

HOME BOX PLUS

EV CHARGING STATION + ENERGY METER



Ratio
ELECTRIC

Manual

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IMPORTANT SAFETY INSTRUCTIONS

Carefully read these instructions and the charging instructions in your vehicle owner's handbook before charging your electrical vehicle.

Take special note of all information marked with the following symbols:

Note: *This means pay particular attention. Notes contain helpful suggestions*



Caution: *This symbol means be careful. You are capable of doing something that might result in damage to equipment.*



Warning: *This symbol means danger. You are in a situation that could cause bodily injury. Before you work on any electrical equipment, be aware of the hazards involved with electrical circuitry and standard practices for preventing accidents.*

Safety Guidelines

- ❖ Use this Home Box to charge electric vehicles equipped with a conductive charge port only. See the vehicle's owner's handbook to determine if the vehicle is equipped with a conductive charge port.
- ❖ Make certain the Home Box's supply cable is positioned so it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- ❖ There are no user serviceable parts inside. Refer to the Customer Support section in this manual for service information. Do not attempt to repair or service the Home Box yourself.
- ❖ Do not operate your Home Box if it or the supply cable or housing is visibly damaged. Switch off the MCB in the electrical cabinet and contact your Service Representative for service immediately. Refer to the Customer Support section in the manual for information on the Service Representative in your area.

SAFETY INFORMATION



Warning: When using electric products, basic precautions should always be followed, including the following:

- Read all the safety warnings and instructions before using the product. Failure to follow the warnings and the instructions may result in electric shock, fire and / or serious injury.
- This device should be supervised when used around children.
- Do not put fingers into the electric vehicle connector.
- Do not use this product if the flexible power cord or EV cable are frayed, have broken insulation, or any other signs of damage.
- Do not use this product if the enclosure or the EV connector are broken, cracked, open, or show any other indication of damage



Warning: If, at any time, you think the equipment is unsafe, switch off the MCB in your electrical cabinet and immediately contact Customer Support for service. Do not use your Home Box until the problem is identified and corrected.



Caution: Children should not be allowed to use this Home Box. Do not allow children to play in or around the Home Box. Close supervision of children is necessary when the Home Box is used.



Caution: Do not open the enclosure.

Note: This Home Box is designed according the IEC61851 Mode 3 standard.

Note: This product must be grounded/protective earthed. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment grounding conductor and a grounding plug.



Warning: Improper connection of the equipment-grounding conductor is able to result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded.

INSTALLATION

1. The installation must be done by a qualified and licenced electrician according the local legislation.
2. The electrical installation must be free of power during the entire installation period.
3. Since this Charging Unit uses circuits that reference to ground, no Megging must be done after connecting to power.
4. Wiring and protection:

Version	Wiring *	Mains Circuit Breaker (MCB)	Residual Current Device (RCD)
16A / 1 Phase	3G2,50mm ²	20A B/C-Characteristic	30mA, Type A
16A / 3 Phase	5G2,50mm ²	20A C-Characteristic	30mA, Type A
32A / 1 Phase	3G6,00mm ²	40A B/C-Characteristic	30mA, Type A
32A / 3 Phase	5G6,00mm ²	40A C-Characteristic	30mA, Type A

* For cable length upto 25m

PLEASE NOTE: All charges include an AC (> 30mA) and DC (> 6mA) residual-current-detection. Always place a type A RCD and the MCB (or combination unit) in the electrical cabinet.

5. Open bottom cover of the Charge Station (5 screws – see picture). Carefully brake out required cable opening for incoming power cable and charge cable.
Use supplied M25 cable gland to fix power cable from the bottom. Use supplied grommet to fix power cable from the back. Use supplied M25 cable gland to fix charge cable.

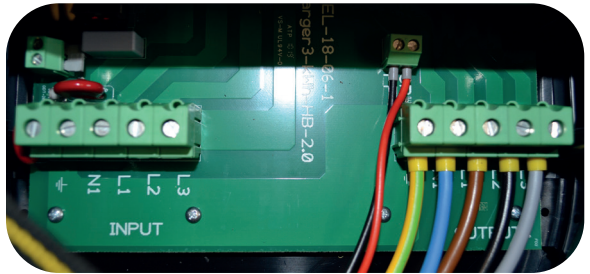


6. Use 4 wood screws M4,5x35mm to mount Charging Station on the wall. The Charging Station should be installed between 0,80m and 1,20m from bottom to the ground.

7. Connect in-coming power to the left terminal block.

Single Phase :
L1=Brown
N= Blue
Earth= Green/Yellow

3 Phase
L1=Brown
L2=Black
L3=Grey
N=Blue
Earth=Green/Yellow



8. Close bottom cover and carefully slide metallized cover over the Charge Station.

IMPORTANT: OUTLET VERSION - before closing outlet cover, be sure the outlet is unlocked!

SETUP MENU

To enter the setup menu, keep the middle button pressed for 10 seconds.

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In the menu you can choose between SETUP:

1. CHG MODE
2. I-MIN
3. I-MAX
4. READOUT -> ERR MEMORY
5. I-CAL -> CALIBRATION

You can use the left or right arrow button to switch between the settings.
Confirm your choice always with the middle button.

1. SETUP CHG MODE

SETUP
<- CHG MODE ->



In the setup CHG MODE you can choose between:

SETUP CHG MODE
<- FIXED 16 ->

SETUP CHG MODE
<- FIXED 32 ->

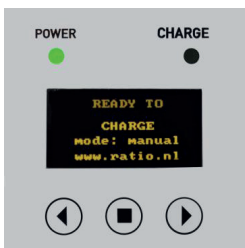
SETUP CHG MODE
<- MANUAL ->

**FIXED 16**

with this option you can set the charging current to 16A

FIXED 32

with this option you can set the charging current to 32A

**MANUAL**

you can adjust the charging current between 6A and 32A

SMART

not activated yet

You can change the setup by pressing the left or right arrow button.
After your choice has been made confirm by pressing the middle button.

2. SETUP I-MIN

Here you can set the minimum charging current.
You can choose between 6A and 31A with steps of 2A.
To make your choice please use the left or right arrow button. To confirm press the middle button.



3. SETUP I-MAX

SETUP
<- I-MAX ->

Here you can set the maximum charging current. You can choose between 7A and 32A with steps of 2A. To make your choice please use the left or right arrow button. To confirm press the middle button.



4. READOUT -> ERR MEMORY

SETUP
<- ERR MEMORY ->

Confirm with the middle button to enter the error memory screen. You can see max. 10 error codes. With the left and right arrow buttons you can scroll to the last code. To return into the setup menu please press the middle button. In case of error message please contact Ratio Electric for support.



5. I-CAL -> CALIBRATION

SETUP
<- I-CAL ->

The calibration has already been done. It is possible to calibrate the charger only once.

1 PHASE CHARGE STATION

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Press briefly the middle button to start. After starting, the charger is always ready to charge with the previous settings. If you want to change the settings enter the setup menu (see page 7 SETUP MENU)

READY TO
CHARGE

You can reach the next screen with the right arrow button.

The menu below can be reached with the arrow button from a READY TO CHARGE screen but also from CHARGING screen.

Here you can find more information about the consumption:

I: current (A)
U: voltage (V)
P: power (kWh)
Et: total kWh value (cumulatieve, you can't reset it)

I:	A
U:	V
P:	kWh
Et:	kWh

By pressing the middle button, you can see the meter readings of the last 5 sessions.

Et (1):	kWh
Et (2):	kWh
Et (3):	kWh
Et (4):	kWh
Et (5):	kWh

The values can be deleted by pressing the left and right arrow buttons at the same time.

With the middle button you can go back to the previous screen.

CHARGER ERROR

CHARGER
NOT READY

ERRCODE:

In case of the charger error, you will see the error screen with the error code. If multiple errors occur the codes will alternate.

By error message please contact Ratio Electric for support.

3 PHASE CHARGE STATION

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Press briefly the middle button to start. After starting, the charger is always ready to charge with the previous settings. If you want to change the settings enter the setup menu (see page 7 SETUP MENU)

READY TO
CHARGE

You can reach the next screen with the left or right arrow button.

The menu's below can be reached with the arrow button from a READY TO CHARGE screen but also from CHARGING screen.

Here you can find more information about the consumption:

I: current (A)

I 1:	A
I 2:	A
I 3:	A

U: voltage (V)

U 1:	V
U 2:	V
U 3:	V

P: power (kWh)

Et: total kWh value
(cumulative,
you can't reset it)

P 1:	kWh
P 2:	kWh
P 3:	kWh
Et:	kWh

By pressing the middle button, you can see the meter readings of the last 5 sessions.

Et (1):	kWh
Et (2):	kWh
Et (3):	kWh
Et (4):	kWh
Et (5):	kWh

The values can be deleted by pressing the left and right arrow buttons at the same time.

With the middle button you can go back to the previous screen.

CHARGER ERROR

<p>CHARGER NOT READY</p> <p>ERRCODE:</p>
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In case of the charger error, you will see the error screen with the error code. If multiple errors occur the codes will alternate.

By error message please contact Ratio Electric for support.

SPECIFICATIONS

Charging System	IEC 61851 Mode 3
Cable version car connector	IEC 62196 Type 1 and type 2
Outlet version	IEC 62196 Type 2 Outlet
Power input	single-phase or 3 phase, 230V-400V, 16 A and 32A
Power output	3.7kW, 7.4kW, 11kW, 22kW
Earth leakage protection	AC 30mA, DC 6mA
Dimensions	400mm x 250mm x 105mm
Housing	PC/ABS
Weight	4 kg (incl. cable)
Environment Operating	IP54, rain-tight
Temperature	-25°C to +40°C
Outlet version	IEC 62196 Type 2 Outlet
Marking	CE

MAINTENANCE

The Home Box requires no maintenance other than occasional cleaning.



Warning: Switch off your Home Box before cleaning the unit.



Warning To reduce the risk of electrical shock or equipment damage, be cautious while cleaning the connectors and case.

Clean the Home Box using a soft cloth lightly moistened with mild detergent solution. Never use any type of abrasive pad, scouring powder, or flammable solvents such as alcohol or benzene.

FCC INFORMATION

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This product has been designed to protect against Radio Frequency Interference (RFI). However there are some instances where high powered radio signals or nearby RF-producing equipment (such as digital phones, RF communications equipment, etc.) could affect operation.

If interference to your charge station is suspected, we suggest the following steps be taken before consulting your Service Representative for assistance:

1. Reorient or relocate nearby electrical appliances or equipment during charging.
2. Turn off nearby electrical appliances or equipment during charging.



Caution: Changes or modifications to this product by other than an authorized service facility may void FCC compliance.

WARRANTY INFORMATION

Ratio Electric B.V. warrants this product to be free from defects in material, manufacture and design for a period of 3 years after the date of purchase. If this product is defective in materials, manufacture or design during this warranty period, Ratio Electric B.V. will, at its option, repair or replace the product.

Repair parts and/or replacement products may be either new or reconditioned at Ratio Electric B.V. discretion.

This limited Carry-In Warranty does not include service to repair damage from improper installation, improper connections with peripherals, external electrical fault, accident, disaster, misuse, vandalism, unauthorized alteration or repair, abuse or modifications to the product not approved in writing by Ratio Electric B.V.

Any evidence of an attempt to disassemble the Home Box will void this warranty.

Any service repair outside the scope of this limited warranty shall be at applicable rates and terms then in effect.

CONTACT / CUSTOMER SUPPORT



Ratio Electric B.V.
Ambachtsstraat 12
NL-3861 RH Nijkerk
The Netherlands
Tel. +31-33-2452360
info@ratio.nl
www.ratio.nl