EV Hub

Electric Vehicle Charging Solutions







Installation Manual

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1 EVBox Elvi - Installation Details

Both Installer and User Manuals to be completed by the Installer.

Model Number:	
Lead or Socket version:	
Max kW Rating:	
Station ID / Registration #:	
Security Code:	
Installer Company:	
Installer Name:	
Installer Contact Details:	
Commission Date:	
Connected to Smart Charge Network - Y/N:	
Network Configuration (Public / Semi-Public / Private):	
RFID Card or Fob #:	

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1.1 Installation Test Results

To be completed before livening, and before cover put on:

Single or Three Phase:	Sing	le	Thre	e
Maximum available current for charging stations (A):				
Ground Resistance (loop value, maximum ohms) (Ω) (note):				
Insulation Resistance (no greater than 1M ohm):	L1-E		L3-E	
	L2-E		N-E	
Upstream RCD Protection Device Type (note):	Туре А	Туре	A-EV	Туре В
Upstream MCB Protection Device and Location:				
Cable Cross Section (mm²):				
Visual Check –Polarity. All colour codes are correct and that none of them have been transposed. Watch for European colour variances – i.e., Phases are L1-Brown, L2-Black, and L3- Grey. Neutral is Blue.				
Visual Check - secure fixing, wire terminations, no signs of heat or water ingress (if annual inspection):				

Notes:

- Ground resistance should be no more than 167 Ohm.
- The residual current device must switch off all phases connected and the Neutral.



1.2 Installation – Hub Satellite only

To be completed only if Hub Satellite set up used. Before livening, and before covers:

Cable used for RS485 connection (note):	
Cable shield connected between all stations and grounded in the last station:	
Check if termination resistor is installed:	

Notes:

• *Recommended cable is CAT 5shielded Twisted Pair cable or better.*

1.3 Installation Test Results

To be completed once livened, before you put the cover on, and before connecting to the backend software:

Voltages between phases and neutral and between neutral and	L1-N	L3-N	
earth. (V)	L2-N	E-N	
Manual RCD Trip Test:			

1.4 Operational Test Results

To be completed once the cover and cable is fitted, unit is livened, and **before** you have connected it to the backend software:

Check any cover seal is correctly inserted:	
Check cover is correctly positioned for IP54 rating:	
The LED ring around the socket or lead exit displays the	 RED (Blinking) – Starting up and trying to connect to the network;



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following colour indication after		GREEN or OFF – Stand-by or ready for	
power on:		use;	

If you have a Test Equipment, such as the Metrel MI 3155XD and A1532 or A 1632, or a vehicle for the third Test:

RCD Trip Test:	•
Earth Continuity:	•
Test correct procedure:	 GREEN – Standby, ready to be used GREEN – (Blinking) – Verification & connection to car Yellow – Waiting for car to authorise charging BLUE - Charging

Note: Test Equipment can only be used on the Charging Station in Autostart mode.

1.5 Connection to Backend Software Checklist

To be completed livened, and with covers on:

Wi-Fi Name & password, if connected (note):	
Charge Current max setting:	
Management System is set to 'SaasCharge Int':	
'Set Charger to online' is on:	
All changed settings have been Saved and the Station has been Rebooted:	

Note: If the 4G signal is strong at the Charging Station location, then you don't need to connect to the Wi-Fi as well.



2 Introduction

Thank you for choosing the EVBox Elvi.

This Installation manual tells you how to install, set up, use and fault find any potential issues with the EVBox Elvi. Carefully read the safety information before you start.

These instructions are valid for several models of the charging station. It is possible that some features and options described may not apply to your charging station.

2.1 Get in touch

If you have any suggestions how we can improve our offer, or if you see an error, we'd love to hear from you. You can contact us at support@ev-hub.com.au

All of the original EVBox manuals can be downloaded from https://evbox.com/en/manuals

Copies of all of the EV Hub manuals are available on the EV Hub website, under each Product section. I.e., <u>https://ev-hub.com.au/evbox-elvi</u>

3 Safety precautions

3.1 Warning: Risk of electric shock

- Read the supplied documentation carefully to familiarize yourself with all safety instructions and regulations before using this product.
- This product is designed and tested in accordance with international standards.
- The use of this product is limited to those applications it is designed for.
- Installation, maintenance and repairs of this product are only to be performed by qualified personnel.
- Incorrect installation or repairs may cause hazardous situations for the user of this product.
- This product is used in combination with a power source.
- Always switch off power before any maintenance activity.
- This product contains no user-serviceable parts. Consult EV Hub or your distributor for more information. Do not attempt to service or repair the charging station yourself!
- Not following the installation and user instructions given in this manual will result in the risk of electric shock, which will cause severe injury or death.
 - Read this manual before installing or using the charging station.
- Installation, servicing, repair and relocation of this charging station by a non-qualified person will result in the risk of electric shock, which will cause severe injury or death.
 - Only a qualified electrician is permitted to install, service, repair and relocate the charging station.
 - The user must not attempt to service or repair the charging station as it does not contain user-serviceable parts.
 - Local regulations may be applicable and may vary depending on your region / country of use. The qualified electrician must always ensure that the charging station is installed according to the local regulations.
- Working on electric installations without proper precautions will result in the risk of electric shock, which will cause severe injury or death.
 - Switch off input power before installing the charging station. Keep the power off until the charging station is fully installed and secure.

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- Do not switch on the charging station if it is not fully installed or not secure.
- Do not install a charging station that is faulty or has a noticeable issue.
- Operating the charging station when it indicates an error state, or when the charging station or the charging cable have cracks, show extensive wear, or other physical damage, will result in the risk of electric shock, which will cause severe injury or death.
 - Do not operate the charging station if the enclosure or an EV connector is broken, cracked, open, or shows any other indication of damage.
 - Do not operate the charging station if a charging cable is frayed, has broken insulation, or shows any other indication of damage.
 - In the event of danger and/or an accident, a qualified electrician must immediately disconnect the electrical supply from the charging station.
 - Contact your installer if you suspect that the charging station is damaged.
- Some electric vehicles release hazardous or explosive gasses when charging which will result in the risk of explosion, which will cause severe injury or death.
 - Refer to your vehicle user manual to check if your vehicle releases hazardous or explosive gases when charging.
- Follow the instructions given in the vehicle user manual before choosing the location of the charging station.
 - Extensive exposure of the charging station to water or handling the charging station with wet hands will result in the risk of electric shock, which will cause severe injury or death.
 - \circ $\;$ Do not direct powerful jets of water toward or onto the charging station.
 - \circ $\;$ Never operate the charging station with wet hands.
 - Do not put the charging plug into any liquid.
- Installing the charging station during wet environmental conditions (for example rain or fog) can result in the risk of electric shock and damage to the product, which can cause severe injuries or death.
 - Do not install or open the charging station during wet environmental conditions (for example rain or fog).
- Using a damaged charging station or a damaged charging cable may expose the user to electric components and result in the risk of electric shock, which may cause injury or death.
 - Make sure that the charging station, the charging cable, and the charging plug are free of damage before starting a charging session.
 - Make sure that the contact area of the charging plug is free from dirt and moisture before starting a charging session.
 - Make sure that the charging cable is positioned so that it will not be stepped on, tripped over, driven over or otherwise subjected to excessive force or damage.
 Where applicable, make sure that the charging cable is correctly stowed when it is not in use, making sure that the charging plug does not touch the ground.
 - Only pull on the charging plug hand grip and never on the charging cable itself.
 - Keep the charge plug away from heat sources, dirt or water.
- Using adapters, conversion adapters or cord extensions with the charging station may result in technical incompatibilities and can result in damage to the charging station, which will cause injury or death.
 - Use this charging station to charge compatible electric vehicles only. Refer to the charging station specifications in this manual for details.
 - Refer to your vehicle user manual to check if your vehicle is compatible.



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- Exposure of the charging station or the charging cable to heat or flammable substances can result in damage to the charging station, which will cause injury or death.
 - \circ $\,$ Make sure that the charging station or the charging cable never come into contact with heat.
 - Do not use explosive or readily flammable substances near the charging station.
- Using the charging station under conditions not specified in this manual may result in damage to the charging station, which may cause injury or death.
 - Only use the charging station under the specified operating conditions in this manual.
- Fire safety:
 - When safe to do so, switch off power to the equipment that is burning or endangered by fire.
 - Do not use water to extinguish electrical installations and equipment that have a live power supply.
 - To extinguish a charging station, use an extinguisher that is specified for use on electrical equipment with a rating of up to 1 kV.
- Charging a vehicle with the charging cable not completely unwound may result in overheating of the cable, which can damage the charging station.
 - Before you charge the vehicle make sure that the charging cable is completely unwound and has no overlapping loops.
- Putting fingers into or leaving other objects inside the plug port (for example, during cleaning) may cause injury or can damage the charging station.
 - Do not put your fingers into the plug port.
 - Do not leave objects inside the plug port.
- The use of devices with (electro) magnetic properties in the vicinity of the charging station may damage the charging station and affect its operation.
 - Keep and use (electro) magnetic devices at a safe distance from the charging station.
- Not taking precautions against ESD (Electrostatic discharge) can damage electronic components in the charging station.
 - Take the necessary precautions against ESD before touching electronic components.

The installing party must always ensure that the charging station is installed according to the local regulations. The installation settings of the service panel must always be adjusted by a qualified electrician.

EV Hub and EVBox is not responsible for any damage that occurs if this product is transported in a different packaging than the packaging in which the product was originally supplied. Store this product in a dry environment; the storage temperature must be between -25 °C and +60 °C.



4 Components & Features

4.1 Elvi - Socket





4.2 Elvi – Tethered Lead







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5 Unpack Elvi

5.1

Place Elvi package on a flat and stable surface. Remove sleeve.

5.2

Set the boxes aside. Box 1 contains the charging station. Box 2 contains the charging cable.



5.3

Open the charging station box. Put the instructions folder (A) aside. The keys (B) found in this folder are only needed for removing the charging station (C) from its wall dock (D) (in case of maintenance or to change the charging cable).

Note: After installation, hand over the folder to the user, as it also contains the Smart Charge RFID Smart card (E), and/or the key fob (F) and station ID + security code (G).

5.4

Take out the charging station together with its cardboard buffer from its box.

5.5

Take out the wall dock from its box. Skip this step if the wall dock is already installed. (In this case, the wall dock is not included in the box.)



- Continue if the Wall Dock is not already installed.
- Go to Page 23 or 25, if the Wall Dock has already been installed



6 Install Wall Dock

• Warning: Risk of electric shock.

Before installing the wall dock, make sure that the power line you're using is switched off on your service panel.

Make sure that the power line to Elvi is installed on a dedicated circuit breaker (MCB) on your service panel. The installation must incorporate an adequate residual current device (RCD). The MCB must be in line with the capacity of the charging cable (3.7, 7.4, 11, 22 kW). In case the amperage rating of the charging cable is different than the amperage rating of the (MCB), the installer/user must change the station settings in the mobile app and/or web platform for station management as provided by the operator or service provider for this product.

Be aware that local regulations may be applicable and may vary depending on your region/country of residence. The installing party must always ensure that the station is installed according to the local regulations.



The installation settings of your service panel must always be adjusted by a qualified electrician.



6.1 Plan for Installation

The following recommendations are a guide to help you plan the installation of the charging station.

6.2 Choose location

- Position the charging station, where possible, in a location where it is not exposed to sunlight and vulnerable to external damage.
- The wall must have a flat structure and must be able to hold a load of at least 100 kg.
- The minimum free space around the charging station is 300 mm.
- The location must allow the charging cable to remain within its bending tolerance.



Note: The above illustration indicates a recommended standard installation height. Observe and comply with the local accessibility regulations.

6.2.1 Pre-installation checklist

- The local installation regulations are identified and are followed.
- All necessary permits are obtained from the local authority that has jurisdiction.
- The existing electrical load has been calculated to find the maximum operating current for the charging station installation.
- A miniature circuit breaker (MCB) and residual current device (RCD) (or combined RCBO unit

 where allowed) are installed upstream and have ratings that correspond to the local power supply as well as to the required charging power.
- All cables match the specifications for the charging station that you are going to install.
- The correct specification of power supply cable has been routed to the installation area, and there is sufficient cable length to strip and connect the wires.
- The power supply cable remains within its bending tolerance during and after installation.
- The recommended tools are available on site.

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- The plugs, screws, and drill bit used for installing the charging station are suitable for the wall structure.
- Use only copper conductors.
- Make sure that there is good cellular and/or Wi-Fi reception where the hub charging station will be installed.
- The power supply cable, the optional Smart Charging network cable and the optional EV Ready cable comply with the specifications for the charging station that you are going to install.

6.3 Safety Adherence

You must read and obey the safety precautions on page 7 at the beginning of this manual before you install, service or use your EVBox charging station. The installer must ensure that the charging station is installed in accordance with the relevant country-specific standards and local regulations.

6.4 Route power supply cables

The appropriate wire gauge of the supply cable depends on the power rating and distance between the meter cabinet and the charging station. The voltage drop must not exceed 5% (it is advisable to have a maximum allowable voltage drop of 3%). The maximum wire gauge that can be fitted is 10 mm2.

Route the power supply cables to the position where the charging station will be installed. Make sure of the following:

- There must be enough cable for it to extend at least 50 cm out of an installed Combi pole or Wall Adapter.
- There must be enough cable for it to move sufficiently during installation of a Combi pole.

Note: The power line enters the station via the base for direct wall installations, a specifically drilled additional hole in the back for a wall mount box, or through the base for a Elvi pole.

Power per connector	Connection	Input Current	Output Current
7.4 kW	1-phase	1 x 32A	1 x 32A
11 kW	3-phase	1 x 32A	1 x 16A
22 kW	3-phase	1 x 32A	1 x 32A

The maximum power rating for each connector is specified below.

6.5 Phase rotation

To avoid overloading the first phase with one-phase electric vehicles, we recommend rotating the phases as shown below – if there are multiple chargers on site.

Note: If phase rotation is used you must inform Smart Charge (<u>support@smart-charge.com.au</u>) so the support team can update the backend system data.

6.6 MCB installation

If you are installing a Mode 3 charger that brings the property close to the rated current of the street protection device (pole fuse etc.) consider replacing the Main Switch with a Main Switch MCB. This will offer additional protection and if mains overcurrent occurs the likelihood is that the building owner can reset this device over calling out the local power authority to replace the street protection device.

6.7 RCD installation

The charging circuitry in the power electronics of a modern EV has the potential to introduce harmonics or 'smooth DC residual currents' while charging. This DC residual current could potentially 'blind' a standard Type A RCD, rendering it incapable of responding to a situation in which there is a genuine electric shock risk.

All RCD types continuously monitor the line and neutral AC currents which under normal conditions should be equal and opposite in direction of flow i.e., flowing from the line supply conductor through the load and returning via the neutral conductor. In the event of a fault causing current to flow via the earth then this creates an imbalance of currents between the line and neutral conductor currents causing the RCD to trip and isolate the supply from both line and neutral conductors.

RCDs with a Tripping point of 30mA and an operating time of 40ms when the earth current equals 150mA, are defined in the Standards as a means of 'additional protection' in the event of a person coming into contact with a live conductor.

In Australia and New Zealand, it is a requirement to install an RCD upstream from the EV charger (at the main supply or distribution board), even if the EV charger has an RCD built in. Part of the reason for this is that it will protect a person in the case that the supply is broken between the distribution board and the EV charger (for example a person cuts the supply cable with a power tool).

The latest IEC standard for Mode 3 electric vehicle charging stations (IEC 61851-1:2017) section 8.5 refers to EV supply equipment requiring either:

- RCD Type B or;
- A Type A RCD and appropriate equipment that ensures the disconnection of the supply in case of DC fault current above 6mA.

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6.8 AS/NZS 3000:2018 – Electrical Installations "Wiring Rules"

6.8.1 Appendix P: Page 568

- **Mode 3:** Permanently connected to AC Mains utilizing dedicated EV Supply Equipment, with a Control Pilot function.
- **Dedicated Circuit:** Each Charger outlet must be its own dedicated circuit.
- **RCD Protection:** IEC 62955 Socket Outlet or Vehicle Connector complying with IEC 62196, must have either A, RCD Type B, or B, RCD Type A and appropriate equipment that ensures disconnection of the supply in case of DC fault current above 6mA.
- **Overcurrent Protection:** Each Charger should be supplied individually by an overcurrent protective device complying with AS/NZS 60898, AS/NZS 61009 or AS/NZS 60947 series.
- **General:** Each connecting point should be provided with one socket outlet or vehicle connector complying with either IEC 62196-1 or IEC 62196-3.
- Minimum Height: 800mm from ground.

6.8.2 Clause 2.3.2.2.1

• **Isolating Switch:** With a minimum current rating 32A, shall be provided for the final sub circuit adjacent to the charging facility.

6.8.3 P1.3 - Testing:

- AS/NZS 61439 series for test and related requirements for low voltage switchgear and control gear assemblies.
- IEC 62196 series for vehicle coupler, plug and socket outlet.

6.8.4 Periodic Inspection:

- Publicly available EV Charging Stations should be inspected at least once per week, in order to verify that there is no visible damage or operational fault.
- Publicly available EV Charging Stations should be inspected at least once per year to verify correct operation.

6.9 RCD installation

In Australia, the Multiple Earthed Neutral (MEN) earthing system is used and is described in Section 5 of AS/NZS 3000. For an LV customer, it is a TN-C system from the transformer in the street to the premises, (the neutral is earthed multiple times along this segment), and a TN-S system inside the installation, from the Main Switchboard downwards. Looked at as a whole, it is a TN-C-S system.



6.10 Installation advice

Ground connection advice	TN-system	PE-cable
Input	1-phase	230 V ±10% 50/60 Hz
	3-phase	400 V ± 10% 50/60 Hz
МСВ	 C-characteristic (MCB must be selected to match the amperage settings of the charging station, considering MCB manufacturer specifications) 16 A installation: use a 20A MCB, C-characteristic. 32 A installation: use a 40A MCB, C-characteristic. 	
RCD	40 A, 30 mA AC type A+, high im SI, HI, KV, etc.). Elvi has a 6 mA E	munity type (for example: HPi, OC leakage detection internally.

Note:

- The MCB should match the amperage settings of the charging station and the maximum current available for the station, considering MCB manufacturer specifications.
- Consider the availability of additional sources of power (for example solar) together with a dynamic load balancing system (optional).

Service wiring

Option1:

400 V 3-phase with neutral

For 3-phase use of a Wye-connected secondary, all three phases (L1, L2 and L3) and neutral must be connected. Each phase voltage must measure 230 V to neutral.

Option 2:

230 V 1-phase with neutral

For 1-phase use of a Wye-connected secondary, only a single phase (L1) and neutral must be connected. This phase voltage must measure 230 V between line and neutral.

Warning: In this configuration, the charging station operates only from a single phase (L1). Do not connect the remaining phases L2 and L3.

Note: In case you are not sure about the available connection type at the service panel, consult a qualified electrician.





7 Install Wall Dock



7.7

Measure the power cable's diameter and cut out the correct diameter of the rubber seal in order to allow the power cable and optional data cables to get through.

Note: Strain relief and rubber seal are supplied in a separate bag in the box.

7.8

Feed the power line and optional data wiring through the rubber seal.

The total length of the power line fed through the rubber seal must be 180 mm.

Strip the power line over a length of 130 mm.

In case of stranded (flexible) wiring, use wire end sleeves with a ferrule length of 12-15 mm and apply a square crimp for optimal fit into the connection terminals.

7.9

Assemble the strain relief.

Depending on the feed wire's thickness, use either the small or large diameter on the strain relief. Simply flip the symmetrical parts to obtain a different strain relief diameter.

The strain relief also accommodates for extra data cables on two sides (e.g. UTP/CAT5E/CAT6).



7.10

Place one part of the strain relief in the bottom of the wall dock.

Place the feed wire over the bottom part of the strain relief and mount the rubber seal in the outer edge of the wall dock.

Note: Be aware that the rubber seal has three groove edges and one tongue edge. Make sure that you place the tongue edge facing upwards.

Place the top part of the strain relief over the feed wire and use the two 4 x 40 mm screws and the Torx T20 head to mount the strain relief on the feed wire. Do not overtighten.



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7.11

- Connect the wires in their designated terminals. Mount the transparent cover.
- Make sure no wiring is protruding from under the transparent cover.
- Make sure that the rubber seal gasket around the connectors is in place before assembling the transparent cover.
- Tighten the bolts with the T20 bit. Do not overtighten.
- Fasten the special bolt in the bottom right corner with a regular flat-head screw driver. This special bolt can be used for sealing the installation with a tamper-evident seal.



Note: Installation example of a 1-phase connection of Elvi.

For the optional Smart Charging: Connect the network cable as follows:

a. Strip the network cable green and green/white wires. Install wire end sleeves with a ferrule length of 12-15 mm (0.47-0.60 in) and apply a square crimp for optimal fit into the terminal blocks.

b. Push the wires into the terminal blocks.

Wire	Terminal block
Green	3
Green/white	4



8 Wall Dock Cover

8.1 Install Wall Dock Cover

If the Elvi Unit is to be left 'EV Ready' – for the Charge Unit to be added later.



8.2 Remove Wall Dock Cover

Warning: Risk of electric shock.

Before removing the wall dock cover, make sure that the power line you're using is switched off on your service panel.

Take the keys found in the box.

Insert the keys into the slots in the bottom of the wall dock. This releases the snap-fit connection of the wall dock cover to the wall dock. Make sure to push them in until they only stick out approx. 50 mm and cannot be pushed in any further.





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9 Socket Version

9.1 Install Socket Version



Before mounting, write down the Elvi station ID.

This can be found on the backside of the station.

9.1.1

Align the station against the wall dock and press it in a straight line until you hear a clicking sound.

To ensure that the connection is fully secured, press firmly on all four corners and check that there is no air gap between the wall dock and the station.



9.1.2

Switch on the power to the station on the service panel. Elvi will switch on automatically. This is indicated by a flashing red LED ring.

Note: Please be aware that soon after its registration and activation, Elvi might start a software update automatically. Do not switch Elvi off.

If the LED ring will not turn green after 20 minutes, verify that the station is online in the backend/portal account. If the station is not online, please contact your operator or service provider for this product.



9.2 Remove Socket Version



Warning: Risk of electric shock.

Before removing the charging station from the wall dock, make sure that the power line you're using is switched off on your service panel. The LED ring of the charging plug must be off.

Take out the keys from the folder in the box.

Insert the keys into the slots in the bottom of the wall dock. This releases the snap-fit connection of the charging station to the wall dock. Make sure to push them in until they only stick out approx. 50 mm and cannot be pushed in any further.

Now you can remove your charging station from the wall dock. Pull the charging station away from the wall dock in a straight line.

Important: Do not twist or skew the charging station, as that might damage the station's snap fits and/or connectors.

Be aware that the charging station is still fixed on the connector (socket) of the wall dock and it requires some force to pull it off.

Take out the keys from Elvi wall dock.





10Install Lead Version - Charging Cable



10.1 Install Charging Cable

10.1Unpack the charging cable box.Remove the cardboard cover from the station's socket.	
10.2Take the charging cable out of the box.Check that the rubber sealing ring on the charging plug is in place and not twisted. This is to ensure that the proper IP code (protection class) is met.Place the charging station on its side and then plug the charging cable into the station.	
10.3 Make sure you press the charging cable until it is firmly secured.	



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10.4

Turn the station around and put the front face of the station on a soft surface. Place the bolt and firmly tighten the bolt with the T30 bit.

Reconfirm that the cable bolt is tightened properly. Check again that the charging cable is firmly connected to the station.



10.2 Install Station



Before mounting, write down the Elvi station ID. This can be found on the backside of the station.

10.1

Align the station against the wall dock and press it in a straight line until you hear a clicking sound.

To ensure that the connection is fully secured, press firmly on all four corners and check that there is no air gap between the wall dock and the station.



10.2

Switch on the power to the station on the service panel. Elvi will switch on automatically. This is indicated by a flashing red LED ring.



Note: If the LED ring does not show any colour, it may be due to improper installation of the charging cable. In this case, check/ repeat steps 3.3 and 3.4.

Note: Please be aware that soon after its registration and activation, Elvi might start a software update automatically. Do not switch Elvi off.

If the LED ring will not turn green after 20 minutes, verify that the station is online in the backend/portal account. If the station is not online, please contact your operator or service provider for this product.

10.3 Remove Station



Warning: Risk of electric shock.

Before removing the charging station from the wall dock, make sure that the power line you're using is switched off on your service panel. The LED ring of the charging plug must be off.

Take out the keys from the folder in the box. Insert the keys into the slots in the bottom of the wall dock. This releases the snap-fit connection of the charging station to the wall dock. Make sure to

push them in until they only stick out approx. 50 mm and cannot be pushed in any further.

Now you can remove your charging station from the wall dock. Pull the charging station away from the wall dock in a straight line.

Important: Do not twist or skew the charging station, as that might damage the station's snap fits and/or connectors.

Be aware that the charging station is still fixed on the connector (socket) of the wall dock, and it requires some force to pull it off.

Take out the keys from EVBox Elvi wall dock.







10.4 Change Charging Cable



Warning: Risk of electric shock.

Before changing the charging cable, make sure that the power line you're using is switched off on your service panel. The LED ring of the charging plug must be off.





Electric Vehicle Charging Solutions



Align the station to the wall dock and the connectors and press until you hear a clicking sound. Keep a straight line while mounting the station. To ensure that the connection is fully secured, press firmly on all four corners and check that there is no air gap between the wall dock and the station.



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10.8

When upgrading your charging cable to a version that is suitable for higher power application, make sure that the applied RCD and MCB in the service panel are in line with local regulations, and are also adequate for the type of charging cable installed and the amount of power Elvi can supply (3.7, 7.4, 11 or 22 kW).

Check with your installer whether the selected output power from your Elvi can be supported by your local electrical installation. The setting of your maximum available amperage in the mobile app and/or web platform for station management may need to be adjusted to the new situation.



11Install Cable Dock







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11.4 Place the cable dock's wall base on the wall and fasten the three screws 5 x 70 mm length.

Do not overtighten.



11.5

The Elvi cable dock is supplied with two plug holder options: one for Type 1 and one for Type 2 charging plugs.

Choose the plug holder that corresponds to your charging cable and insert it into the cable dock.

Fasten the bolt with the T30 bit. Do not overtighten.





12Activate EVBox Elvi

You can configure the operation of Elvi using the EVBox Connect app.

Charging stations can be connected to a Charging Management Platform (CMP), such as **Smart Charge**, or they can be configured as not-connected installations. Online charging stations connect to the CMP using Wi-Fi or optional cellular data connection, depending on the model.

The charging station Registration # and Security Code are required for configuration, and these are located on the accessories folder. E.g.:

- Registration #: e.g., EVB-P12345678
- Security Code: e.g., 123456789



12.1 EVBox Connect App



12.2 Using Wi-Fi with Elvi

Elvi is equipped with a multi-radio module. The wireless module includes dual-mode Bluetooth v4.0 (BR/EDR and low energy) and dual-band Wi-Fi (2.4 and 5 GHz bands). For Wi-Fi connectivity, the device supports Wi-Fi IEEE 802.11 (a/b/g/n) with a maximum reception range of 250 m (with minimal obstacles between Elvi and the nearest access point).

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Notes on Wi-Fi security:

- Wi-Fi Protected Access 2 (WPA2), also known as WPA-Personal or 802.11i, is the most common security setting for Wi-Fi networks. WPA2 has replaced WPA.
- It is not possible to have WPA with AES/CCMP (Advanced Encryption Standard/Counter and CBCMAC Protocol) encryption or WPA2 with TKIP (Temporal Key Integrity Protocol).
- WEP (Wired Equivalent Privacy) and TKIP are not supported as they are considered unsecure. WEP is now deprecated in the 802.11i specification. Open networks are supported (i.e., networks with no password). However, it is not advised to use open networks for connecting Elvi.
- Enterprise security is the common name for all methods that use 802.1X to authenticate with a backend RADIUS server. Enterprise security is not supported by BusinessLine.

Some tips when configuring your Wi-Fi router and access point:

- Do not set the option to hide your network because a hidden network will not broadcast to Elvi.
- Make sure that your router is not limiting connections to certain MAC addresses.
- Set the Wi-Fi security to WPA/WPA2, also known as WPA Mixed Mode. This mode allows Elvi to connect with WPA TKIP-level encryption, and lets other devices use WPA2 Personal (AES) encryption.
- Make sure you set a strong Wi-Fi password. A minimum of eight characters are required in a password.
- Make sure that the a/b/g/n modes under the 2.4 GHz and 5 GHz frequencies are active. Elvi will choose the fastest available mode for its operation. 5 GHz is usually faster, but with shorter distances 2.4 GHz can be more accessible for Elvi. The installer or user must examine the signal strength of both networks during Wi-Fi setup on Elvi.

When the Elvi charging station is fully installed and power is on, you can use the EVBox Connect App to check that the hub station has a connection to the cellular network or Wi-Fi.

12.3 Configure the Installer Mode settings

The installer mode settings must be configured before the charging station is activated.

- 1. Make sure that your smartphone or tablet is paired with the charging station.
- 2. In the EVBox Connect app, select **Installer mode** and then re-enter the security code.
- 3. Select Charge current, then set the minimum and maximum charging current.

DANGER: The maximum charging current setting must match the capacity of the power supply.

4. Select Set Charger to be Offline or Online.

For a charging station set to **offline**:

- The Charging Station can be set up for:
 - a. **Autostart:** Which starts the charging session when the plug connected with the vehicle and stopped from inside the vehicle.



b. Activate using card/key fob: The Charging Station charging session can be activated with the EVBox RFID Cards or Key Fobs issued with the unit. Note that these cards will only work when the Station is set to Offline.

For a charging station set to **online**:

- The Charging Station is connected to a backend Charging Management Platform, such as Smart Charge.
- The charging cards and key fobs that can be used to initiate the charging session must be registered with the Charging Management Platform.

Note: A Smart Charge RFID Card is also issued with the Station. If the Customer is to use the Station online, then please ask them to register an Account on the Smart Charge App. Once done, contact Smart Charge to register the issued Smart Card on the Account, and request more – if required – support@smart-charge.com.au

- 5. For online, select Charging Management Platform, then select our platform from the list.
 - Platform: SaasCharge Int
 - URL: ws://eu-prod-socket.saascharge.com/websocket/CentralSystemService/
- 6. Press Save, then Reboot the charging station to save the settings.

12.4 Configure the User settings

Note: A qualified electrician must first configure the installer settings before the user can set the user settings.

Note: The user settings configured for a Hub charging station are also applied to Satellite charging stations in the same installation.

- 1. Make sure that your smartphone or tablet is paired with the charging station.
- 2. In the EVBox Connect app, select Charging Station Setting then select Wi-Fi Connection. Connect the charging station to your local Wi-Fi connection.
- 3. If required, select LED Settings and set the brightness of the LED ring, as well as idle state on or off.
- 4. Press Save.



12.5 Screen Shots of the Set-up

Once you have the App open, follow the below instructions:



4, Rename the Charger if you would like to.	5, Change to desired Brightness, and turn Idle state on. Save.	6, Locate Wi-Fi (if available), fill in details and Save.
10:11 ⊑ ◀ © · ≌ ♣ ☜	10:11 ⊑ © 4 ≌ % silai 46% ≦ ← ①	10:11 세 III ⓒ · III 총 학·네네 46%을 ← ①
Rename Charger EVB-P20381649	LED settings Strathpine Library	Wi-Fi connection
	BRIGHTNESS	
Strathpine Library 18/20	Subtle Moderate	
	High Intense	(?)
	Idle State LED on	
		Remove Wi-Fi
SAVE	SAVE	CHANGE WI-FI
III O <	III O <	III O <

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13Station Setting Changes for Testing

To test the Station with a Test Equipment, such as the Metrel MI 3155XD and A1532 or A 1632, the Station must in Autostart Mode. Meaning, the Station must be disconnected from the Backend Software before testing. The reasons for this are:

- Once the 'Safety States' of the Charging Station are verified, a built-in electrical contactor energised to 'initiate a charge'. The Test Equipment imitates this state.
- However, when the Backend Software is connected, then the User must first be verified, and safeties checked before energisation. If a Charging Session was initiated with a Backend Software Account, then this may start the process, but will ultimately time out.
- Therefore, changing the Station set up to Autostart before testing is possibly required. As long as you remember to change it cack afterwards.







13.1 Test Mode - EVBox Connect Settings:

Sign into the App, using the Charger ID/Registration # and Security Code, as above:







14Charge with EVBox Elvi

Start charging

- 1. Plug your charging cable into your vehicle and the EVBox Elvi if a Socket version.
- 2. To start and stop a charging session, you can use a registered charge card, key fob, or your mobile Smart Charge application.
- 3. In case of charge card activation, hold your charge card (RFID Card) in front of the reader, marked with icon.
- 4. EVBox Elvi reacts with a beep. This means that your card has been authorized.
- 5. The EVBox Elvi LED ring turns blue when it starts charging.

Stop charging

- 1. In case of charge card activation, hold your charge card (RFID Card) in front of the reader, marked with icon.
- 2. EVBox Elvi reacts with a beep. This means that your charge card/key fob has been authorized. The EVBox Elvi LED ring turns green when it stops charging.
- 3. Unplug your charging cable from your vehicle and EVBox Elvi and place it back into your car. Alternatively, you can unplug your charging cable from your vehicle, if a tethered lead, and hang it back up safe and securely.

	What you see	What it means	What to do
0	LED ring off or green	EVBox Elvi is ready for use.	Plug the charging cable into EVBox Elvi.
()	LED ring green, flashing	Your charge card is being verified.	Wait until LED ring turns blue.
0	LED ring yellow	The car is fully charged.	Unplug the charging cable from EVBox Elvi and place it back into your car.
0	LED ring yellow, flashing	Charging session is in queue (applicable in the Smart Charging environment only).	When power becomes available, charging will start or resume, and the LED ring will turn blue.
0	LED ring blue	EVBox Elvi is charging the car.	The car is charging.
0	LED ring red	EVBox Elvi is experiencing an error.	Check the troubleshooting chapter in this man- ual for solutions. If this does not solve the issue, contact your installer or supplier of EVBox Elvi, or write us at support@smart-charge.com.au
0	LED ring red, flashing	Your charge card is not autho- rized to charge.	Contact your charge card service operator.



15 Maintenance Instructions

15.1 Maintenance by user

The user of Elvi is responsible for the condition of the charging station, whereby both the law regarding the safety of persons, animals, and property must be observed, as well as the installation regulations in force in the country of use. Have Elvi and its installation inspected by a qualified electrician on a regular basis and in compliance with installation regulations applicable in your country. For Australia and New Zealand, the Residual Current Device (RCD) and integrity of the Charging Cable should be checked at least once per annum.

- CAUTION: Do not use a hose or a high-pressure spray to clean Elvi.
- CAUTION: Do not use aggressive chemical cleaners or solvents to clean Elvi.
- 1. Remove dirt and natural organic matter on the outside of Elvi using a damp soft cloth.
- 2. Check the charging plug for dirt. Clean if necessary.
- 3. Check the charging plug for damage. A qualified electrician must replace the charging cable if the charging plug is damaged.

15.2 Maintenance by a qualified electrician

15.2.1 Remove the station

See the corresponding illustrations in Section 9 of this Manual.

- 1. Switch off power to the charging station at the power supply cabinet.
- 2. Push the two unlock tools, slot first, fully upwards into the holes on the bottom of the station until you hear a click.
- 3. With both hands, pull the station from the wall dock in a straight line to disengage the station electrical connector from the wall dock.

Note: To prevent damage to the locking tabs or the electrical connector, do not twist or skew the station.

4. Remove the two unlock tools from the wall dock.

15.2.2 Replace the charging cable

Note: When working on the station, place the station on a soft surface to protect it from damage. Be careful not to damage the locking tabs on the station.

- 1. Remove the station.
- 2. Remove the bolt at the back on the Charging Cable connection using the Torx T30 bit.
- 3. Turn the station over and remove the charging cable from the station.
- 4. If the rubber seal is not on the charging cable plug, remove the rubber seal from the station socket.
- 5. On the new charging cable, make sure that the rubber seal is in place and not twisted. The rubber seal must fit correctly to ensure that the enclosure rating is met.
- 6. Push the charging cable firmly into the station.
- 7. Turn over the charging station and place it on a soft surface.
- 8. Install the Torx M6 x 45 bolt using a Torx T30 bit.
- 9. Install the station.



16 Troubleshooting

Troubleshooting must only be done by a qualified electrician unless otherwise stated. Incorrect installation, repairs or modification can result in danger to the user and may void the warranty and liability.

This is a general troubleshooting guide listing the most common issues. If you are not able to solve an issue, visit <u>www.ev-hub.com</u> for further help from our support team.

Problem	Possible cause	Solution
LED ring is off.	The charging station is in idle mode and the LED ring idle state is set to off or timer. (The LED ring comes on when the charging station is used.)	 Use the EVBox Connect app to set the LED ring idle state to on or timer. The LED ring will stay on continuously.
Charging station does not react	No power to charging station	 Check that the residual current device and circuit breaker on the service panel are on (check by user). Check that the supply cable entering the charging station is live. The LED ring should be on. Turn the charging station off. Turn it on again after 20 seconds by flipping the circuit breaker or main switch to EVBox Elvi.
Residual-current device prevents charging. LED ring flashes red 10x.	 Grounding error in the charging station Special ground resistance needed for the vehicle Fault in the vehicle or defective charging cable 	 Contact your service technician for inspection and solution. There are no user-serviceable parts.
LED ring lights up red constantly.	Grounding fault.	 Check whether your electrical installation is properly grounded. Contact your service technician in case of doubt and for solving the local grounding situation.
LED ring lights up yellow constantly	 Vehicle is on a timer Vehicle is fully charged Grounding resistance is too high (with specific vehicles, this must be < 50 Ohm) 	 Check that the charging cable plug is inserted into EVBox Elvi properly (check by user). Change the setting of the timer in the vehicle (check by user). Replace the charging cable (user-serviceable). Check that the ground resistance is correct (grounding measurement by electrician).

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17 EVBox Elvi – Specification

Charging capacity	Upgradable 3.7–22 kW
Charge mode	Mode 3 (IEC 61851-1)
Number of connectors	1
Connector options	Fixed cable or Type 2 socket
Fixed cable type	Type 2 (IEC 62196-2) plug
Fixed cable length	4 m or 8 m for Elvi models without dynamic load balancing 6 m for Elvi models compatible with dynamic load balancing
Connection capacity	Selectable 1-phase or 3-phase, 230–400V, 16 A and 32 A, 50-60 Hz
Metering	Optional 3-phase S-Bus MID-certified kWh meter in wall dock
Enclosure ratings	IP55, IK10 (IEC 60529)
AS/NZ Certified	Yes (SAA Approved), Registered with EESS
Compliance	IEC 61851-1, IEC 61851-21-2, CE EMC EU/2014/30, CE Low voltage EU/2014/35, RED EU/2014/53
Authorization	Autostart / Keyfob / RFID card - controller with RFID reader type Mifare 13.56 MHz
Smart Charging	Dynamic load balancing, solar integration, and scheduled charging via EV Hub Smart Charge
Dimensions (W x H x D)	Fixed cable - 186 x 328 x 161 mm With socket - 186 x 328 x 219 mm
Mounting	Wall or pole
Standard colours	Misty Black, Polar White



18 Warranty

18.1 EVBox warrants to Customer on delivery and for a period of three (3) years thereafter that the Products are free from material defects in material and workmanship and conform in all material aspects with the specifications as explicitly listed in the Documentation, except for charging cables, their connectors and software, for which the warranty is limited to three (3) months from delivery. Except as stated in this clause 1, EVBox provides no warranties of any kind in respect of the Products.

18.2 Subject to clause 3, EVBox shall, at its option, repair or replace defective Products, or refund the price of defective Products if:

(a) Customer gives notice in writing during the warranty period within a period of fourteen (14) days after the Customer has discovered or should reasonably have discovered that some or all of the Products do not comply with the warranty as set out in clause 1;

(b) Customer returns such Products to EVBox (at the location specified by EVBox) at Customer's cost and following the RMA (return merchandise authorization) instructions from EVBox, if the nature of the Product allows such return; and

(c) EVBox is given a reasonable opportunity of examining such Products and provided by Customer with all information it may reasonably require proceeding to such examination. With respect to repair, EVBox is entitled to apply problem-avoiding restrictions and/or Workarounds.

18.3 EVBox shall not be liable for the Products' failure to comply with the warranty in clause 1 if:

(a) Customer makes any further use of such Products after giving a notice in accordance with or failed to provide notification within fourteen (14) days as set out in clause 2;

(b) The Error arises because Customer failed to follow EVBox's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Products or (if there are none) good trade practice (such as but not limited to use of the Products with parts, accessories or software not provided or approved by EVBox);

(c) The Error arises as a result of EVBox following any customisation or Product specification supplied by Customer;

(d) Repairs or other interventions on the Products are performed by persons not trained for this purpose, against EVBox's oral or written instructions, or with parts not supplied or approved by EVBox; or

(e) The Error arises as a result of fair wear and tear, wilful damage or negligence by Customer and/or a third party, or abnormal working conditions (such as but not limited to damages resulting from vandalism, animals, high-pressure cleaners, or Error in connected vehicles).

18.4 In all cases, the following are excluded from the coverage of the warranty:

(a) Travel costs and labour costs of repair, including time spent on preliminary work or on disassembly and reassembly, if the repair of the Products is to take place at the installation site due to the nature of the Products;

(b) Cleaning, routine maintenance and preventative maintenance operations of the Products as defined in the Documentation, as well as the supply of products necessary for these operations;



(c) Restarting operations after the Product has been secured, for example by circuit breakers, ground fault circuit interrupters (GFCIs), fuses or emergency stops; and

(d) In general, all operations on site, especially if no parts need to be replaced.

18.5 The Agreement shall apply to any repaired or replacement Products supplied by EVBox.

This warranty statement is subject to change.

Please refer to evbox.com/general-terms-conditions for the latest version.

19 Disclaimer

The present document is drawn up by way of information only and does not constitute an offer binding upon EV Hub. EV Hub has compiled the contents of this document to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein.

Specifications and performance data contain average values within existing specification tolerances and are subject to change without prior notice. Prior to ordering, always contact EV Hub for the latest information and specification. EV Hub explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this document.

Smart EV Solutions Pty Ltd trading as both EV Hub and Smart Charge. ABN: 74 650 654 916

National Equipment Registration Responsible Supplier # E9093





20 Smart Charge - App Operation

Download the App

www.smart-charge.com.au

#1.1 - Find and Install the App



Find the App on your App Store by either searching, clicking on the links on the website, or scanning the QR Code above. Hit Install.

#1.4 - Complete the Form

<	REGISTRATION	🙀 Smart Charge
Mr.		
		required
First na	me *	
		required
Last na	me *	
		required
Email *		
		required
Phone/	Cell	
Passwo	ord *	
		required

Fill out the Form with your Name, Address, Email Address and Mobile Number. **#1.2** - Register your Account

Guest	N .		
Not re	gistered	Contal	
D	Мар	>	
Ð	History	>	
0	About	>	S
*	FAQ	>	
Θ	Login or Register	>	
		C	

Once downloaded, click on 'Open' then expand the Menu by clicking on the three horizontal bars found at the top left-hand side. Click on 'Login or Register'.

#1.5 - Add Payment

<	REGISTRATION	💥 Smart Charge
Address Unit 35	, 40 Nathan Ave	
city * Ashgro	ve	
		required
Queens	land	•
		required
Austral	ia	÷
Post Cod 4060	.*	required
		roquiro
Cubana		

Please ignore 'Subscription Code', unless you are part of a Company Fleet Management Program. Click 'Add Payment'.



#1.3 - Choose Pricing Plan



Choose a Pricing Plan - either 'Pay as you go', or a 'Package'. Note that Package Plans offer discounts and carry a validity of 18 months. Click 'Create Profile'.

#1.6 - Finish Registration



Once you have entered your Credit Card details, click on 'Save'.

Page 2 – Charging your Vehicle @ Public location

#2.2 - The Menu



Log in. Click on and open the 'Menu'.

#2.4 - Connector Status



Check the green 'Available' icon for Connector Status. Also, the Connector Type available, kWh output and Cost of Charge.

#2.3 - Wallet



Your Menu may show a 'Wallet' if you have deposited credit into a Package.

#2.5 - Select the Connector



Once at the Charger, plug in the Connector to your vehicle and click on 'Click to Start' under that Connector Type on the App.

#2.4 - Locate your Charger

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To locate your Charger, look for the Green flag on the Map. Click on the Flag

#2.6 - Start & Stop



Press 'Start' to begin your charge. Once your charge is finished, then press 'Stop' button.

Smart Charge 24/7 Support -1800 998 896

support@smart-charge.com.au