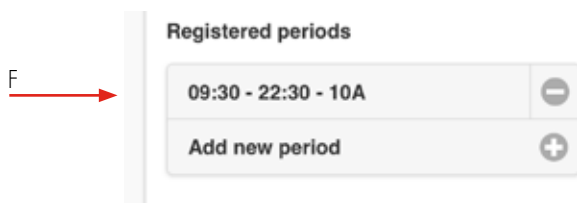
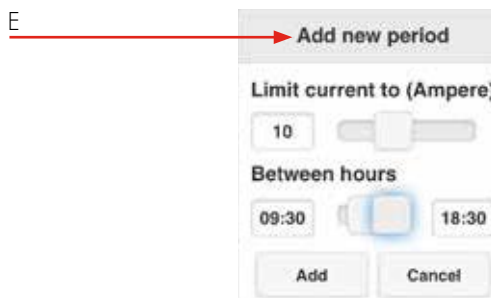
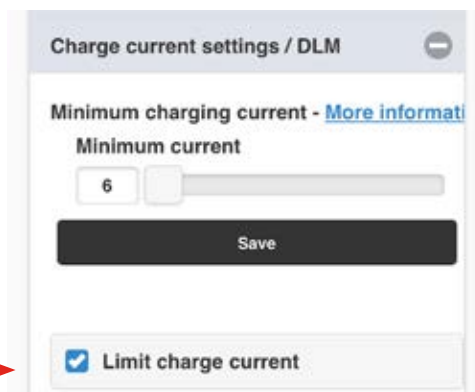
Minimum charging current\*

Note, only for standalone Master wallbox

- A. Minimum charging current – more information show information window:
- B. This setting allows you to set the minimum starting current (in amperes) for the wallbox, some car models require a higher starting current to properly charge. Leave this setting at 6A unless you experience problems starting your charging process.
- C. Slide the slider to wanted minimum charging current and click Save.  
\* The function is not available for older charging boxes.



- D. Limit charge current is possible by ticking the box.
- E. Click Add new period and set wanted values.
- F. Click "-" to delete a period



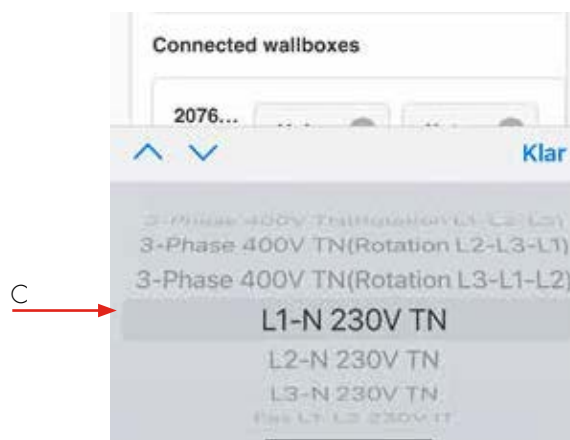
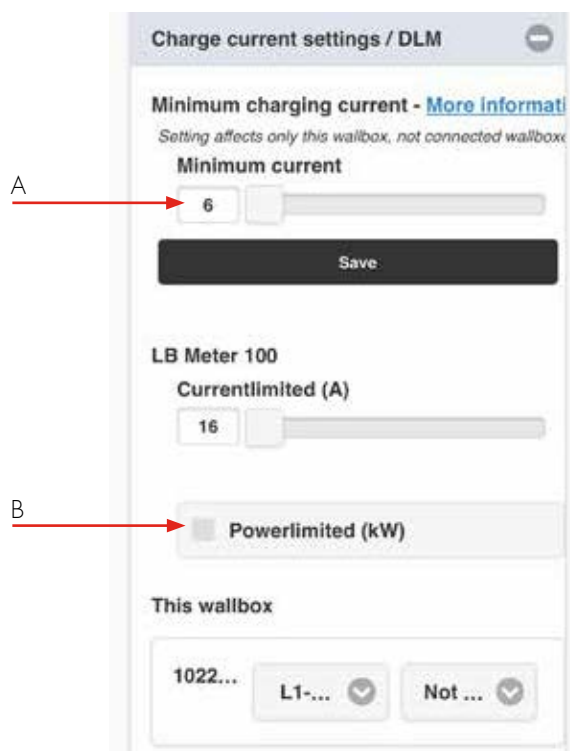


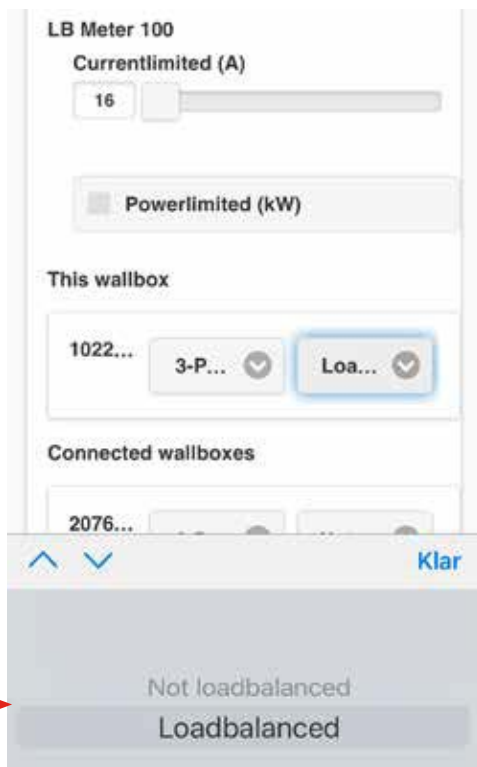
LB Meter settings are shown in cases with DLM meter adress 100 or 101 installations

- A. Currentlimited (A): Set Distribution board fuse size.
- B. In systems where Power-limit is necessary, tick the box and set the Powerlimit value wanted in the distribution board.

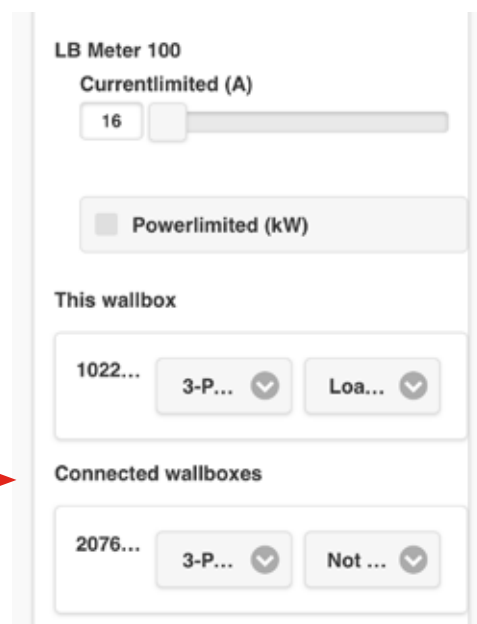
Note, it is possible to monitor 2pcs distribution boards. In this case, settings needs to be done for each DLM meter. The wallbox needs around 5min to detect an installed DLM meter after power on.

- C. Choose correct system for your installation.

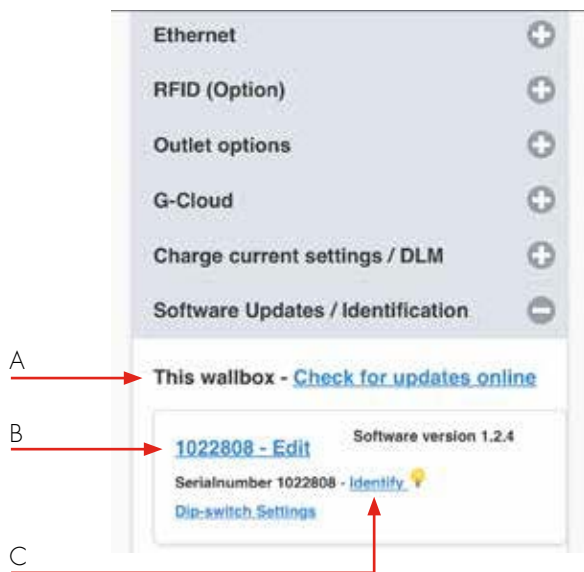




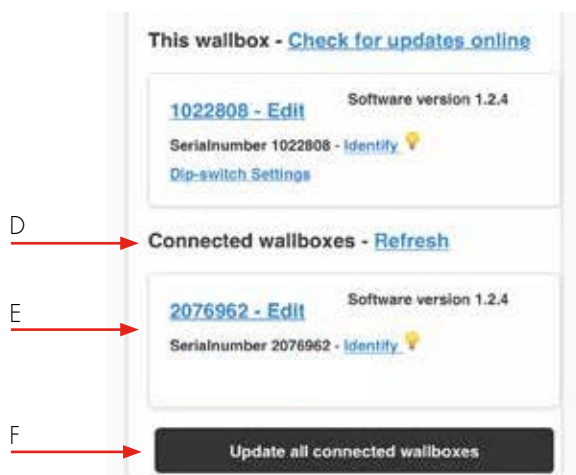
- Set wanted value for each wallbox in the system.
- Click Save after changed settings.
- Note, in systems with multiple connected wallboxes, make the setting for each box in the system. All wallboxes are shown in a list.



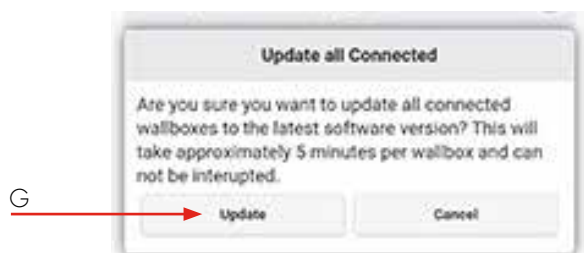
## Software Updates / Identification



- A. This wallbox– Check for updates online(wallbox needs to be connected to internet)
- B. Click serialnumber – Edit to add reference name.
- C. Click Identify and the wallbox start with blinking white light and a ticking sound.



- D. Connected wallboxes– Refresh (in systems with multiple connected wallboxes).
- E. Click to update list of connected boxes.
- F. Update all connected wallboxes\*
- G. Click to update connected wallboxes.  
Note, a GLB update will take up to 5 min.



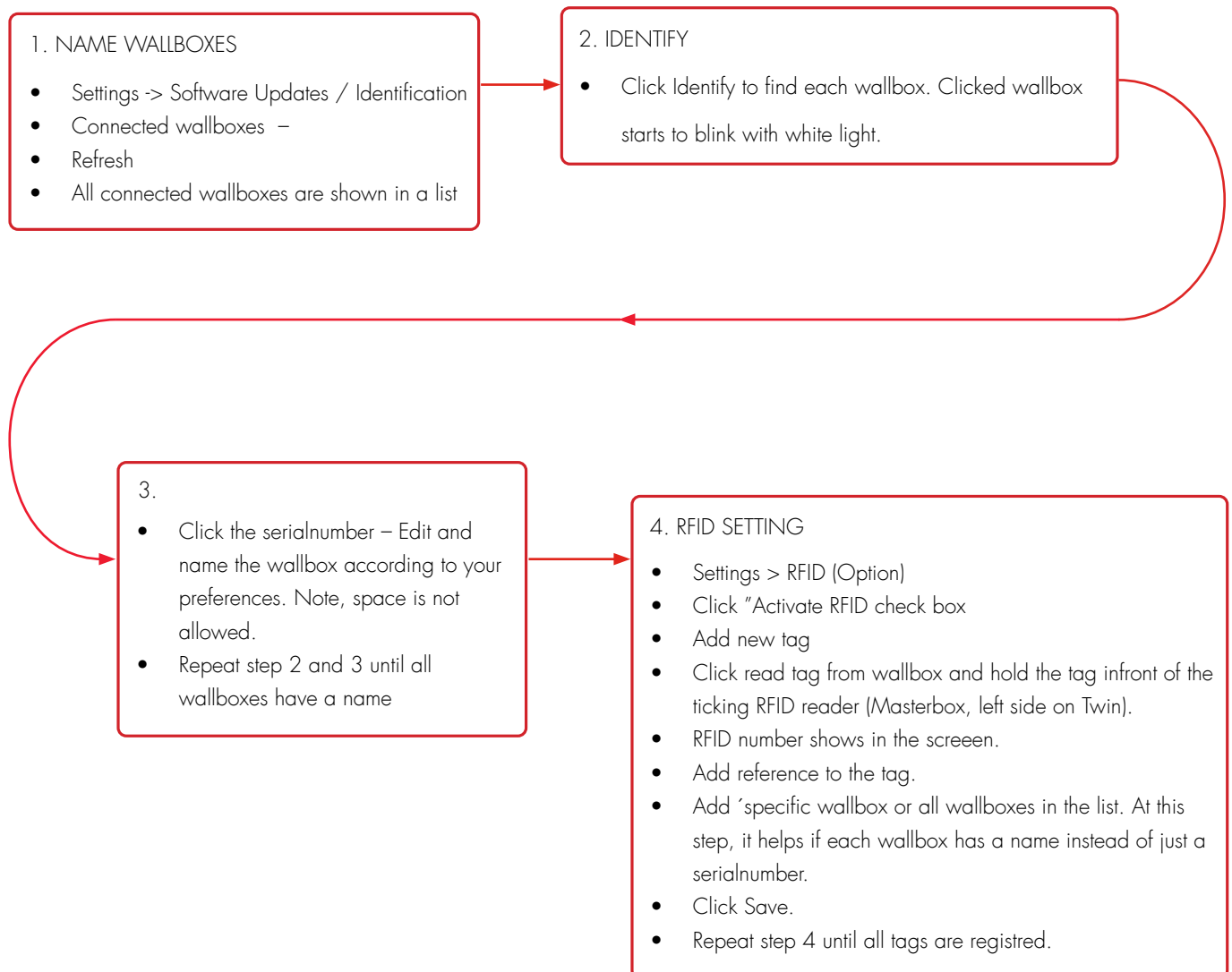
### Firmware update for GLB Wallbox not connected to internet via Wifi or LAN

By Computer / Android mobile or tablet:

1. Open <https://www.webel-online.se/wifi> and download the file. (device must be connected to internet)
2. Connect your device to the GLB Wallbox Wifi network. (Search for GLB<the box serial no> )
3. Open <http://172.24.1.1:8080/update> in your web-browser
4. Press button "choose file" and mark the downloaded file.
5. Klick "Update" and wait for the update process to end.

















Standalone installed wallbox with wifi-module should have SW1.5 in ON during manual update process.

## Workflow RFID with multiple wallboxes




## Care

We recommend that you clean the GLB Wallbox with a soft, dry cloth. Never use detergent.

Indication	Error type	Action	
	Solid red light	RCCB has tripped or EV earth check error is detected.	Reset. Refer to section on resetting the residual-current or personal protective current breaker.
	Solid red light for 3 sec	RFID tag not accepted.	
	Red fast flash	DC current >6mA - charging has stopped.	
	Constant yellow light	Broken cable.	Check cable
	Flashing yellow light	Motor lock socket not in latched position.	Contact a qualified electrician.
	Shifting red/green/yellow	DC detection hardware error.	
	Solid purple light	Chargebox overheating, charging has stopped.	
	White fast flash	Search light indication.	
	One quick white flash repeating every minute	Indicate an error in DLM function.	
	Solid blue light	RFID accepted - waiting to start charging.	
	Shifting blue intensity	EV charging in progress.	
	Shifting red/blue	Software upgrade in progress.	
	Shifting blue/black	Chargesession not enabled due to scheduled mood.	
	Solid green	Charger in idle, waiting for EV to connect.	
	Green slow flash	EV connected, wait to start charging or EV has finish charging.	
	Green fast flash	RFID reader is active, waiting to read tag for authorization.	

If the advise does not help, contact your qualified installer.

## Technical data

Product type	All GLB models
Standards / Directives	IEC 61851-1 and IEC 61439-7
	
EMC Classification:	2014/30/EU
Installation method:	Wall
Installation environment:	Indoor / Outdoor
Location type:	Non-restricted Access
Rated Voltage:	230V / 400V 50Hz
Installation systems:	TT, TN and IT systems
Charging type:	Mode 3
Charging method:	AC Charging
Protection class:	IP44
Mechanical impact resistance:	IK08
Temperature range:	-25C - +40C
Weight:	3-5,4 kg depending on model
Standard cable length (fixed cable version):	Standard 4,5m
Rated current withstand	10kA
Rated short-time withstand current	10kA
Rated conditional short-circuit current of an assembly	10kA
Short-circuit protective device type	Type C
Rated impulse withstand voltage	4kV
Rated insulation voltage	230/400V
Rated current of each circuit	32A
Rated diversity factor	RDF=1
Pollution degree:	3
EMC environmental condition	A and B