

Chago Wallbox



ENG

Installation instruction
Operation instruction

CE

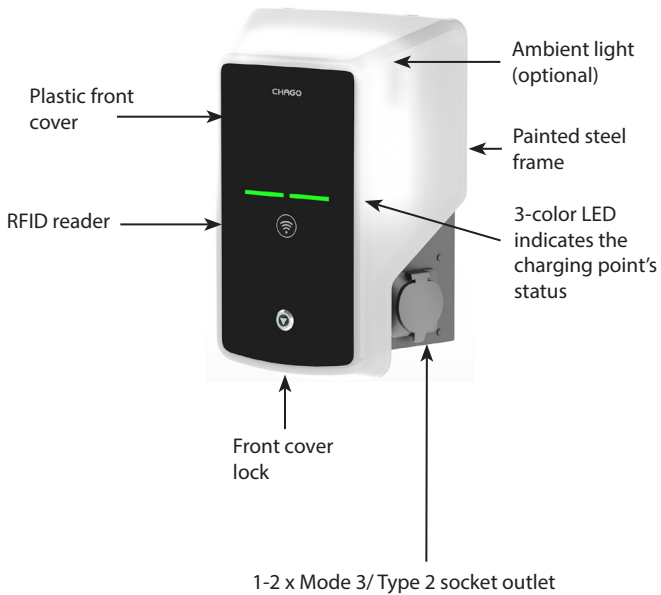
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1. Chago Wallbox

EVB100: Single charging unit

EVB200: Dual charging unit



2. Safety Instructions



- *Chago Wallbox must be installed by a qualified person.*
- *Read this instruction manual before installation and usage of the charging point.*
- *The instruction manual must be stored in a safe location and be available for future installation and service.*
- *Follow the guidelines in the instruction manual when installing and using the charging point.*
- *The installation must be done according to the local safety regulations, restrictions, dimensioning, rules and standards.*
- *The information provided in this manual in no way exempts the user of responsibility to follow all applicable rules and safety standards.*

3. Delivery Contains

- Chago Wallbox (EVB100 / EVB200)
- Installation and Operation instruction
- Optionally Wall bracket (EVTL40.00)

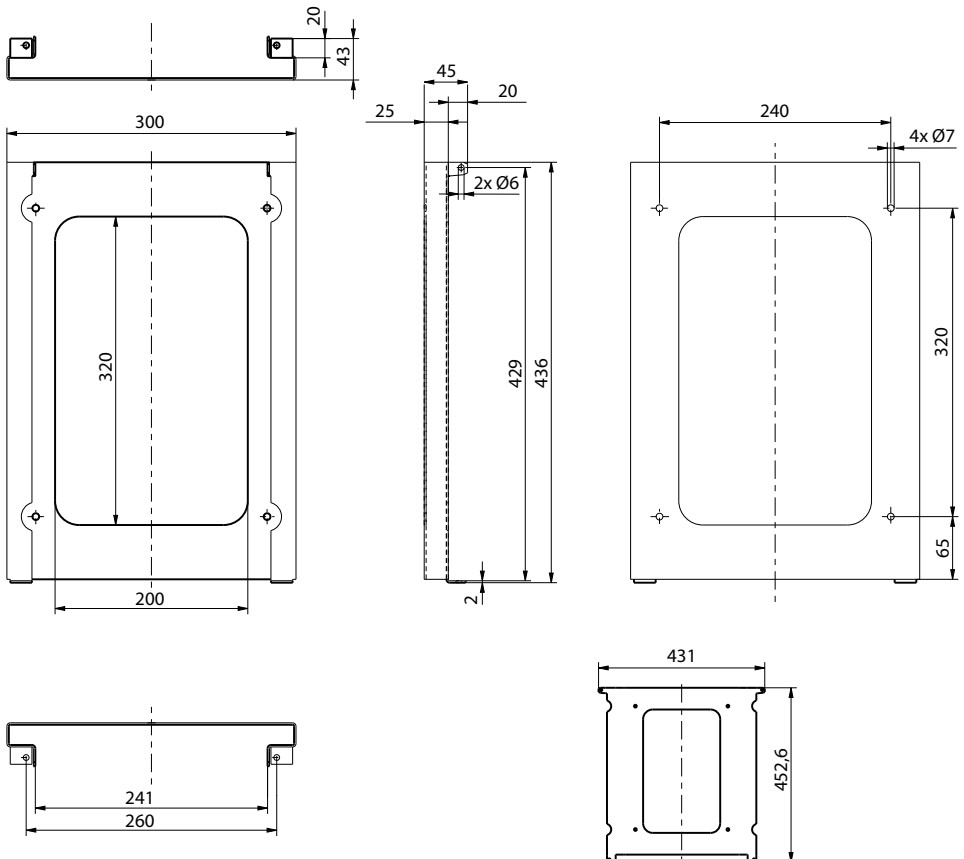
4. Accessories

Wall bracket

EVTL40.00

Included on Wallbox configurations EVBx00-A/-B/-C/-D.

For other configurations please order separately.



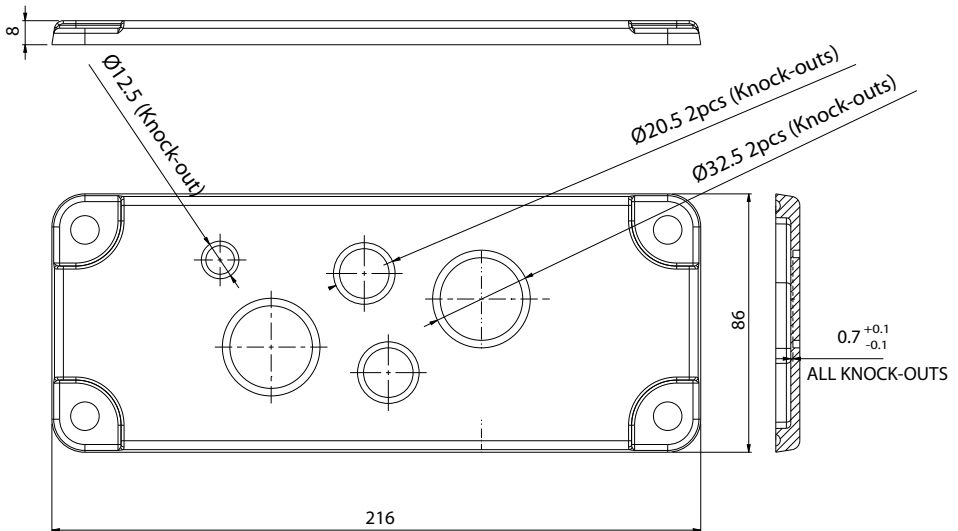
Flange

KOT21715

Included in the delivery.

Note! Cable glands are not included in the delivery.

Please order suitable cable glands separately according to the used supply cable sizes, for example Ensto KTM... cable gland series (polyamide or brass).



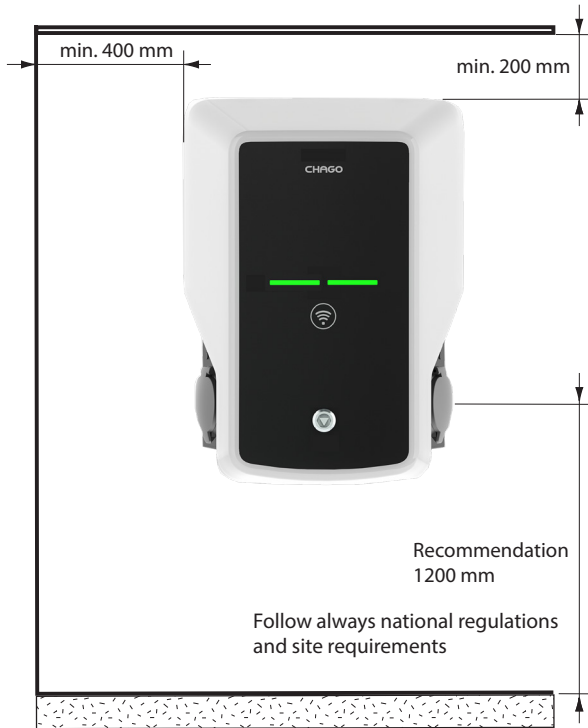
5. Installation instructions

5.1. Before Installation

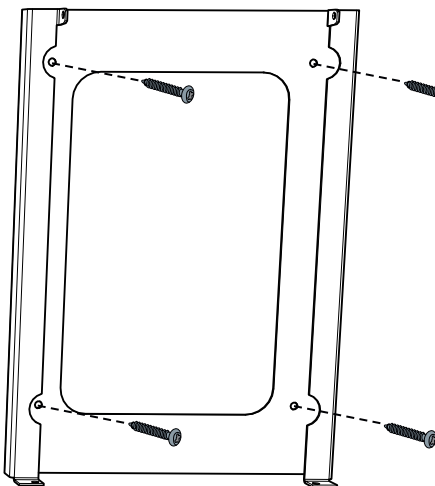
Remove the Wallbox from its package. Do not scratch the surface of the Wallbox after removal from the package.

When selecting installation site, take into account the following:

- The minimum space needed for operating and maintenance.
- Make sure that the wall material is suitable and robust. The mounting surface should be flat and vertical.
- In order to ensure the optimal charging performance, the charging unit should not be exposed to direct sunlight.

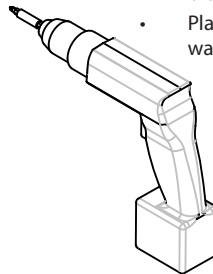


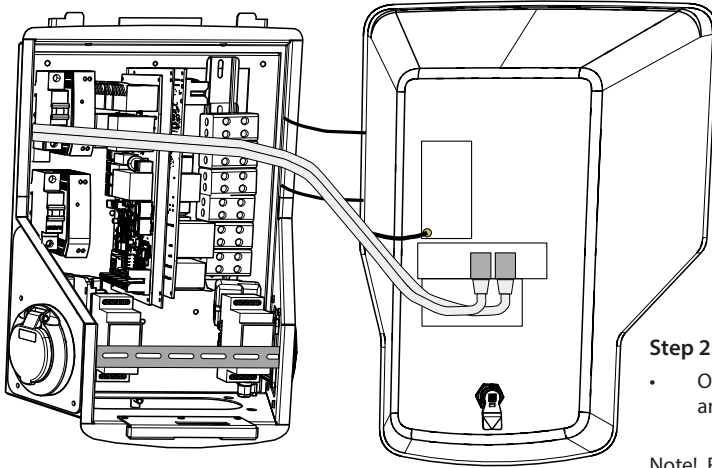
5.2. Wall Bracket Installation



Step 1

- Drill screw holes for the wall bracket.
- Place the wall bracket on the wall using suitable screws.

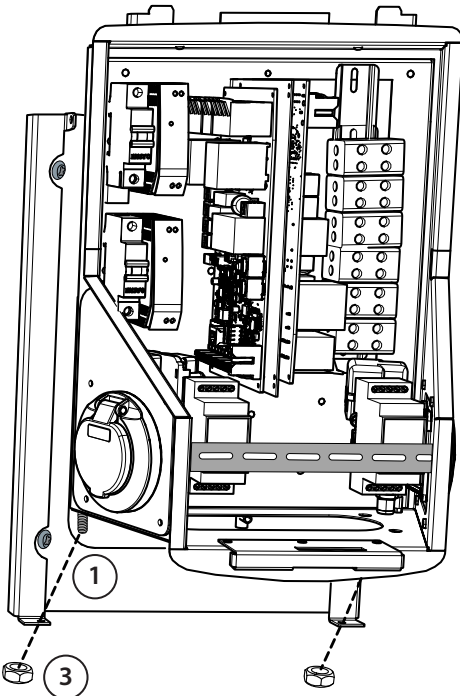




Step 2

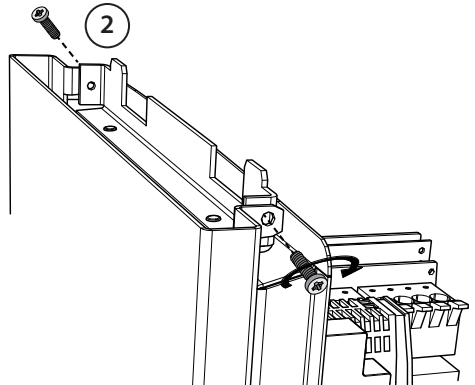
- Open the front cover lock and remove the front cover.

Note! RFID, LED module and 3G antenna cables are attached to the front cover. Be careful not to break any components when you remove the front cover.



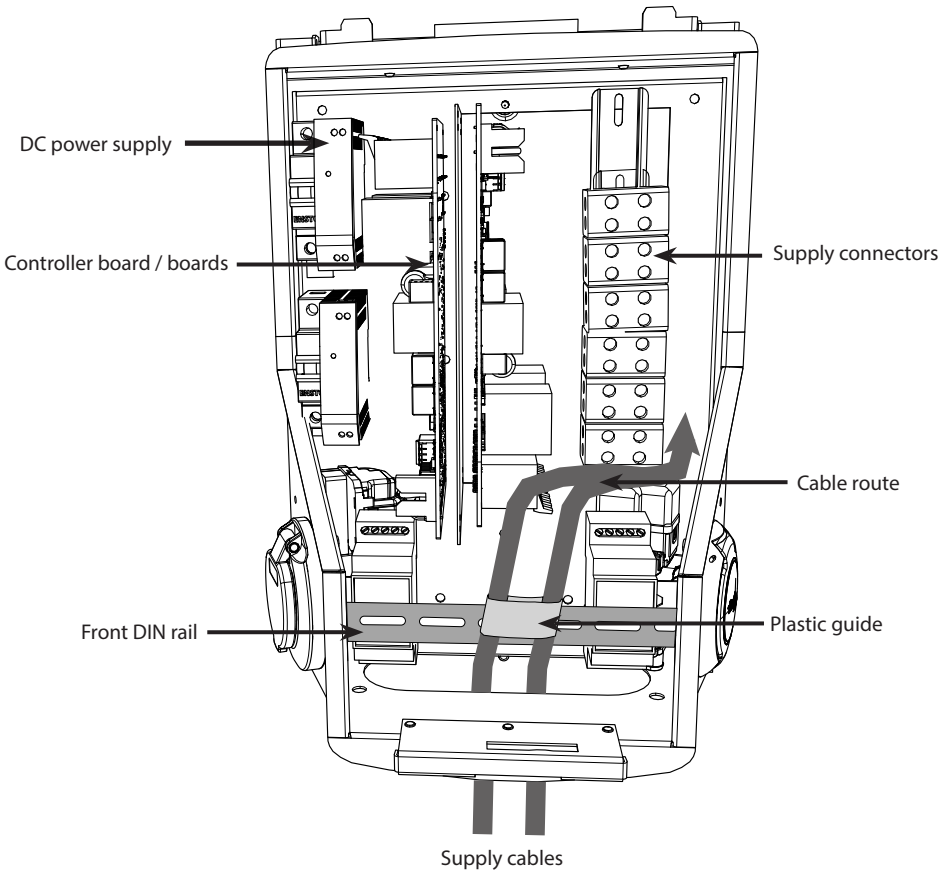
Step 3

- Place the Wallbox on the wall bracket (1).
- Attach the top of the Wallbox on the wall bracket using the screws included in the package (2).
- Secure with nuts included in the package (3).



Step 4

- Remove the front DIN rail if needed to make more space for the installation work.
- Remove the flange at the bottom of the Wallbox frame.
- Open the knock out needed for the cable gland.
- Put the cable gland in place.
- Put the flange in place.
- Pull the supply cable through the cable gland approx. 600 mm.
- Remove the cable sheath approx. 200 mm measured from the cable gland exit.
- Secure the front DIN rail in place.
- Pull the supply cable leads through the plastic guide included the delivery.
- **Run the supply wiring above the DIN rail in such a manner that the outlet locking system is not damaging the supply wires.**
- Cut the supply cable leads in different lengths. Leave the ground lead long enough so that if a fault occurs it is the last one that comes loose.
- Strip the leads 25 mm and connect to the supply connectors.
- Ensure that the RFID, LED module and 3G antenna cables are routed correctly.
- Close the front cover.



6. Supply Connection

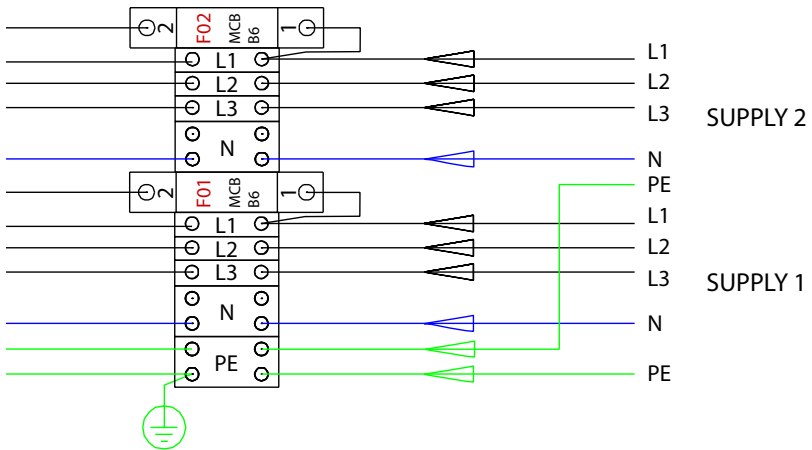
The voltage and current ratings including cables and line protector dimensioning must comply with national regulations. System dimensioning must be done by a qualified electrical designer.

Connect separate supply cables for each charging outlet.

Stranded cables are recommended in Wallbox installations.

A Residual current protection device (RCD) and a circuit breaker (MCB) for each charging outlet must be installed in the switchboard.

Example: Supply connection for Chago Wallbox with 2 outlets



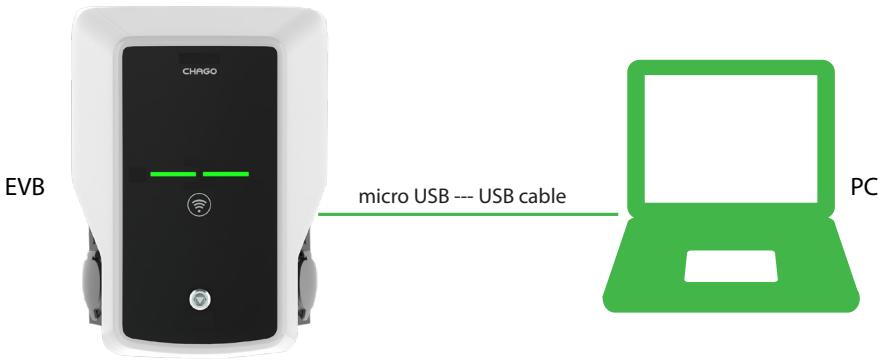
7. Commissioning

Before commissioning the Chago Wallbox must be installed according to the installation instructions.

By default all Chago Wallboxes are operating in free charging mode (standalone operation). In this free charging mode external communication (Ethernet, 2G/3G) is not active. If the Chago Wallbox is going to be connected to some back-office (online mode), first make sure that the basic functionality is working before establishing communication.

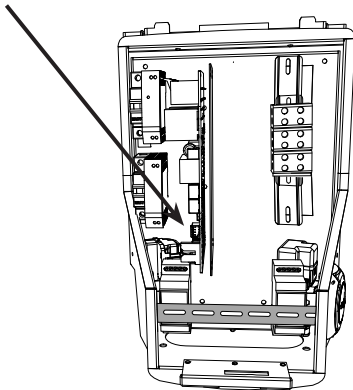
7.1. Connecting to Chago Wallbox

If you want to change the default settings, you must connect to Chago Wallbox via web configuration tool to be able to proceed with the commissioning settings. Use Firefox or Windows Explorer web-browser for configuring.



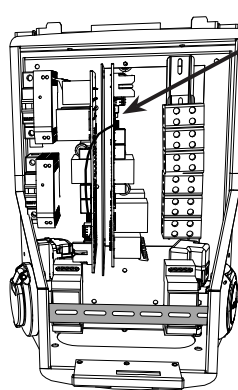
EVB100

micro USB service port



EVB200

micro USB service port



7.2. Configuring to Chago Wallbox

1. If you want to see device status, and settings, login as viewer.

Go to: <http://192.168.123.123/>

Login page opens, select “Master” or “Slave” controller to review settings.



2. If you want to make changes, login as operator.

Connect to SLAVE controller.

Go to: <http://192.168.123.123/operator>

Connect to MASTER controller.

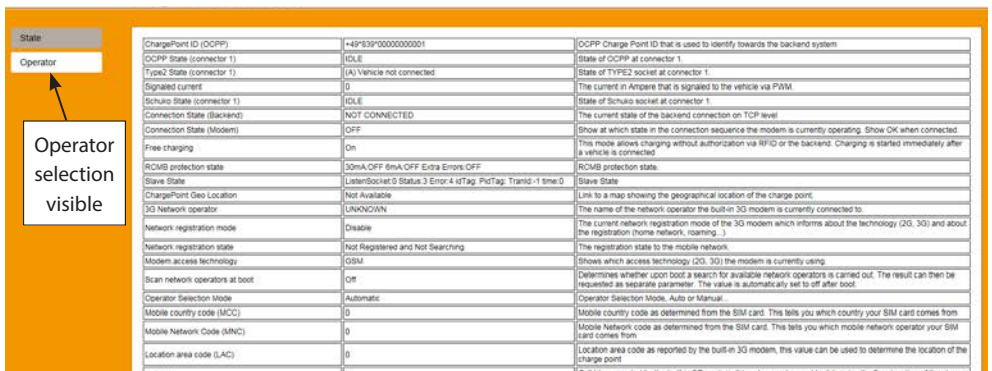
Go to: <http://192.168.123.123:81/operator>

When operator selection is visible you can make changes to connection setting (OCPP, Ethernet, 3G modem etc.)

When browser asks for username and password, enter the following:

User name = operator

Password = yellow_zone



State			
Operator			
ChargePoint ID (OCPP)	+48*E5F*0000000001		OCPP Charge Point ID that is used to identify towards the backend system
OCPP state (connector 1)	IDLE		State of OCPP at connector 1.
Type2 State (connector 1)	(A) Vehicle not connected		State of TYPE2 socket at connector 1.
Signalled current	0		The current in Ampere that is signalled to the vehicle via PWM.
Schuko State (connector 1)	IDLE		State of Schuko socket at connector 1.
Connection State (Backend)	NOT CONNECTED		The current state of the backend connection on TCP level
Connection State (Modem)	OFF		Show at which state in the connection sequence the modem is currently operating. Show OK when connected.
Free charging	On		This mode allows charging without authorization via RFID or the backend. Charging is started immediately after a vehicle is connected.
RCMB protection state	30mA OFF 8mA OFF Extra Errors OFF		RCMB protection state.
Slave State	ListenSocket:0 Status:3 Error:4 idTag: PciTag: Transid:-1 time:0		Slave State
ChargePoint Geo Location	Not Available		Link to a map showing the geographical location of the charge point.
3G Network operator	UNKNOWN		The name of the network operator the built-in 3G modem is currently connected to.
Network registration mode	Disable		The current network registration mode of the 3G modem which informs about the technology (2G, 3G) and about the registration home network (roaming...)
Network registration state	Not Registered and Not Searching		The registration state to the mobile network.
Modem access technology	GSM		Shows which access technology (2G, 3G) the modem is currently using.
Scan network operators at boot	Off		Determines whether upon boot a search for available network operators is carried out. The result can then be requested as separate parameter. The value is automatically set to off after boot.
Operator Selection Mode	Automatic		Operator Selection Mode: Auto or Manual.
Mobile country code (MCC)	0		Mobile country code as determined from the SIM card. This tells you which country your SIM card comes from.
Mobile Network Code (MNC)	0		Mobile Network code as determined from the SIM card. This tells you which mobile network operator your SIM card comes from.
Location area code (LAC)	0		Location area code as reported by the built-in 3G modem, this value can be used to determine the location of the charge point.
			Cell ID as reported by the built-in 3G modem, this value can be used to determine the finer location of the charge point.

7.3. Commissioning Standalone Charging Point

1.a) Free Charging

By default "Free Charging" is on. Charging starts immediately after a vehicle is connected. Authorization using a RFID tag or via backend is not in use.

1. Open the front cover.
2. Switch F01 / F02 ON.
3. Ensure that the DC power supply turns on (green LED).
4. Wait until front cover LED turns from red to green.
Note! The startup takes approx. 1 - 2 minutes.
5. The unit is ready for use in "**Free charging**" mode.

Note! By default the maximum charging current is 32 A. The maximum charging current can be changed. Login to the charging point and enter the new maximum current with parameter "**Operator Current Limit (A)**". Apply changes to Master and Slave controllers separately. See chapter 7.1 and 7.2 for details.

Energy management from second meter	Off ▾	Enabling of energy Management from second meter
Current limit for energy management from second meter	80 <input type="text"/>	Current limit for energy management from second meter in Ampere (A)
Energy management from external input	DISABLE ▾	Enabling of energy Management from external input
Current limit for energy management from external input	16 <input type="text"/>	Single Phase RMS current limit for energy management from external input in Am 80 A. Set to 0A to pause charging

Note! Supply phase configuration. By default the charging point is configured with 3-phase supply. In case of 1-phase supply, change the phase configuration. Login to the charging point and enter the existing phase parameter "**Phases connected to the Charge Point**". Apply changes to Master and Slave controllers separately. See chapter 7.1 and 7.2 for details.

Power source voltage	230 <input type="text"/>	Single phase RMS voltage of the power source feeding the charge calculation from power values from meter
Phases connected to the Charge Point	L1 + L2 + L3 ▾	This parameter describes how many and which phases are used
Language of Display	Multi-Language EN-DE-FR-NL ▾	The language of display texts on the LCD display, if available. Only

1.b) Authorized charging

Charging starts when showing RFID tag to the RFID reader.

1. Open the front cover.
2. Switch F01 / F02 ON.
3. Ensure that the DC power supply turns on (green LED).
4. Wait until the front cover LED turns from red to green.
Note! The startup takes approx. 1 - 2 minutes.
5. Connect your service laptop to Wallbox by using a micro-USB service port on the controller board.
6. Log in <http://192.168.123.123:81/operator>.
7. Select "**Free charging**" mode off.

8. Add RFID ID's on the internal memory of the charging point:

Note: List of colon-separated IDs for the cache. A maximum of 80 entries are shown. To clear the cache, the list must be empty. The listed IDs are added, while the other cache entries are not deleted. See the examples below.

List of entries in cache	ad51b6c_3E240811	List of colon-separated IDs for the cache. A maximum of 80 entries are shown. To clear the cache, the list must be empty. The listed IDs are added, while the other
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9. When ready, click "**Save & Restart**" to active the new settings.
10. Wait until the front cover LED turns to green.
11. Close the front cover.

7.4. Commissioning Online Charging Point

2.a) Configuring Ethernet operation

1. Open the front cover.
2. Switch F01 / F02 ON.
3. Ensure that the DC power supply turns on (green LED).
4. Wait until front cover LED turns from red to green.
Note! The startup takes approx. 1 - 2 minutes.
5. Connect your service laptop to Wallbox by using micro-USB service port.
6. Log in <http://192.168.123.123:81/operator>
7. In order to set the unit to online mode the following settings must be activated:

Back-end connection settings:

- ◇ Charging point ID (OCPP), by default serial number of the controller (master / slave)
- ◇ Connection type, select "Ethernet"
- ◇ OCPP mode (depends on the communication protocol the connected back-end supports)
- ◇ SOAP / JSON OCPP URL (back-end connection address), select SOAP or JSON based on used OCPP mode

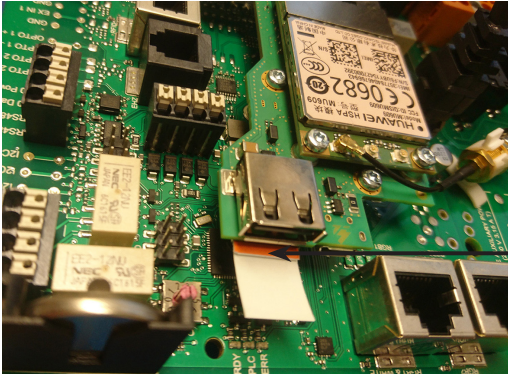
Ethernet connection settings:

- ◇ DHCP in use

8. When ready, click "**Save & Restart**" to active the new settings.
9. Wait until the front cover LED turns to green.
10. Ensure that the set charging point ID is visible at the used back-end system.
11. Close the front cover.

2.b) Configuring 3G Operation

One "micro-SIM" card is needed per Wallbox unit.



"Micro-SIM" card

If you need to remove the "micro-SIM" card, pull the white tape which is attached on the rear side of the card.

1. Open the front cover.
2. Switch F01 / F02 ON.
3. Ensure that the DC power supply turns on (green LED).
4. Wait until front cover LED turns from red to green.
Note! The startup takes approx. 1 - 2 minutes.
5. Connect your service laptop to Wallbox by using micro-USB service port.
6. Log in <http://192.168.123.123:81/operator>
7. In order to set the unit to online mode the following settings must be activated:

Back-end connection settings:

- ◇ Charging point ID (OCPP), by default serial number of the controller (master / slave)
- ◇ Connection type, select "3G"
- ◇ OCPP mode (depends on the communication protocol the connected back-end supports)
- ◇ SOAP / JSON OCPP URL (back-end connection address), select SOAP or JSON based on used OCPP mode

3G modem settings:

- ◇ APN name (operator dependent)
- ◇ APN username / password (if in use)
- ◇ SIM card PIN number (if NoPin version)

8. When ready, click "**Save & Restart**" to activate the new settings.
9. Wait until the front cover LED turns to green.
10. Ensure that the set charging point ID is visible at the used back-end system.
11. Close the front cover.

8. User Instructions

8.1. User Interfaces

LED signal lights will show the status of the charging point as described below:

Charging point status	LED light	LED operation
Charging point free and ready to use	Green	Stable
RFID read, user login ongoing	Green	Flashing
User login fail, access denied	Red	Stable
User login passed, charging allowed	Green	Waving
While connecting the cable	Green	Flashing twice
Vehicle connected, charging not started	Green	Waving
Vehicle connected, starts charging	Blue	Waving
Charging ongoing	Blue	Stable
Error state	Red	Stable

8.2. Charging

Free charging

- Plug in your electric vehicle to start charging.
- Unplug your electric vehicle to stop charging.

Charging with RFID

You must have an RFID tag which has a permission to access the charging point.

Start Charging with RFID

- When the charging point is free and the indicator light shows green, you can start a charging event.
- Show the RFID tag to the RFID reading area.
- When the RFID tag is read, the charging point will flash green and verify the user permission to charge. If the user login is failed, the indicator light turns to red. If the user login is passed, the indicator light turns to waving green.
- Now you are logged in to the charging station.
- Plug in the electric vehicle for charging. The indicator light turns to stable blue.

Stop Charging with RFID

- Show the RFID tag to the RFID reading area.
- When you stop the charging event, the indicator light turns to waving green and you are able to unplug the charging cable.
- After you have unplugged, you are logged out from the charging point and the charging point is free for the next user.

9. Technical Information

Electrical Connections	
Nominal supply voltage	1-ph/3-ph, 230/400VAC, 50Hz
Charging current (nominal)	3x32A, configurable between 6A...32A
Charging power (nominal)	Max. 22kW per charging outlet
Supply connections and terminals	L1, L2, L3, N, PE Cu 2.5–50 mm ² , Al 6–50 mm ² Recommended 10 mm ² at nominal power Tightening torque Nm: 4 Nm (2.5 - 4 mm ²), 12 Nm (6 - 50 mm ²)

Design and Mechanics	
Materials	Frame: Painted steel frame Cover: Plastic
Color	Frame: Painted steel frame (RAL7021 "Anthracite") Cover: White plastic and black tape
Weight	approx. 10 kg, depends on product configuration
IP class	IP54
IK class	IK10
Operating temperature	-30 °C...+50 °C
Standards	IEC 61851-1 IEC 62196-2 (socket outlets/plugs) IEC 61439-1:2011
Approvals / markings	CE

User Interface	
Socket outlet	Mode 3 / Type 2 or Mode 3
Charging status indication	3-color LED (Green/Ready, Blue/Charging, Red/Error)
Use access	RFID (ISO/IEC 14443A, ISO/IEC 15693) Free access Mobile apps via 3rd party operators
Current measurement	Integrated/on-board measurement

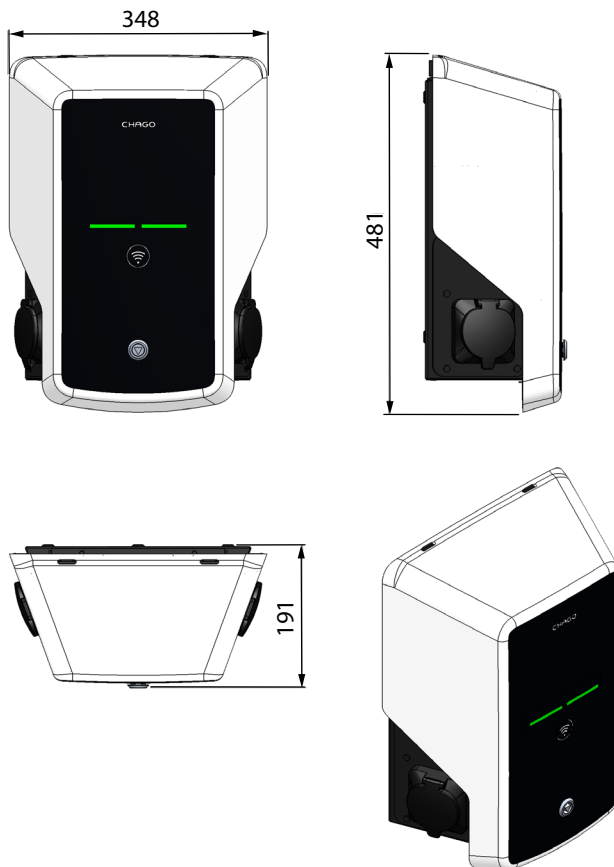
Safety Features	
RCMB	On-board: RCMB (6mA DC residual current detection)
RCD	To be located to distribution board (at least type A, 30mA)
MCB	To be located to distribution board (class C, nominal current 32A)
Control voltage	12VDC
Temperature control	High operating temperature, such as direct sunlight, can cause reduced charging current or temporary interruption in the charging procedure

Control and Communication	
Operation mode	Standalone/Online
Wireless	2G/3G
Wired	Ethernet
Protocol	Ocpp1.5 or Ocpp1.6

10. Warranty

Warranty conditions, see www.chago.com.

11. Dimension Drawing



12. Installation / Commissioning Checklist

Introduction

This checklist is a guidance for ensuring both mechanical and electrical installation as well as commissioning of the Chago Wallbox.

Before Installation

Read the product specific installation instructions before performing any actions.



Note! Only trained electrician may perform the installation in accordance with the applicable local and national electrical rules and standards.

Checking the Installation

Go through the visual, mechanical and electrical installation when the charging point is un-powered.

CATEGORY	X	ITEM	NOTES
Overall look		Ordered material has been received.	
		Protective plastic wrapping have been removed.	
		No scratches or damages may be seen.	
Mechanical installation		Charging point is fixed properly on the wall.	
		The front cover opens and closes smoothly.	
Electrical installation		Charging point's power supply capacity meets electrical planning (cable size, MCB...).	Review local electrical design plan.
		Gently push the charging point with a hand to create vibration to ensure no bad contact / connection exist (wire or PCB).	
		Gently push the controller to create vibration to ensure no bad contact / connection exist (wire or PCB).	
		Check tightness of the PE-cable screw.	
		Power supply cables (L1, L2, L3, N and PE) are properly connected.	
		Insulation of power supply cables is intact (L1, L2, L3, N and PE)	
		Voltage between PE and N is less than 10 V	
		PE quality is less than 3 Ω	
Operational check		All the LED states / color (green, blue, red) and RFID reader is functioning.	Create fail and charge (with RFID tag). Red at bootup, green at idle and blue while charging.
		Available electricity at the sockets. All the contacts (L1, L2, L3) must be tested.	Use Mode 3 tester.
		Verify that when charging point LED is green, there is no power at the socket contact (L1, L2, L3, N).	
		With Mode 3 tester, test the functioning of Mode 3 (from green to blue).	

Ready for use	Correct SW in use	
	Correct operating mode <ul style="list-style-type: none"> • Standalone • Online 	

13. Maintenance / Preventive Maintenance Instructions

1 x per year



WARNING! *Danger of electrical shock or injury.*

Disconnect power before working inside the device or removing any components.

X	MAINTENANCE ACTION
	Retighten all screws (electric components).
	Check the Mode 3 socket and if needed change it (burn or parts damage) (socket cost not under warranty).
	Check the charging cable and if needed change it.
	Check the sealings.
	Gently push the charging point with a hand to create vibration to ensure no bad contact / connection exist (wire or PCB).
	Gently push the controller to create vibration to ensure no bad contact / connection exist (wire or PCB).
	Create fail and charge (with RFID card) to check all the LED states / color (green, blue, red) and RFID reader is functioning.
	Test available electricity at the sockets; use Mode 3 tester if needed. All the contacts (L1, L2, L3 must be tested).
	With Mode 3 tester, test the functioning of Mode 3 (from green to blue).
	Check tightness of the PE-cable screw.
	Test voltage between PE and N (must be less than 10 V).
	Test PE quality (must be less than 3 Ω).
	SW update if needed (if in service contract).
	Restart the station from F0, ensure it will restart properly.

14. Troubleshooting

Charging station is off, no lights on

Issue	Corrective action
Mains voltage does not exist in supply connector L1.	Ensure proper power supply.
Circuit breaker F0 is off.	Turn F0 on.
12V power unit has no LED on.	Ensure 230V power supply to 12V power unit; if ok replace the power unit.
The controller has no PWR LED on.	Ensure power supply to the controller; if ok replace the controller.

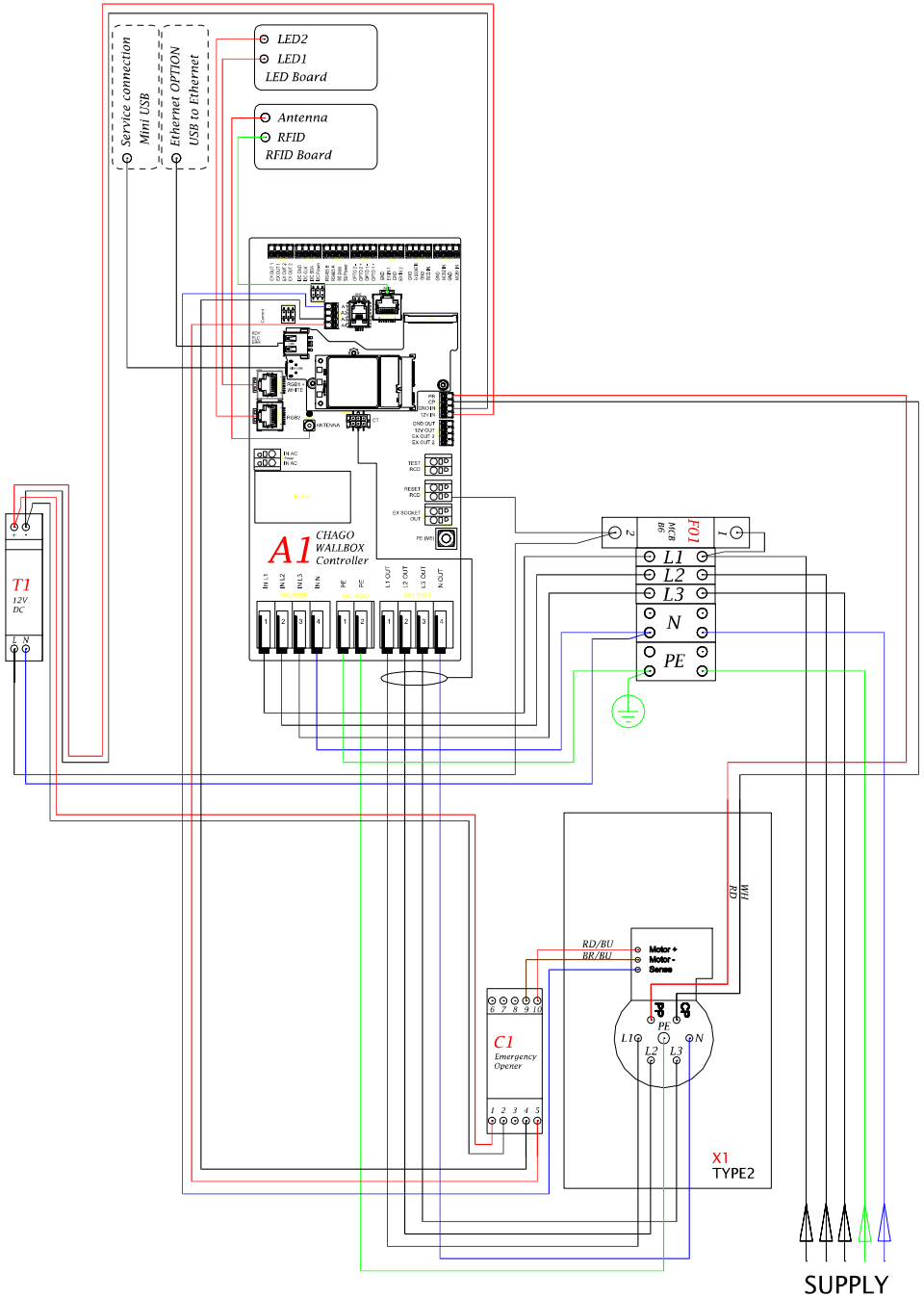
Charging cable is locked in Mode 3 socket outlet

Issue	Corrective action
Unexpected fault has occurred while power is on.	Option 1: If equipped with Mode 3 lock release functionality, turn off the power from F0 and pull charging cable out from the socket. Option 2: Turn off the power. Switch Mode 3 lock manually into open position.
Power is off.	Open the front cover. Switch Mode 3 lock into open position. Note! If the station has a Mode 3 Lock Release functionality, then during power cut the Mode 3 lock opens automatically.

Configuration via web browser

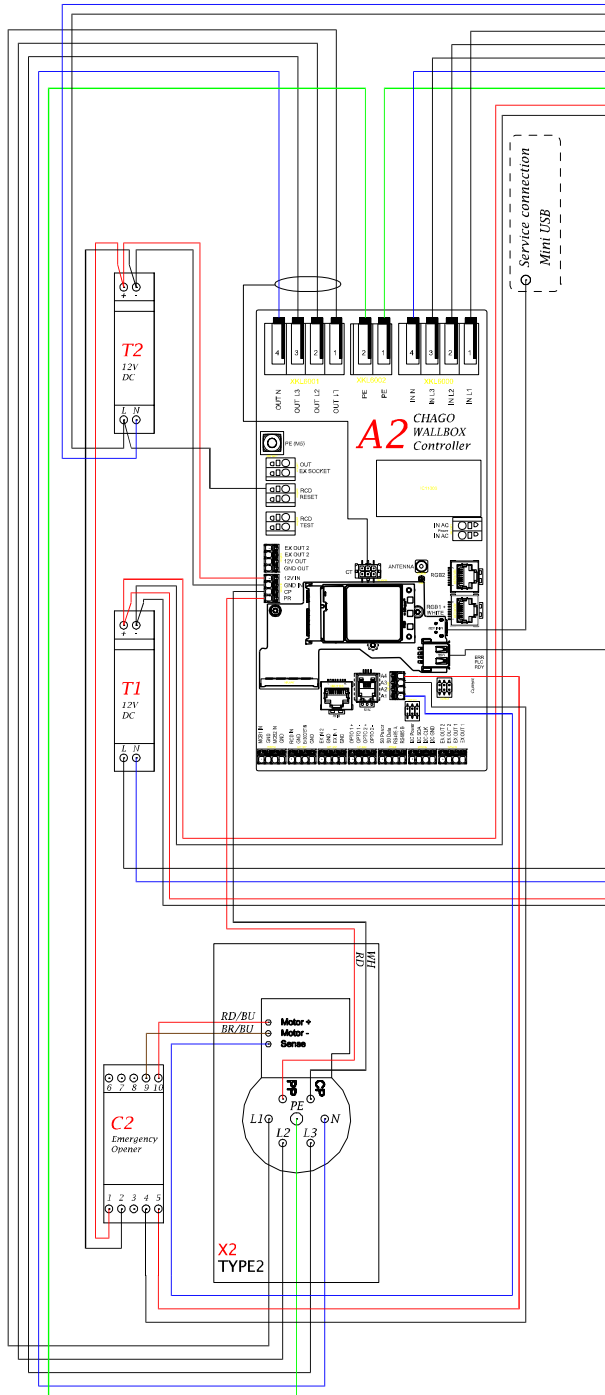
Issue	Corrective action
PC does not recognize micro USB plug and connection to the controller cannot be established via web browser.	Check from Windows 7 / 10 operating system settings via "Device Manager" that RNDIS network adapter is available. If not, update the related Windows driver.

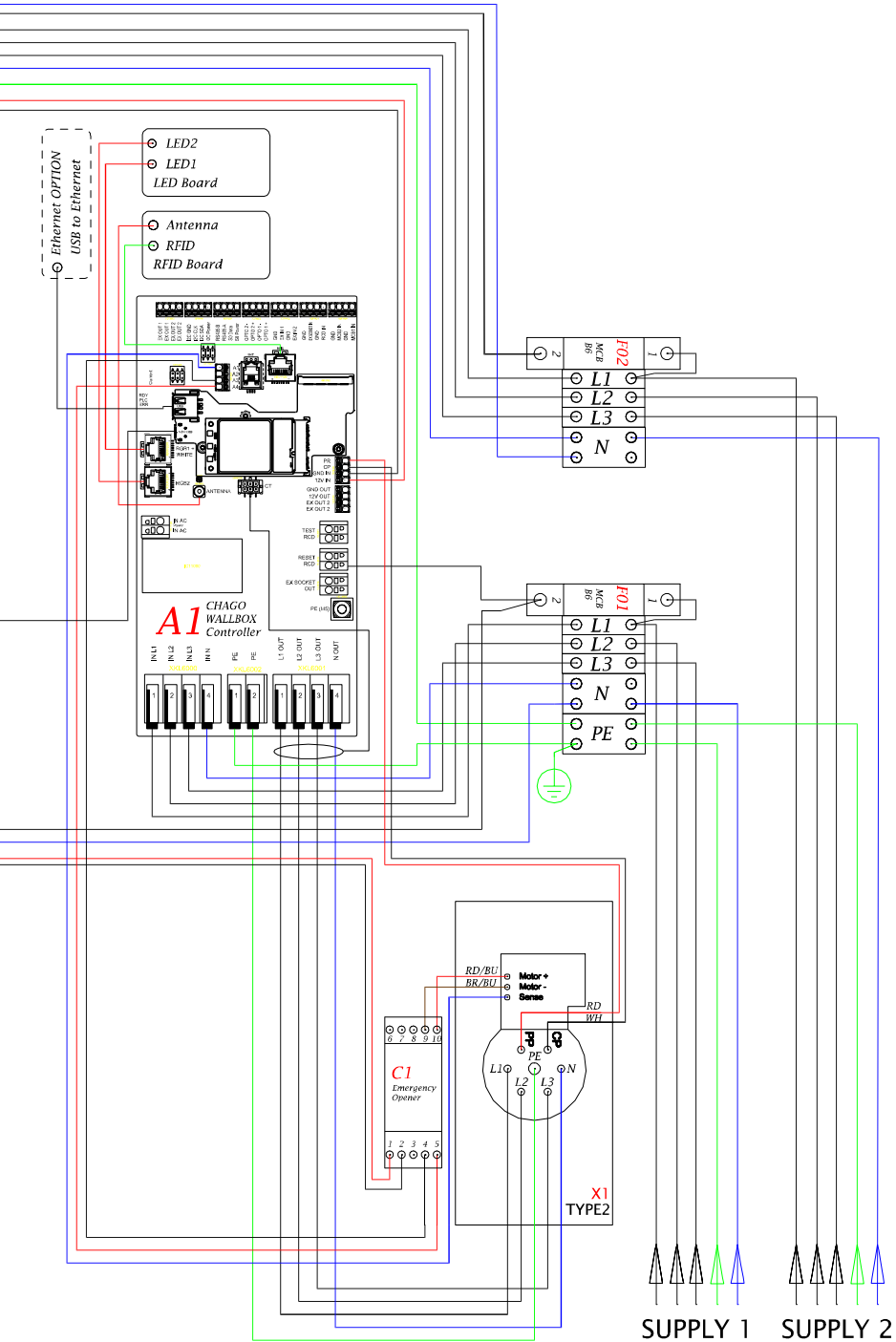
15. EVB100 Internal Circuit Example



SUPPLY

16. EVB200 Internal Circuit Example





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