CHARGE HUB
ELECTRIC VEHICLE CHARGING SOLUTIONS

EVBOX

BusinessLine

Operation & User Manual

Jan 2023

Contents

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1 Introduction

Thank you for choosing the EVBox BusinessLine, our best-selling charging station with proven technology and reliability. Built to be connected and intelligent, EVBox BusinessLine makes going electric at your workplace or business easier than ever.

This Operation and User manual tells you how to use and fault find any potential issues with the EVBox BusinessLine. 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.

1.1 Compatibility

Note that the EVBox BusinessLine generation 4 is not compatible with earlier generations of the BusinessLine charging station. Each Hub-Satellite installation must consist of the same generation of charging stations.

1.2 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 by going to https://chargehub.solutions/

All EVBox manuals can be downloaded from evbox.com/manuals.

1.3 Product classification

This product has the following classification:

Table 1. Classification

Power supply input	EV supply equipment permanently connected to AC supply network.
Power supply output	AC EV supply equipment
Normal environmental conditions	Outdoor use
Access	Equipment for locations with unrestricted access.
Mounting method	Stationary equipment, surface-mounted on walls, poles or brackets.
Protection against electric shock	Class 1 equipment
Charging modes	Mode 3

2 Safety precautions

Read and obey the following safety precautions before you install, service or use your charging station. The installer must ensure that the charging station is installed in accordance with the relevant country-specific standards and local regulations.

2.1 Warning: Risk of electric shock

- Switch off input power to your charging station before you install or service the charging station. Keep the power off until the charging station is fully installed with its covers installed and secured.

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- In the event of danger and/or an accident, a certified electrician must immediately disconnect the electrical supply from the charging station.
- Do not operate the charging station if it is physically damaged or if the charging cable has cracks, excessive wear, or other visible damage. Contact EVBox or your distributor if you suspect that the charging station is damaged.
- Do not direct powerful jets of water toward or onto the charging station. Never operate it with wet hands. Do not put the EV charging plug into any liquid.
- Do not put fingers or other objects inside the charging port or plug port.
- Read the user instructions delivered with your EVBox charging station and the User Manual for your electric vehicle before charging your vehicle.

2.2 Warning: Accumulation of gasses

- Some electric vehicles require an external ventilation system to prevent the accumulation of hazardous or explosive gasses when charging indoors. Refer to your vehicle User Manual to check if your vehicle releases hazardous or explosive gasses when charging.

2.3 Cautions:

- Use this charging station to charge Mode 3 compatible electric vehicles only. Refer to your vehicle User Manual to check if your vehicle is compatible.
- This charging station may affect implanted electronic medical devices. Before you charge your vehicle, consult the supplier of the electronic medical device to determine if it can be influenced by charging effects.
- This charging station may only be installed, serviced, relocated and repaired by qualified persons. Incorrect installation, repairs or modification can result in danger to the user and may void the warranty and liability.
- This charging station contains no user-serviceable parts. The user must not attempt to service, repair or relocate the charging station. Contact EVBox or your dealer for more information.
- Make sure that the charging cable cannot become damaged (kinked, jammed or driven over) and that the plug(s) do not come into contact with heat sources, dirt or water.
- Only use the charging station under the specified operating conditions.
- Do not use explosives or flammable substances near the charging station.
- If you are unsure about how to use a charging station, ask for help.
- Do not allow children to operate a charging station. Adult supervision is required when children are near a charging station that is in use.
- 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.
- While charging, the cable must be completely unwound and connected to the vehicle without overlapping loops (this is to avoid the risk of the charging cable overheating).
- Only pull on the charging plug hand grip and never on the charging cable itself.
- Adapters, conversion adapters or cord extensions must never be used on this charging station.

2.4 Transport and storage

- Disconnect input power before removing the charging station for storage or relocation.
- Only transport and store the charging station in its original packaging. No liability can be accepted for damage incurred when the product is transported in non-standard packaging.

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- Store the charging station in a dry environment in the temperature range given in the specifications.

3 Product features

The BusinessLine charging station is compatible with all Mode 3 electric vehicles and is designed for both indoor and outdoor use. Operation of the charging station is approved at ambient temperatures of between -25 °C and +50 °C. The charging station can be connected to a central system for the registration of the number of kilowatt-hours (kWh) charged.

3.1 BusinessLine configurations

BusinessLine charging stations come in the following configurations:

- Single socket, communications hub.
- Single socket, satellite.
- Double socket, one communications hub and one satellite.
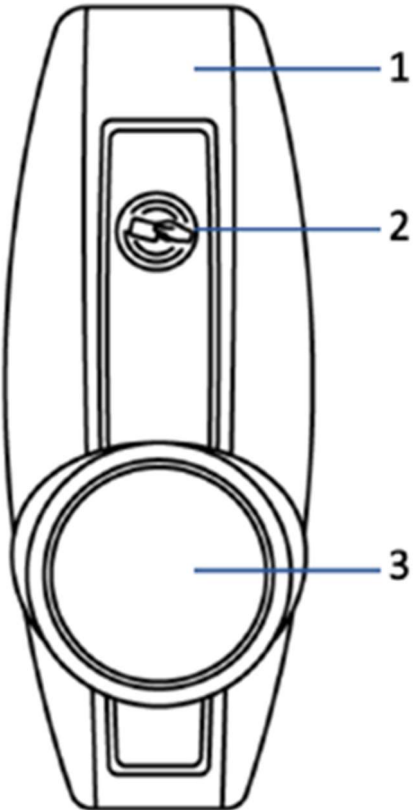- Double socket, two satellites.

One BusinessLine hub can be connected to a maximum of 19 BusinessLine satellites. A smart grid can be established over all charging stations. This optimizes power usage and lets more vehicles charge simultaneously should power limitations exist.

3.2 Connecting BusinessLine

A charging station has an RFID card reader and a kWh meter. A communications hub is built into a hub-type charging station. The communications hub has a cellular data connection, Wi-Fi, Bluetooth and GPS which have the following functions:

Connection	Description
Cellular data connection (2G, 3G and 4G)	Connection to backend systems for setup, maintenance and transactions (method 1).
Wi-Fi	Connection to backend systems for setup, maintenance and transactions (method 2).
Bluetooth	Local setup and access control for the charging stations.
GPS	Location of the charging stations.

3.3 Description

1. Operation
- BusinessLine is connected using either a built-in or remote dual band Wi-Fi connection or a cellular modem.
- To start or stop a charging session, use a registered RFID (Charge Hub) charge card, key fob, or the Charge Hub app.
- When used in Autostart mode, a registered charge card, key fob, or Charge Hub app is not required. Charging starts automatically when the charging station is connected to a vehicle.

2. RFID reader
- This is the area where you scan an RFID card or key fob.
- The BusinessLine reads the data from the card or fob to start or stop a charging session. If the charging station is not connected to a vehicle and is not activated by the RFID card or fob, there is no voltage on the socket and the charging session will not start.

3. LED indicator ring and socket
- The LED indicator ring around the socket shows the status and mode of the charging station at all times. The socket lets you use your own charging cable. The socket is a standard Type 2 with an optionally integrated shutter system.

4 Technical specifications

Feature	Description
Technical features	
Charging capacity per socket	Maximum 7.4 kW, 11 kW or 22 kW, depending on installation and set-up.
Socket type	Type 2
Number of sockets	1 or 2
Output power per socket	1-phase or 3-phase, 230 V – 400 V, 16 A or 32 A.
Connection capacity	1-phase or 3-phase, 50 Hz, between 2.5 – 10 mm2
Residual direct current detecting device	Complies with IEC 62955, with 6 mA smooth residual DC detection and additional 30 mA residual AC detection
Operating temperature range	-25 °C to +50 °C
Humidity (non-regulating)	Max. 95%
Communication	GPS / GSM / UMTS / LTE cellular data, Wi-Fi, Bluetooth and GPS module controller with RFID reader (in hub type)
Communication protocol	OCPP 1.6 JSON
Physical features	
Certification and compliance	See Declaration of conformity

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Protection	IP55, IK08
Housing	Polycarbonate
Max. installation altitude	2000 m above sea level

Feature	Description
Dimensions (mm)	600 x 255 x 410 mm (double)
	600 x 255 x 205 mm (single)
Weight (kg)	12 kg (double socket)
	10 kg (single socket)
Mounting	Double: Combipole in or on the ground, or on a wall.
	Single: Combipole in or on the ground, or on a wall.
	Wall spacer for direct installation on a wall.
Standard colours	RAL 7016 (dark gray), RAL 9016 (white), RAL 5017 (blue)

5 Using BusinessLine

5.1 Start charging with BusinessLine

1. Plug your charging cable into your car and into the BusinessLine charging station.

   The LED ring shows green.

2. Hold your charge card (RFID card) in front of the reader on the charging station.

   The LED ring flashes green and you hear a beep. Your card is being authorized.

3. The charging station LED ring shows blue when your car is charging.

4. The charging station LED ring flashes yellow when your car is on pause and waiting to start charging.

5. The charging station LED ring shows continuous yellow when your car is charged.

Note:

- A flashing yellow LED indicator (once every second) shows a paused charging session. This is only possible in a hub-satellite configuration. Charging automatically resumes when power becomes available.
- For RFID card-operated charging stations, the LED status indicator shows green in standby mode. For Autostart charging stations that do not operate with an RFID card, the LED status indicator is off in standby mode.

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5.2 Stop charging with BusinessLine

You can stop charging your car at any time, even if it isn't fully charged.

1. Hold your charge card (RFID card) in front of the reader on the charging station. The LED ring flashes green and you hear a beep. Your card is being authorized.
2. The charging station LED ring turns green or is off when it stops charging.
3. Unplug your charging cable from your car and the charging station.

5.3 LED indicator ring

LED ring color	What you see	What it means	What to do
○	LED ring off or green.	BusinessLine is ready for use.	Plug your charging cable into the car and the charging station.
○	LED ring flashing green.	Your charge card is being verifed.	Wait until the LED ring turns blue.
○	LED ring blue.	BusinessLine is charging the car.	Wait until the car has charged. You can also stop the charging at any time.
○	LED ring yellow.	The car is fully charged.	Unplug your charging cable from the car and the charging station.
○	LED ring flashing yellow.	Charging session is in queue (applicable for Smart Charging only).	When power becomes available, charging will start or resume and the LED ring will turn blue.
○	LED ring red.	An error has occurred.	Check Troubleshooting on page 9 in this manual for solutions. If you cannot solve the issue, contact tour Charge Hub installer for support.

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LED ring color	What you see	What it means	What to do
	LED ring flashing red.	Your charge card is not authorized to charge.	Use the EVBox Connect app to check if the charging station is connected. Whitelist the charge card. Contact your charge card service operator.

6 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 www.ev-hub.com for further help from our support team.

Problem	Possible cause	Solution
Charging station does not react	No power to charging station	- Check that the residual current device and circuit breaker on the main power supply panel are on. - Switch off the main power supply, wait 20 seconds, then switch on the main power supply again. - Check that the power supply cable connected to the charging station is live. The LED ring green should show green.
Residual current device trips constantly	Grounding error in the charging station	- Examine electrical wiring for damage. Replace damaged wiring. - Moisture or condensation on electrical connections. Dry the connections where necessary. If necessary, repair seals on charging station
	Fault in the vehicle or defective charging cable	Replace the charging cable
	Ground resistence is too high for the vehicle type	Measure the ground resistance and compare it to the resistance required by the supplier of the vehicle, for example Renault Zoe < 150 Ω.

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LED ring flashes red immediately when the card is held against the reader.	Charge card is not authorized for charging at this charging station.	• Check that the charge card is authorized for use on public chargers. (Check by user) • Check the settings of your charging station in your online account. (Check by user)
	There is no communication with the backend.	• Use the EVBox Connect App to check that the hub station or hub module has a connection to the cellular network or Wi-Fi.
LED ring shows constantly red	Grounding fault	• Check that the electrical installation is correctly grounded. • If necessary, add additional grounding closer to the installation.
In a hub-satellite installation, one or more LED rings constantly flash red.	Crossed connection in one of the satellite RS485 connections.	• Examine RS485 cabling and connections.
	No connection with the hub charging station.	• Examine RS485 cabling and connections.
LED ring always shows yellow.	Vehicle is fully charged.	• Disconnect the charging cable.
	Charging station is waiting for vehicle.	• Check that the charging cable plug is inserted into the vehicle correctly. (Check by user)
	Vehicle is on a timer.	• Change the setting of the timer in the vehicle. (Done by user)
	The charging cable has a fault.	• Replace the charging cable. (Done by user)
	Ground resistance is too high for the vehicle type.	• Measure the ground resistance and compare it to the resistance required by the supplier of the vehicle, for example Renault Zoe < 150 Ω.
LED ring shows blue for a few seconds, then changes to yellow.	Vehicle will not charge	• Make sure that the minimum current accepted by the car is not higher than the minimum current supplied by the station. (Check by user.) • Check the line-to-line and neutral-to-line voltages at various locations on the power circuit(s). • Check that the electrical installation is correctly grounded.
Charging station does not start charging. LED ring flashes green for 30 seconds, then flashes red 10 times. LED ring	No response from the backend portal account.	• Use the card again to start the charging. If the problem remains, contact your operator or service provider for further support. (Check by user.)

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changes to green or goes off.	Plug not locked.	• Is the plug pushed far enough into the charging station? (Check by user.) • Examine the plug for damage or bent pins. (Check by user.) • Examine the socket to see if it is blocked by an object. (Check by user.)
	Vehicle not connected.	• Is the plug properly connected to the vehicle? (Check by user.)
	Charging station lock is blocked.	• Check if the charging station internal wiring harness blocks the plug locking mechanism.
Plug cannot be removed from charging station.	Incorrect card used to stop charging (LED ring flashes purple briefly).	• Use the same card to stop charging as to start charging. (Check by user.)
	No response from the backend portal account.	• Use the card again to stop the charging. If the problem remains, contact your operator or service provider for further support. (Check by user.)
	Plug lock will not release.	• Push the plug further into the charging station and hold the card against the card reader again. (Check by user.) • Switch off the main power supply, wait 20 seconds, then switch on the main power supply again.

7 Disclaimer

The present document is drawn up by way of information only and does not constitute an offer binding upon Charge Hub. Charge 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.

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8 Charge Hub - App Operation

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