ORBIS

## energía inteligente

VIARIS UNI
EV SMART CHARGER

INDEX

DESCRIPTION

VIARIS UNI smart chargers have a set of embedded elements that are required to connect the electric vehicle (EV) to the electrical supply in order to recharge.

The VIARIS UNI has been designed with a robust IK10 casing, which requires easy wall mounting and is extremely easy to use.
The operating status of the charger is always visible through its indicator lights.

The VIARIS UNI includes a load modulator that allows the user to adjust the power of the equipment according to the contract in the electrical installation. This modulator allows the VIARIS UNI to regulate the power supplied to the electric vehicle depending on the total consumption of the installation. This prevents unnecessary over-costs and reduces the risk of over-currents in the network.
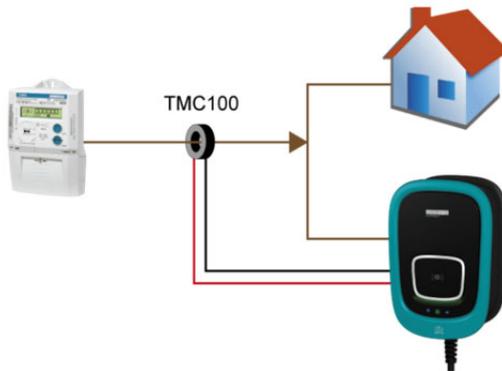
VIARIS UNI chargers perform the charging of electric vehicles via a connection cable (hose) with Type 2 connector, and with charging modes 3 (load modes are specified in EN 61851-1).

Optionally the VIARIS UNI can have an additional Schuko intake (load modes 1 and 2) limited to 14 A.
The Schuko is not controlled with the modulator but can be connected and disconnected by the App or the web, and the App shows the current it consumes and its state. If you exceed 14 A for 5 seconds you disconnect, and to connect it we must use the App or the embedded web.

It has a series of optional accessories that complement the functionality of the equipment, in addition to the VIARIS app for mobile, available on Google Play and App Store for free.

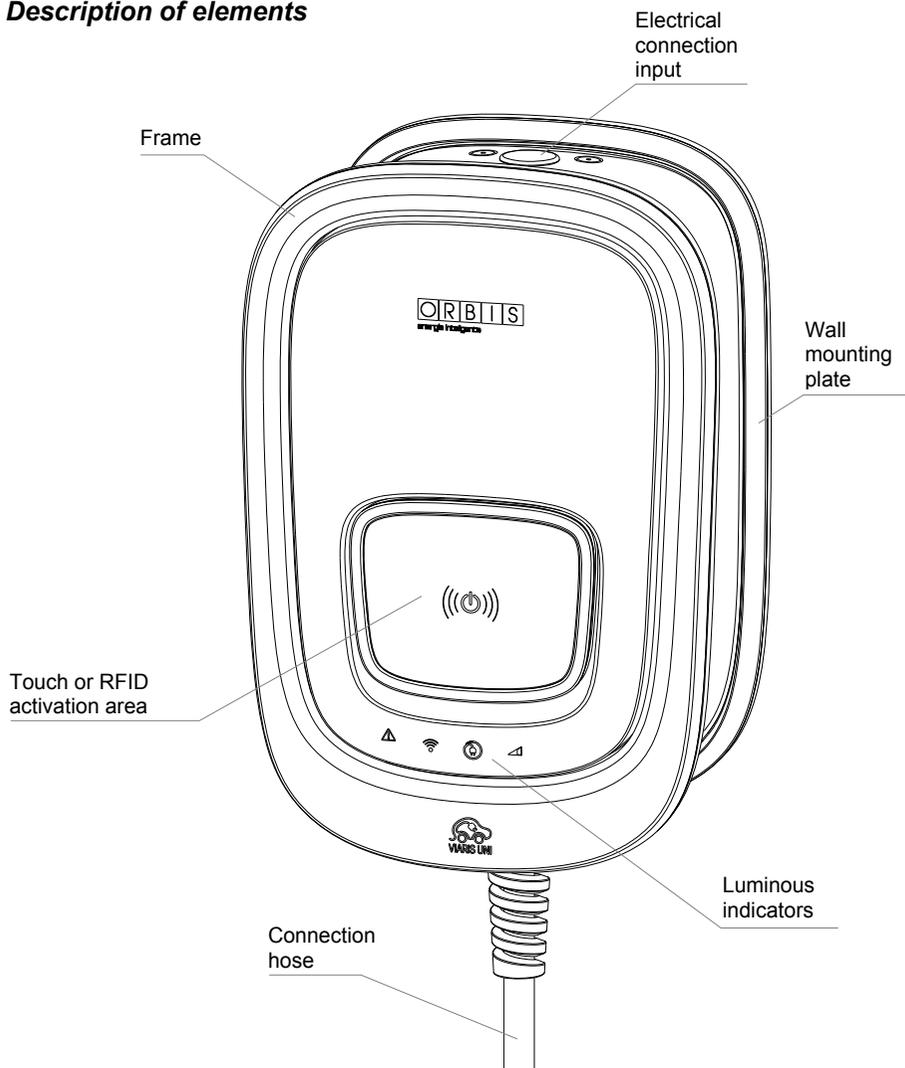*Warning symbols used in this instruction manual:*

ELECTRICAL HAZARD. *There is a risk of electrocution that can cause bodily injury or death if instructions are not followed*

GENERAL ATTENTION

Description of elements

Electrical connection input

Frame

Wall mounting plate

Touch or RFID activation area

Luminous indicators

Connection hose

SMART CHARGER INSTALLATION

Safety warnings

During the installation and operation of the charger, it is necessary to observe the following instructions:

|	
⚠	• Equipment must be installed by authorized and qualified personnel who strictly comply with the instructions of this manual. • Equipment must be installed and activated in compliance with the current low voltage regulation. • Do not use the equipment for other purposes than specified. • Before installing the smart charger, check that it is not damaged. • Before accessing the connection terminals, check that the cables are not under electric voltage. The opening of the enclosure does not imply the absence of voltage in its interior. Only authorized and qualified personnel can open it. • In accordance with the applicable regulations, installation personnel should check if overvoltage protection measures are necessary. • Use only the charging cable specified for each electric vehicle. Under no circumstances should another type of extension cable be used. • In case of malfunction, do not make repairs and immediately contact our Technical Service. • After installation, connection terminals must not be accessed without proper tools. • To protect the smart charger against possible vehicle impacts, it is recommended to install a protective barrier.

Indications on assembly

|	
⚠	• The minimum installation height of the outlets and connection hoses will be 0.6 m above ground level. If the charger is intended for public use, the maximum height will be 1.2 m. In places for people with reduced mobility, it will be between 0.7 m and 1.2 m. (Check the specific instructions of the country where the installation is performed in case other heights are specified). • The connection hose support must be located between 0.4 m and 1.5 m above ground level. • Indoor use only. • The charger must be installed in an upright position and without any surrounding obstacles to allow its maintenance. • Use joints or cable glands to ensure the IP protection rating of the charger.

Wall mounting

Remove the wall mounting plate.
In order to fix the charger to the wall, four holes for Ø10 mm screw anchors (supplied) must be made, using the wall mounting plate as a template.
Then, the wall mounting plate will be screwed in.

Ø10 mm screw anchors wall holes (x4)

UP ⬆

ORBIS VIARIS UNI

Ø10 mm screws (x4)
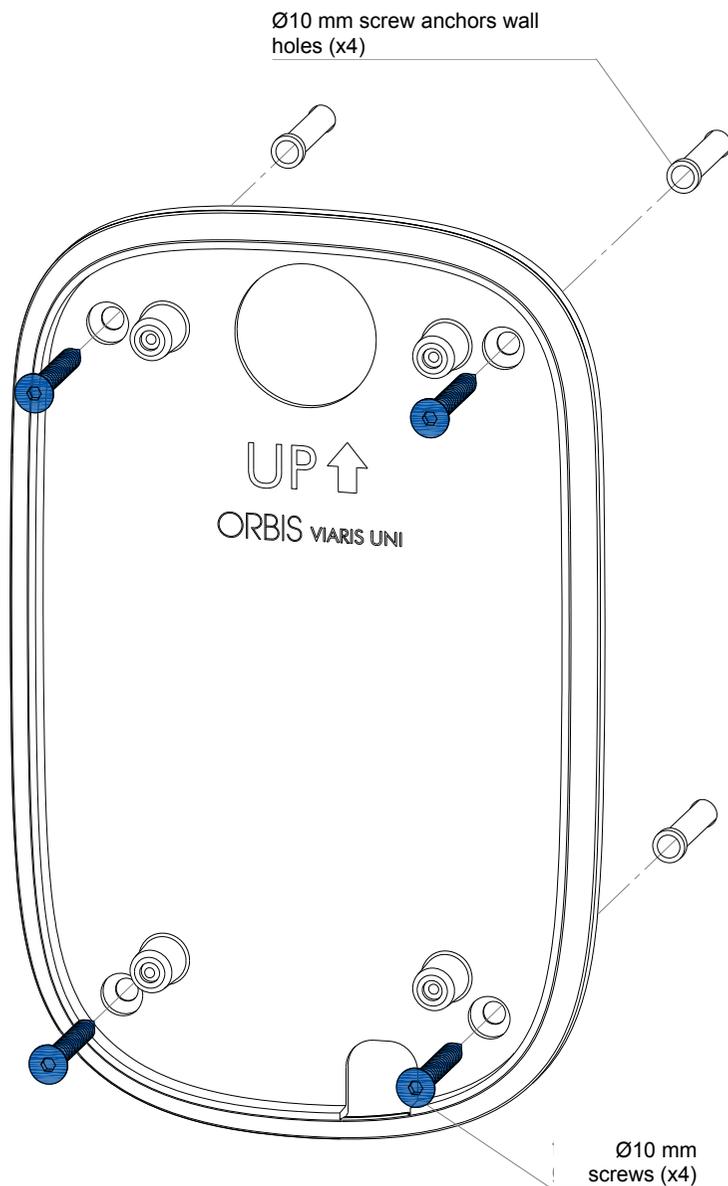
Once the wall mounting plate is fixed, place the charger on and screw it with the four M6 screws supplied.
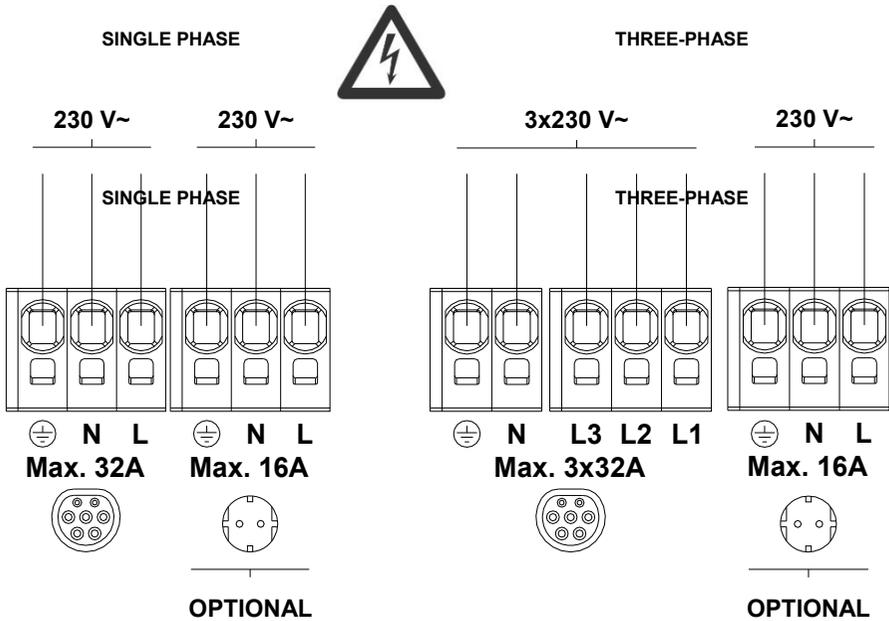
M6 screws (x4)
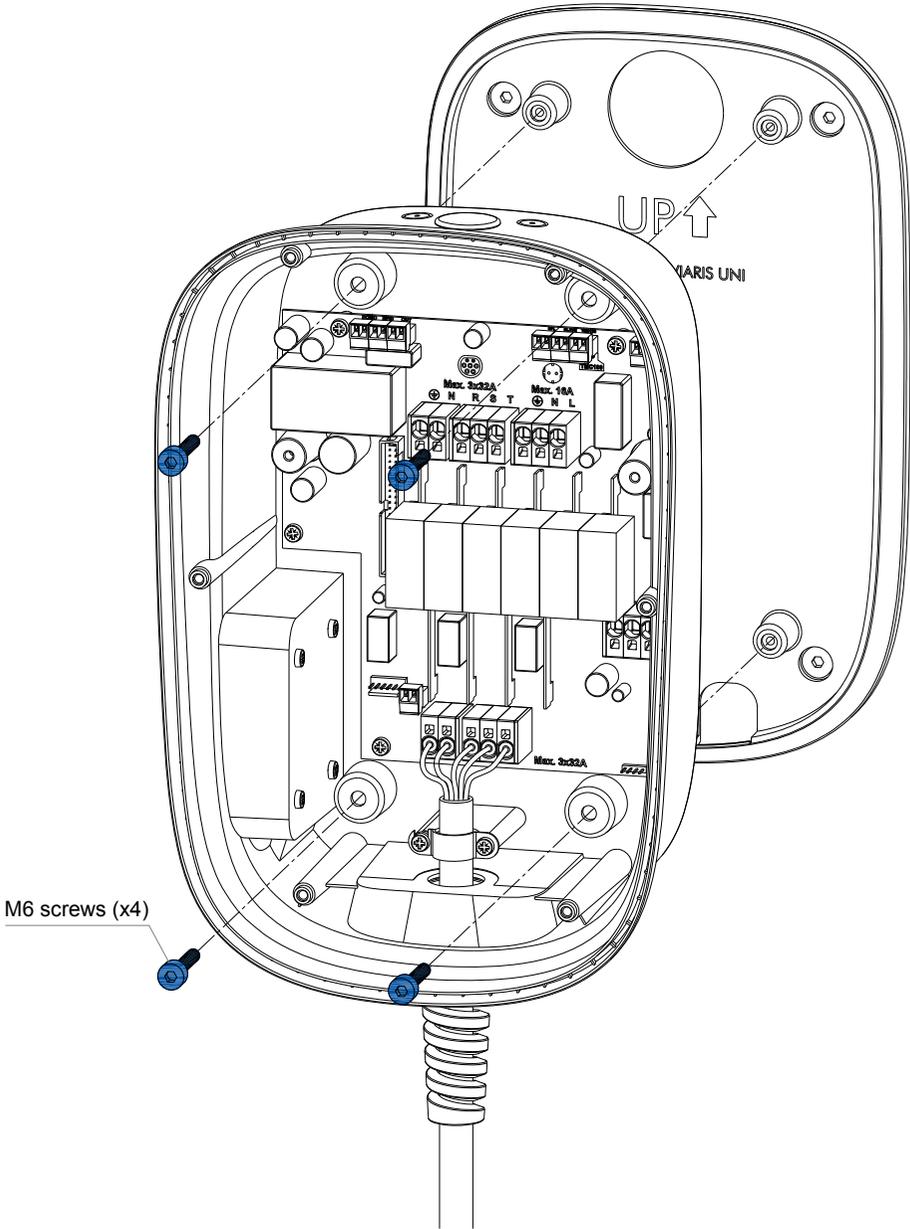
Power connection of the equipment

⚠️ Before accessing the connecting terminals, verify that the cables are not under electric voltage. The opening of the envelope does not imply the absence of tension within it. It may only be opened by authorized and qualified personnel.

Once mounted on the wall, perform electrical connections according to the following connection scheme:

SINGLE PHASE   **THREE-PHASE**

230 V~   230 V~   3x230 V~   230 V~

SINGLE PHASE   THREE-PHASE

⊕ N L   ⊕ N L   ⊕ N L3 L2 L1   ⊕ N L
Max. 32A   Max. 16A   Max. 3x32A   Max. 16A

              OPTIONAL   OPTIONAL

The terminals marked as Optional are to connect the supply of the additional Schuko output on the equipment have. This connection should be protected with independent protections to the main intake.
If your **VIARIS UNI** does not have as option the additional Schuko output these terminals are not functional, avoid making a connection in them.

Connection of the load modulator

Open the **TMC100** transformer (included) and couple/clamp it on the phase conductor (L) so that it measures the total consumption of the house and the charger VIARIS UNI.
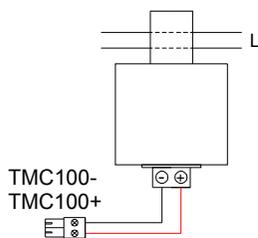
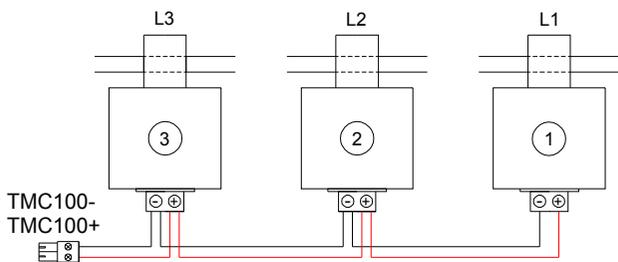*RESPECT THE SENSE OF CURRENT INDICATED ON THE **TMC100** LABEL.*

⚠️ It should not be used in installations with currents exceeding 100 A, the measurement and therefore modulation may be incorrect.
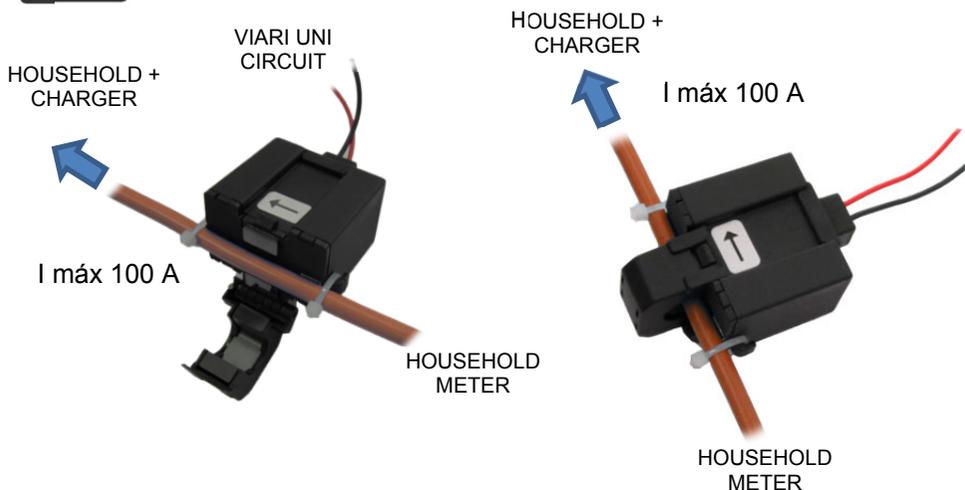

Single phase connection   *Three-phase connection*

Connect the output of the **TMC100** to the plug-in terminal block connector supplied and connect to the VIARIS UNI control circuit.

Must be used twisted pair cable with section 0.25-0.5 mm², maximum length 1000 m, with a peeling of 6-7 mm, and torque of 0.2 Nm.

Respect the indications in the image so that the measurement is correct.
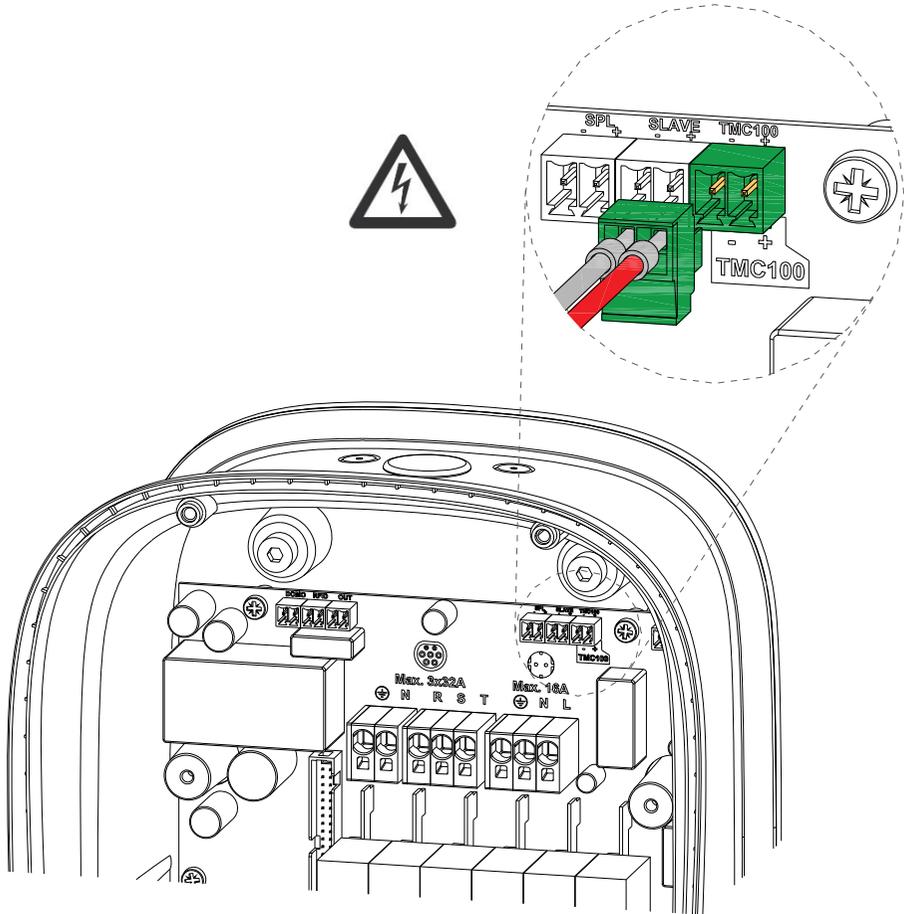
## *Configuration according to the power contracted*

To configure the rated power of the installation, use the rotating knob on the rear face of the front, or programming by App or embedded web. For app or web programming to take effect, the rotating knob must be in the "NO LIMIT." position.

The position of the rotating knob defines the maximum current of the installation; this parameter must be configured according to the rated power in the installation as shown in the following table.
This adjustment is fundamental for the correct operation of the load modulator.

If the **TMC100** transformer is not installed, the position of the rotating knob must be in the "NO LIMIT" position in order not to limit the load current.

| Current	Single phase power	Three-phase power
NO LIMIT.	NO LIMIT.	NO LIMIT.
10 A	2,3 kW	6,928 kW
13 A	3 kW	9 kW
15 A	3,45 kW	10,392 kW
18 A	4,14 kW	12,42 kW
20 A	4,6 kW	13,856 kW
23 A	5,3 kW	15,9 kW
25 A	5,75 kW	17,321 kW
28 A	6,44 kW	19,32 kW
30 A	6,9 kW	20,785 kW
35 A	8,05 kW	24,249 kW
40 A	9,2 kW	27,713 kW
45 A	10,35 kW	31,177 kW
50 A	11,5 kW	34,641 kW
55 A	12,65 kW	37,95 kW
63 A	14,49 kW	43,648 kW
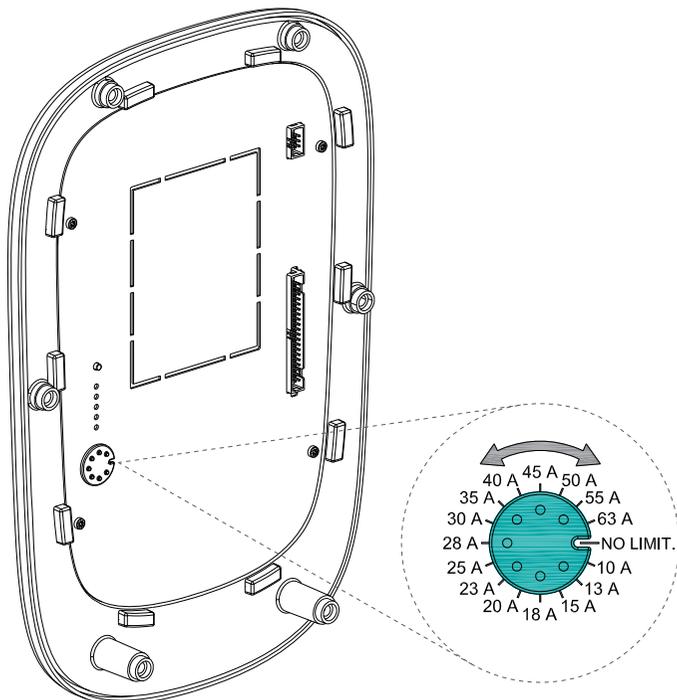
External activation connection

There is the possibility to activate the charger using an external signal (e.g. from a home automation system or from a prepaid system). This signal is priority over any other load activation system; therefore if the external activation is activated, charging would start when the vehicle is connected to the charger.
The connection must be done by plugging the inputs of the **DOMO** connector with an external circuit free of potential.
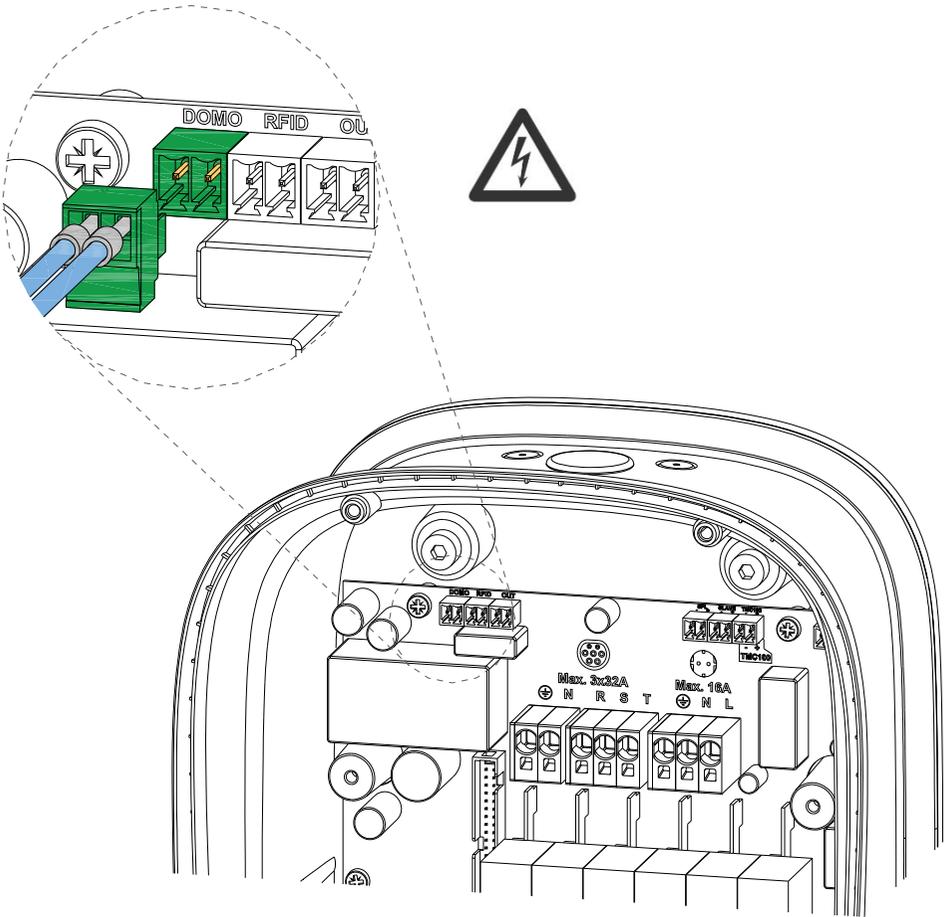
External extractor connection

Some electric vehicles may require for optimal working of their loading system that the environment where the charger is installed has natural or forced ventilation. In the case of closed garages, the heat generated by the vehicle must be evacuated by means of an air extraction system external to the charger.

The VIARIS UNI has a potential-free output of 220 Vac and 5 A of maximum consumption marked **OUT**, which will activate an air extraction system when the vehicle demands it.
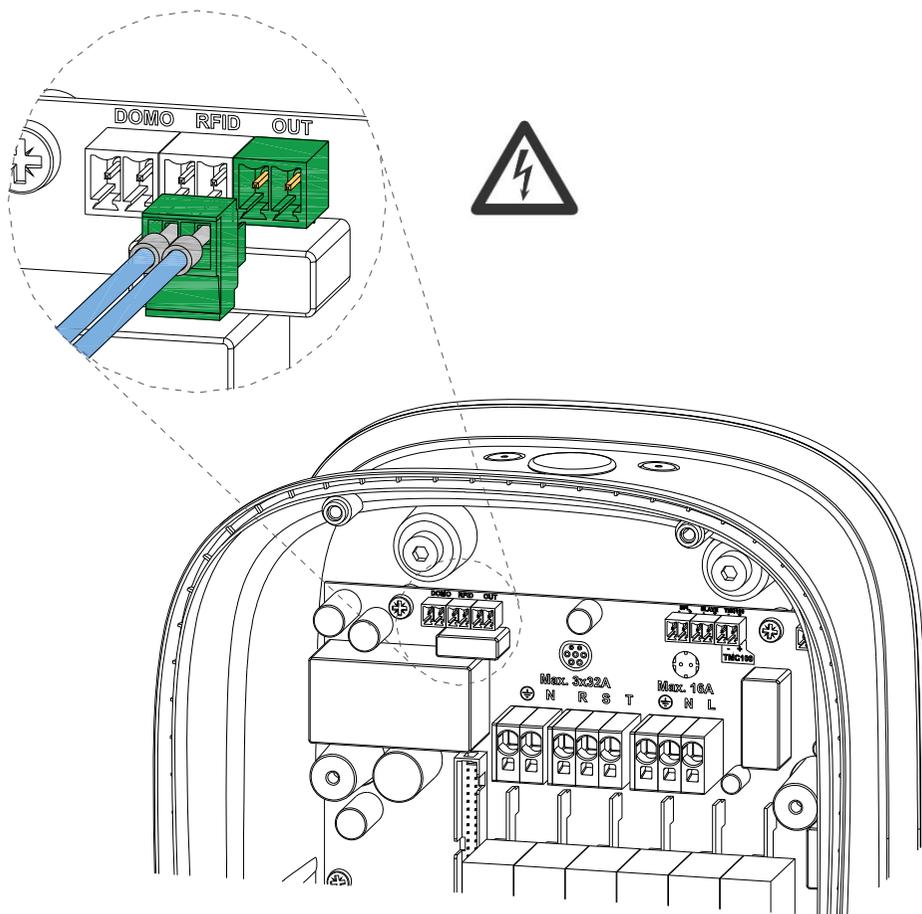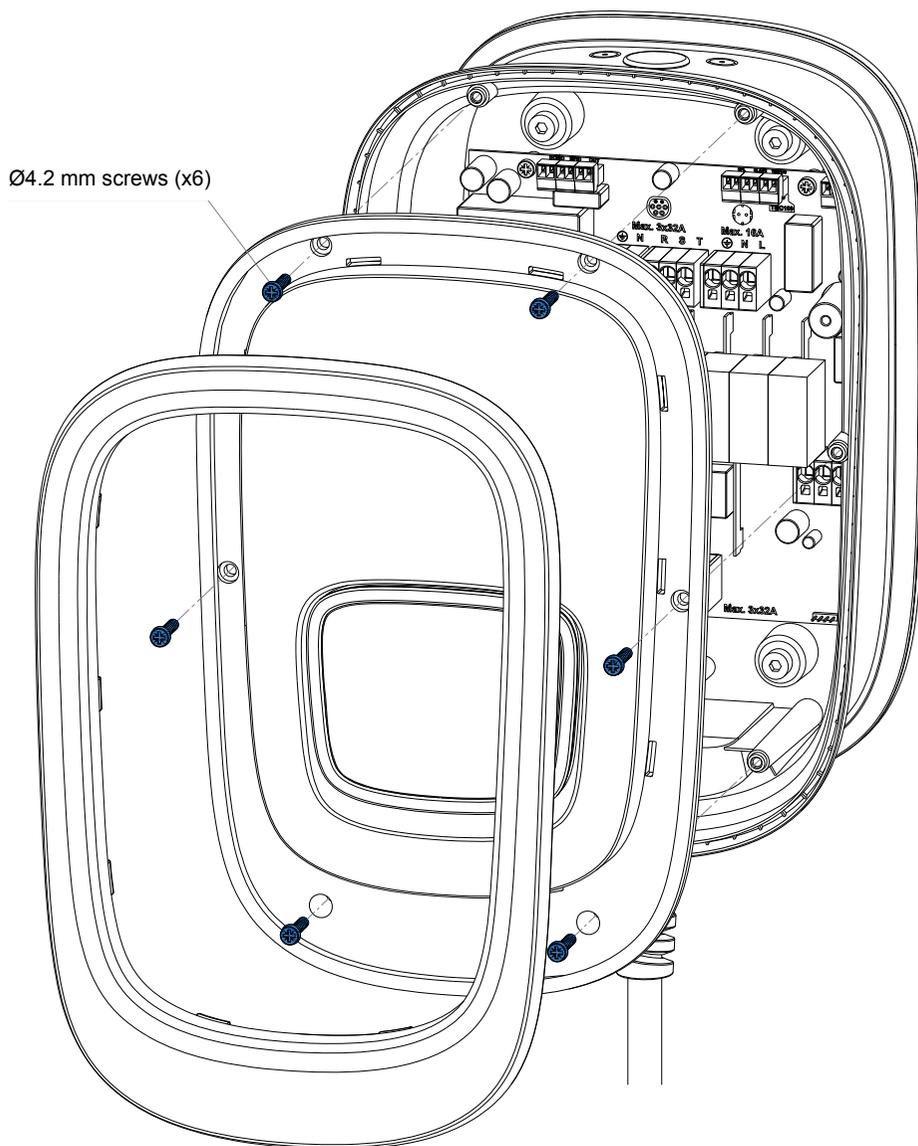
Front connection

When we have all the connections made, we connect the flat cable in the connector of the front as shown in the image, making sure it is firmly connected by the side tabs of the connector.
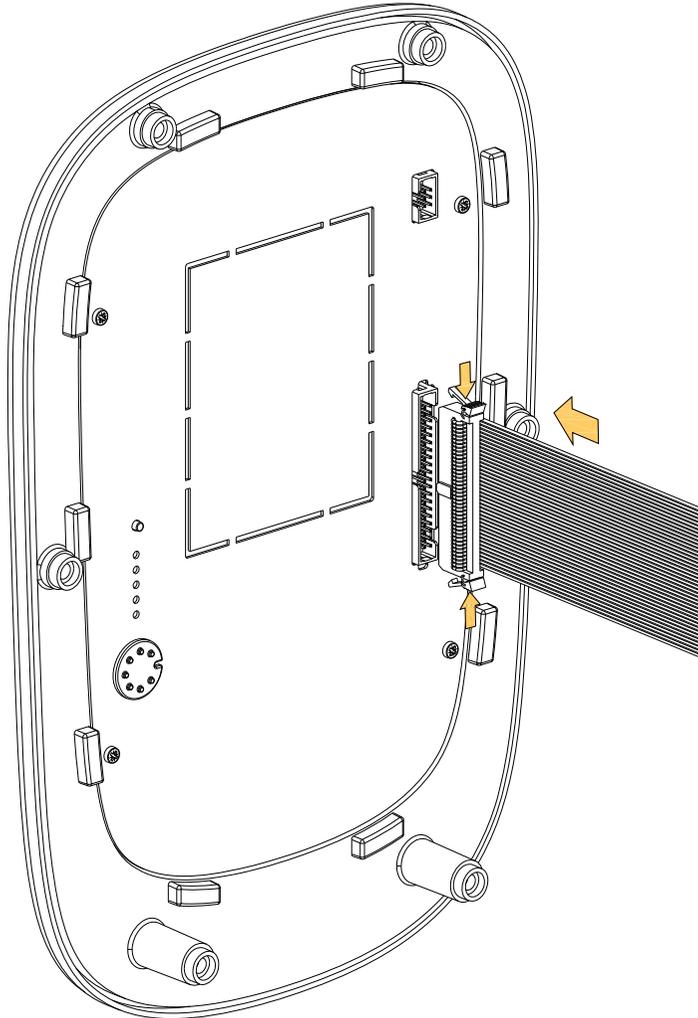
If you need to remove the front in the future, be careful to disconnect the cable by pressing the side tabs on the connector.

Closed of the charger

We cover the charger with its front and screw it with its screws.
To finish the installation we place the frame and give tension to the equipment.

Ø4.2 mm screws (x6)

LUMINOUS INDICATORS

Activation zone

"Attention" indicator

Wi-Fi indicator

Connection cable indicator

Modulator indicator

Status bar

Connection cable indicators

- Off: free connector, unlocked and available.

- Green blinking: ready for insertion.
- Fixed green: connection cable connector inserted in vehicle and waiting confirmation of vehicle loading.

- Fixed white: in the process of loading.

Other indicators

Wi-Fi indicator

- White blinking: establishing connection with web server.
- Fixed white: connected to the web server.

- Blinking blue: local connection to PC or mobile phone.

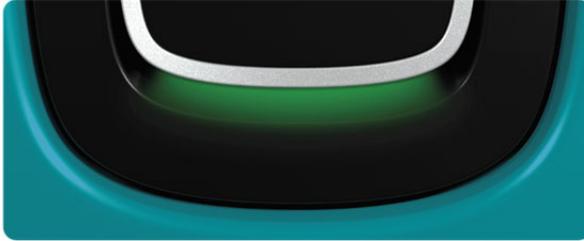- Off: no Wi-Fi connection.

Charge modulator indicator

- Fixed: modulation working.

EV CHARGER STATES

By changing illumination color in the status bar, the charger indicates us its different modes of operation:

- *Rest mode*

Charger available. No connected vehicle and without loading permission.

Status bar illumination in fixed green.
Connection cable indicator off.
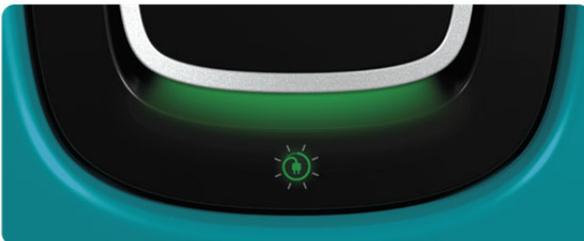
- *Connected mode without loading permission*

Vehicle connected to the charger and ready to load. Without loading permission.

Status bar illuminate in green from outside towards the center.
Fixed green connection cable indicator.

- *Free mode with loading permission*

No vehicle connected. With charge permission enabled.

Status bar illumination in fixed green.
Connecting cable indicator in green blinking.

- *Mode ready to load*

Charger connected to the vehicle.

Status bar illumination in fixed blue.
Fixed green connection cable indicator.

- *Load mode*

Charger connected to the vehicle and charging.

Status bar illuminate blue with varying intensity.
Fixed white connection cable indicator.

- *End mode loading*

Vehicle connected to the charger with the finished charge.

Status bar illumination in blinking blue.
Fixed green connection cable indicator.

- *Reserved mode*

When a charger reservation is made through the management platform.

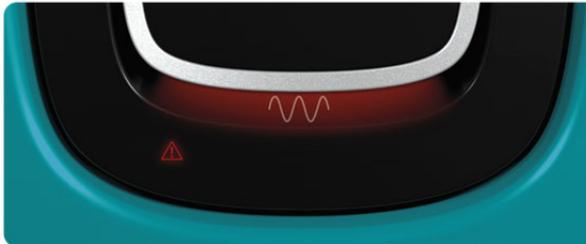Status bar illumination in fixed white.

- *Mode Updating*

When a charger update is in progress.

Status bar illuminate in white from outside towards the center.

- *Error mode*

When a charger malfunction occurs.

Status bar illuminate red with varying intensity.
"Attention" indicator in fixed red.

CHARGING PROCESS

VIARIS UNI chargers have the possibility to be configured so that when required to activate the loading permit is done by tactile activation or by activation with an RFID card.

When configured to activate through tactile activation, anyone can activate the load.
When configured to activate using an RFID card, you must have the RFID card associated. To activate RFID mode and associate cards see the **Change Procedure to RFID activation and card high below.**

Start of the charge

1. Check that the charger is available (*Rest Mode)* and that the electric vehicle does not have a charging time schedule.

2. Connect the electric vehicle to the smart charger.

3. *Only in case of activation by RFID card.*
   It detects that a vehicle has been connected to its exit and remains awaiting activation (connected *mode without loading permission)*
   Bring the RFID card closer to the activation zone until you hear a confirmation signal.

4. The charging of the electric vehicle will begin. *(Load mode)*

Please note that you will not be able to remove the charging plug from the vehicle during the charging process, because it is blocked by a safety system.

Finish of the charge

Charging ends when the vehicle is fully loaded or because you want to interrupt the charging manually (touch or RFID card).

In the event that the charge is completed when the vehicle is fully loaded, the loader shall enter the *End mode loading.*
Tap again (touch activation) or pass the ID card (activation via RFID card) over the activation zone until you hear a confirmation signal and pass to *Connected mode without loading permission.*

To finish the load manually, tap slightly (touch activation) or pass the ID card (activation via RFID card) through the activation zone until you hear a confirmation signal and pass to *Connected mode without loading permission.*

CONTROL OF THE SMART CHARGER VIA WEB

Wi-Fi connection

Connect the smartphone, computer or similar device to the Wi-Fi network of the VIARIS UNI, **ORB-EVVC3*nnnnnnnnnnnn*** (where ***nnnnnnnnnnnn*** is the serial number of the computer).

The factory-established password for the VIARIS UNI Wi-Fi network is **12345678**. It is recommended to change this password so that no one else can access your VIARIS UNI.

Once connected to the Wi-Fi network we open a web browser (Explorer, Firefox, etc.) and write **192.168.4.1** thus connecting to the charger control web, from where we see its status, consumption, date and time, as well as manually control its start or completion of load.

VIARIS APP FOR THE CHARGER MANAGEMENT FROM SMARTPHONE

Application that facilitates the management and remote control of the charger, allowing performing:

- On and off remotely.
- Configurable notifications of notices about the status of the load.
- Management capacity of one or more VIARIS.
- Real-time information on the total energy consumption of the installation and the electric vehicle.
- Recording the consumption of the dwelling or installation and the vehicle for hours, days or months.
- Consultation of consumption habits by days of the week and time slots.

Configuration of the contracted power

Real-time consultation of the state of loading and consumption of the house and the vehicle

Record of average monthly or annual daily consumption history

The "VIARIS" App is available on Google Play and App Store for free download on:
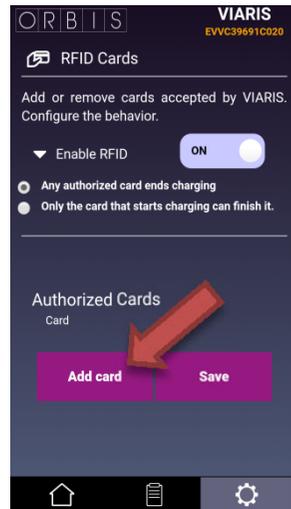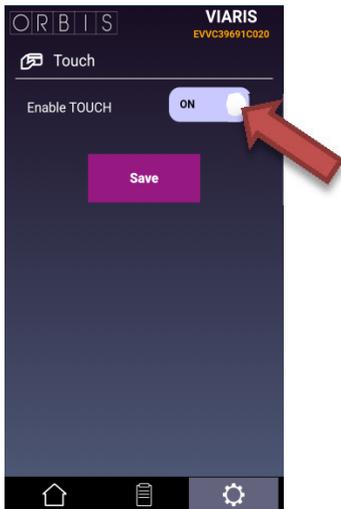
Procedure for switching to RFID activation and card register in app

1. *Access the RFID Cards menu within the VIARIS app configuration*

2. RFID Cards Menu

When entering this menu it appears that we have enabled *Enable TOUCH*. Switch to OFF and the menu will automatically appear to configure activation via RFID card. In this menu click *Add Card.*

Clicking on *Add Card* the status bar of the VIARIS will blink white while waiting for the card to be passed through the activation zone.

3. Pass the card to authorize by the charger

When you pass the card to register through the activation zone, in the app you will be identified with your code.
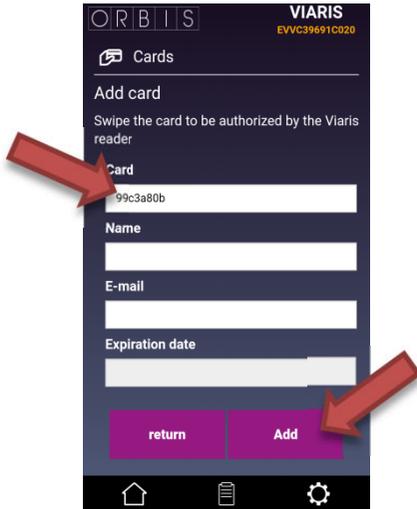
When you press **Add**, the card is registered and we can repeat the operation to register several cards.

4. Save Authorized Cards

Once the card register is finished, click **Return** and return to the **RFID Cards Menu** from where the cards that have been authorized will be listed.

For the card configuration to be upload to our VIARIS charger you must press **Save**.

In this way we leave the charger configured so that only the loading permission is activated through the RFID cards that we have registered.
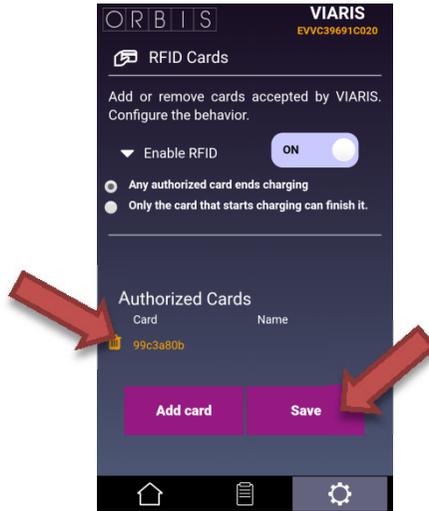
Available video of the procedure for adding RFID cards (in Spanish):

MAINTENANCE

In the design of the equipment it is envisaged that maintenance will be very low depending on the long life of their components, limited to cleaning tasks, checking the operation and checking the input voltage values. An inspection of the equipment is recommended once a year.
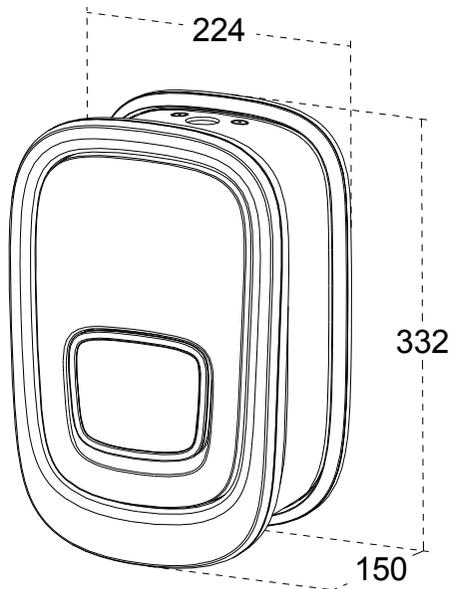
For cleaning and checking the equipment connections it is very important that you are disconnected from the power supply voltage. Any handling involving the opening of the equipment shall be carried out by staff with sufficient technical qualifications and duly authorized.

TECHNICAL CHARACTERISTICS

Feeding		
Nominal frequency		Depending on characteristics label
Power		
	Single phase	Triphase
Vacuum	4 W	4 W
Load function	7 W	14W
Charging modes (depending on model)	Modes 1 and 2 according to EN 61851-1 (Schuko)	
	Mode 3 according to EN 61851-1	
Connector cable Type 2.	Load mode 3: according to EN 62196-2	
Communication Wi-Fi802.11	b/g/n	
Closing of the envelope	with screws	
Protection class	Case II. Insulating envelope	
Degree of protection	IP54 according to EN 60529	
Degree of mechanical protection	IK10 according to EN 62262	
DRC-DD protection.	6 mA	
Activation / Stop modes	Touch or RFID configurable by App.	
Type of terminals	without screws	
Peeling length	12 mm	
Operating temperature	-30 °C to + 50 °C	

EXTERNAL DIMENSIONS (mm)

REPLACE THE BATTERY

	ATTENTION: This is a product with an embedded battery. Do not dispose of the product without taking the precaution of dismantling the battery and depositing it in a suitable recycling container.

The equipment has a 3V CR2032 battery.
To replace the battery or remove it at the end of the life of product, remove the screws that fix the protection and the power selection knob. Then remove the circuit from the front by removing the screws that fix it. Turning the circuit we will have access to the battery.
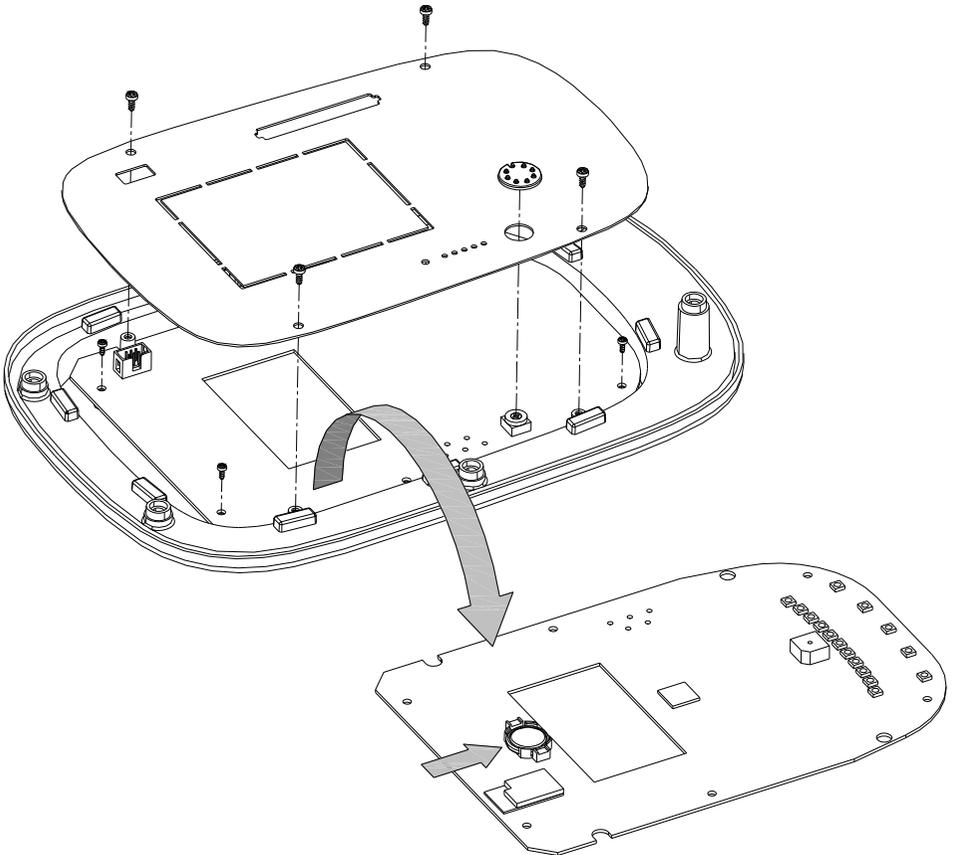
EXTRAS

VIARIS UNI smart chargers can incorporate, depending on the model:

- *Schuko Base*
  Load mode 1 and 2

- *Single-phase and three-phase secondary counter*
  Certified according to the MID Directive (2004/22/EC).
  According to EN 50470-3

- *Ethernet communication*
  For installations requiring Ethernet communication.

TROUBLESHOOTING

Problem	*Resolution*
The charger is powered and no plug connected and with the light indicators off.	Check the power according to the connection scheme and that the protections are activated. Wait approximately the 10 seconds the charger requires to boot.
Charger connected to the vehicle, the status bar is green fixed and does not charge.	There is no communication between the vehicle and the charger; check the hose and correctly inserted into the vehicle and charger.
Charger connected to the vehicle, the status bar is in blinking green and does not charge.	The charger is not authorized to load; pass the authorized RFID card.
Charger connected to the vehicle, the status bar is in blinking green and when the RFID card passes the charger make 5 "bips" and the status bar flashes in red and returns to fixed green.	The RFID card is not authorized. Check the list of authorized cards.
Charger connected to the vehicle, the status bar is in blue of varying intensity and does not charge.	The charge modulator indicator ◢ is on; the installation does not have sufficient power to load the vehicle.
Charger connected to the vehicle, the status bar is in blinking blue and does not charge.	The vehicle has finished charging; check that the battery is full or that the vehicle has no time schedule.

Charger connected to the vehicle, the status bar is fixed red and does not charge.	Error; turn off the charger from the protections and switch back on.
Charger connected to the vehicle, the status bar is fixed blank and does not load.	Reserved State, e.g. in an up-to-date situation; wait till the reserved state ends.
The protections of the installation are triggered	If the charge modulation indicator is off, the TMC100 is not properly connected. Check connection to the terminals, direction of current and that the TMC100 is well closed, as indicated in the Load *Modulator section.* If the charge modulation indicator is on, ◢ the adjusted power does not match the contract.
After manual deactivation or with RFID card the load does not stop and the intake is blocked	Unlock the hose using the control of the car.
The charger could not connect to a WiFi network	If the WiFi indicator 📶 is off and does not go to fixed target, it is because the charger has not been correctly configured or the correct password has not been entered. If the WiFi indicator is blinking blank, it's because it's connected to an unconnected WiFi network or the network security is blocking it.
After the loading process, the charger remains connected to the vehicle with the locked pin, fixed green status bar	Unlock the hose using the control of the car.
Exceeding maximum power	The modulator hasn't worked. Check the configuration according to the power contracted.
View basic charger data, set up power and scheduled load, or consult historical consumption, if I don't have coverage in my garage floor	Read the section of the instruction manual Smart charger control via web. (Once connected to the Wi-Fi network with password 12345678, we open a web browser and write 192.168.4.1)
It takes a long time to load my vehicle with a three-phase charger.	If you have purchased a single-phase vehicle, you will only be using approximately 1/3 of the contracted power.

DIRECTIVES AND REFERENCE STANDARDS

It complies with the essential requirements of the following Directives:
Directive 2014/53/EU on Radio Equipment
Directive 2011/65/EU on restrictions on the use of certain dangerous substances in electrical and electronic equipment

In accordance with the following rules:
IN 300 328 V2.1.1
IN 301 489-1 V2.2.0
IN 301 489-17 V3.2.0
IN 60950-1:2006 +A11:2009 + A1:2010 +A12:2011 + A2:2013
IN 62311:2008
IN 61851-1:2011
IN 61851-22:2002
IN 50581:2012

Hereby, ORBIS TECNOLOGÍA ELÉCTRICA S.A. declares that the type of VIARIS UNI wireless device is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following Internet address: http://www.orbis.es/downloads/declarations-of-conformity

Subject to technical changes – additional information at www.orbis.es

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