



Eve Single Plus



EV Charging Stations

User Manual



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1.1 Disclaimer

This document has been subjected to rigorous technical review before being published. It is revised at regular intervals, and any modifications and amendments are included in the subsequent issues. Although Alfen has made its best efforts to keep the document as precise and up-to-date as possible, Alfen does not assume any liability for defects and damage which results from the use of the information contained herein.

NOTE

This manual is subject to updates and changes. Errors and omissions excepted.

Any deviation to the products as assembled by Alfen including, but not limited to,

- customer-specific modifications,
- components to the product specified or, where appropriate, instructed by third parties such as the placement of stickers, SIM cards, grid connection components required by grid operators or the usage of different colors (all referred to as 'Customization')

may affect the final product, its experience, appearance, quality and / or lifespan (the Customized Product).

Alfen is not liable for any damage to, or caused by, the Customized Product if this damage is caused by this applied Customization.

In addition, Alfen shall not be liable in any way, for any kind of damage, and the (B2B) warranty for the product and the accessories shall not apply in the following cases:

- Failure to comply with the instructions in this manual in general and with the operating conditions specifically.
- Improper use.
- External damage.
- Installation, commissioning or faulty repair or maintenance by unqualified persons.
- Failures from the grid or the mobile connectivity provider.
- Modification or configuration of the product or accessories without the knowledge of Alfen.
- Use of spare parts not approved or manufactured by Alfen.
- The charging station is used outside the environmental conditions stated in this manual.
- Situations have occurred that are beyond the control of Alfen (force majeure).
- Malfunction of an (Open Charge Point Protocol) back office.
- Damage to the electric vehicle.

1.2 Copyright

The reproduction, distribution and utilization of this document, as well as the communication of its contents to other parties without explicit authorization by Alfen N.V. or one of its affiliates, is strictly prohibited. © Alfen N.V.

1.3 Trademarks

Eve®, ICU®, Alfen® are trademarks by Alfen N.V. Any unauthorized use of the trademarks is therefore illegal.

1.4 Languages

The English version of this document is the original source. Documents in other languages are translations of this source.

1.5 Purpose and intended audience

This manual applies to the Eve Single Plus (in this document also indicated as "charging station") produced by Alfen ICU B.V., Hefbrugweg 79, 1332 AM Almere, the Netherlands, reg.no. 64998363 ("Alfen").

This manual is intended for the user and owner (electrotechnical layman) of the charging station(s). It gives instructions for safe operation and useful information.

1.6 Explanation of text instructions used

Safety warnings and precautions are indicated in this document as follows:

DANGER

Signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Signal word used to provide additional information or information on possible product damage.

1. ABOUT THIS MANUAL

1.7 Service and warranty

Contact your charge point supplier or charge point operator for support.

NOTE

When contacting your charge point supplier / operator, always have your type / article number and object number available to facilitate quick support.

2. SAFETY AND USAGE INSTRUCTIONS

2.1 Responsibilities of the owner and/or user

As a user without electrical training, you may only carry out activities on the charging station that do not require an instructed person. The user is responsible for the proper and safe use of the charging station.

⚠ DANGER

Risk of injury and electrocution. Never open the charging station. Only an instructed person may open the charging station.

⚠ DANGER

Risk of injury and electrocution. Do not use the charging station if it is damaged or plugs and cables are defective.

- The user is responsible for the correct handling of the charging cable.
- Prevent the charging cable from mechanical damage and handle it with care at all times.
- Inspect the charging cable on visual damage every time before using.
- Place the charging cable into the corresponding support or in your car after use.

Prior to installation of the charging station, the vicinity of the charging station shall be approved by the installer regarding certain criteria. However, as the surroundings of the charging station may change over time, the following safety advices apply at all times:

⚠ DANGER

Risk of injuries, explosion or fire. Do not use the charging station in the vicinity of explosive or highly flammable substances.

⚠ CAUTION

Risk of injury. Prevent pedestrians from tripping over cables.

⚠ CAUTION

Risk of injury. Prevent vehicles from driving over the charging cable.

If the charging station displays an error message, refer to the error codes list in this document to take the appropriate measure.

2.2 Intended use

The charging station is intended exclusively for charging electric vehicles. The charging station is suitable for both indoor and outdoor use, in places with limited or public access. The charging station can be mounted on a wall or on a pole. If installed correctly, the charging station can be used safely.

The charging station can be used as an individual charging point for private use or in a group of several charging stations. The charging station can be configured via the ACE Service Installer.

⚠ DANGER

Risk of injury and electrocution. Installation, (de)commissioning and maintenance of the charging station may only be performed by an instructed person.

2.2.1 Environmental conditions and product properties

Operating temperature	-25 °C to +55 °C
Environmental conditions	<ul style="list-style-type: none">• Indoor use• Outdoor use
Electrical safety class	Class I
Ingress protection	IP55
Impact protection	IK10

💡 NOTE

- The stated charging performance is solely applicable to the charging station itself. The actual performance depends on the vehicle and the grid connection.
- A front cover in a colour other than RAL9016, and the addition of customizations, can increase the heat transfer from solar radiation transferred to the charging station. This also affects the charging performance.

2.3 Information on Radio Frequency

The charging station is approved according to the Radio Equipment Directive (2014/53/EU). The frequency bands and maximum power of this equipment are listed here. All radio equipment is mentioned in this table, the presence or activation for each radio equipment depends on the specific configuration. These are maximum values for all models and component sub suppliers.

The maximum power is rated power plus maximum tolerance.

2. SAFETY AND USAGE INSTRUCTIONS

EN

Radio Equipment	Frequency (bands)	Rated max. power
DCS1800/PCS1900	1800/ 1900 MHz	30 dBm
GSM850/EGSM900	850/ 900 MHz	33 dBm
LTE-FDD	B1/B2/B3/B4/ B5/B8/B12/B13/ B17/B18/B19/ B20/ B25/B26/ B27/B28/B66/ B85	21 dBm
RFID card reader	13.56 MHz	-1 dBuA/m at 10 m
Wi-Fi 802.11b/g/n	2.4 GHz to 2.4835 GHz	19 dBm

3.1 Exterior view



Figure 3.1: Model with type 2 socket



Figure 3.2: Model with fixed charging cable (cable not shown)

No.	Description
1	Display
2	RFID reader

3.2 Bottom view



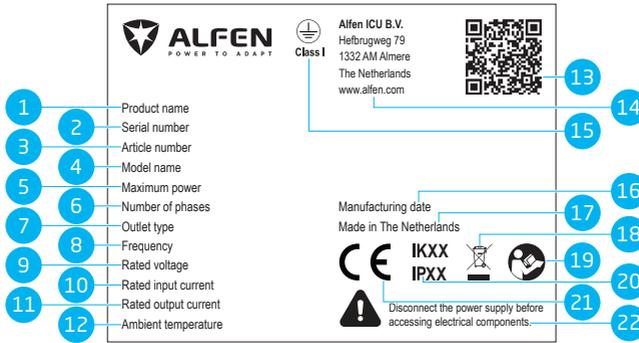
Figure 3.3: Bottom view of the charging station

No.	Description
1	Identification label
2	Wall-mount frame

3. PRODUCT OVERVIEW

3.3 Identification label

The identification label shows the following information:



No. Description

- 1 Product name: brand name of the charging station
- 2 Serial number: unique identification of the charging station
- 3 Article number: indicates the product variant
- 4 Model name: OCPP charge point model name (consisting of the platform name and the last five digits of the article number)
- 5 Maximum power: maximum charging power of the charging station
- 6 Number of phases: the way electrical power is distributed in the charging station
- 7 Outlet type: socket type of the charging station
- 8 Frequency: the operating frequency
- 9 Rated voltage: the nominal continuously applied voltage
- 10 Rated input current: the maximum current from the power supply that the charging station is designed for
- 11 Rated output current: the minimum and maximum charging current that the charging station can provide
- 12 Ambient temperature range at which the charging station can operate at rated output

No. Description

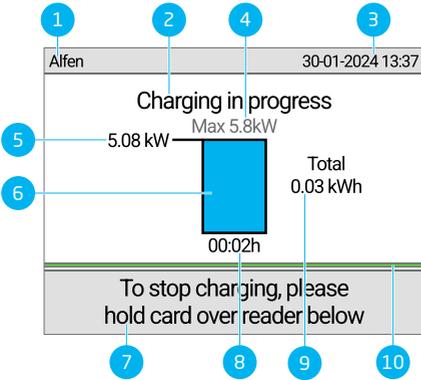
- 13 QR code link to the serial number of the charging station
- 14 Contact information of the manufacturer
- 15 Electrical safety class: indicates how the earthing protection of the charging station is done
- 16 Manufacturing date: the date the charging station was produced
- 17 Manufacturing location: the Netherlands
- 18 Waste from Electrical and Electronic Equipment (WEEE)
- 19 Warning to read the manual before performing any installation or maintenance work
- 20 Degree of impact protection and ingress protection
- 21 CE marking: charging station complies with relevant EU safety, health, and environmental protection standards
- 22 Electrical safety warning: Disconnect the power supply before accessing electrical components

NOTE

When contacting your charge point supplier / operator, always have your article number and serial number available to facilitate quick support.

3.4 User interface

3.4.1 Charging stations display during charging



No. Description

- 1 Charge point ID: identification is determined by the reseller or provider of the backoffice management system. This ID can be shared, for example: if support is needed.
- 2 Status information
- 3 Date and time: these are set automatically by a backoffice management system or during installation. This field is invisible if the charging station does not have a current time.
- 4 Maximum charging power of the charge point
- 5 Current charging power to the connected vehicle
- 6 Status indicator (symbols)
- 7 Usage instructions: error codes will also be shown in this field.
- 8 Duration of the current charging session
- 9 Energy charged during the current charging session
- 10 Progress bar: displays the progress of the authorization process. A full progress bar indicates the background steps are completed and the charging session will start.

3.4.1.1 Status indicator symbols



RFID card accepted or cable connected



Warning. Notification with error code



Communicating with vehicle or charging complete



Error. Notification with error code



Charging session active, with charging speed indication



Progress bar

4. OPERATION

4.1 Socket model: Start charging with Plug&Power



Figure 4.1: Starting the charging process without RFID card. Symbols shown on user interface

No.	Description
1	Plug the charging cable into the socket
2	Plug the charging cable into the car
3	Charging in progress

4.2 Socket model: Stop charging with Plug&Power



Figure 4.2: Stopping the charging process without RFID card. Symbols shown on user interface

No.	Description
1	Remove the charging cable from the car
2	Remove the charging cable from the socket and store the charging cable in the car
3	Leave the charging location

4.3 Socket model: Start charging with RFID card



Figure 4.3: Starting the charging process with user authorization / RFID card. Symbols shown on the user interface

No. Description

- | No. | Description |
|-----|---|
| 1 | Scan the RFID card on the charging stations RFID reader |
| 2 | Plug the charging cable into the socket |
| 3 | Plug the charging cable into the car |
| 4 | Charging in progress |

4.4 Socket model: Stop charging with RFID card



Figure 4.4: Stopping the charging process with user authorization / RFID card. Symbols shown on the user interface

No. Description

- | No. | Description |
|-----|--|
| 1 | Scan the RFID card on the charging stations RFID reader |
| 2 | Remove the charging cable from the socket |
| 3 | Remove the charging cable from the car and store the charging cable in the car |
| 4 | Leave the charging location |

4. OPERATION

4.5 Fixed cable model: Start charging with Plug&Power



Figure 4.5: Starting the charging process without RFID card. Symbols shown on user interface

No. Description

- 1 Remove the fixed charging cable from the holder of the charging station
- 2 Plug the charging cable into the car
- 3 Charging in progress

4.6 Fixed cable model: Stop charging with Plug&Power



Figure 4.6: Stopping the charging process without RFID card. Symbols shown on user interface

No. Description

- 1 Remove the charging cable from the car
- 2 Insert the fixed charging cable into the holder of the charging station
- 3 Leave the charging location

4.7 Fixed cable model: Start charging with RFID card



Figure 4.7: Starting the charging process with user authorization / RFID card. Symbols shown on the user interface

No. Description

- 1 Scan the RFID card on the charging stations RFID reader
- 2 Remove the fixed charging cable from the holder of the charging station
- 3 Plug the charging cable into the car
- 4 Charging in progress

4.8 Fixed cable model: Stop charging with RFID card



Figure 4.8: Stopping the charging process with user authorization / RFID card. Symbols shown on the user interface

No. Description

- 1 Scan the RFID card on the charging stations RFID reader
- 2 Remove the charging cable from the car
- 3 Insert the fixed charging cable into the holder of the charging station
- 4 Leave the charging location

4. OPERATION

4.9 Direct payment solutions

4.9.1 Starting the charging process with dynamic QR code shown on display

You will need a smartphone or tablet with an internet connection and the ability to scan QR codes. Follow the steps described in the table below.

Where	Steps
On the charging station	 <p>The charging station shows a QR code.</p>
	 <p>Scan the QR code with a mobile device.</p>
	 <p>The mobile device decodes the QR code and opens a web page of the Charge Point Operator.</p>
	 <p>The web page shows a form asking for an email address. If you fill in an email address you will receive an invoice for the cost of the charging session.</p>
On the web page of the Charge Point Operator	 <p>After the email address is accepted, the web page shows the available payment providers that can process the payment. Select the preferred payment provider.</p>
	 <p>The mobile device opens the web page of the selected payment provider, typically a bank or an internet payment service.</p>
	 <p>NOTE</p> <p>The exact contents of this page depends on which payment provider has been selected.</p>
	 <p>Authorize the payment. This may require a password or a different means of confirming your identity, depending on which payment provider has been selected. This information is only communicated with the payment provider.</p>
On the web page of the Charge Point Operator	 <p>The authorization is verified and the web page of the Charge Point Operator shows that it is accepted. A start activation message is sent to the charging station.</p>

Where

Steps

On the charging station



The charging station starts the charging process. It displays a green check mark and shows a message to plug the charging cable into the socket.



Plug the charging cable into the charging station and into the vehicle.



The charging process starts. The display of the charging station shows the details.

4.9.2 Stopping the charging process with dynamic QR code on display

Where

Steps

On the charging station



Remove the charging cable from the vehicle. This stops the charging process.



The charging station unlocks the charging cable.



The charging station shows a summary of the charging session and prompts to remove the charging cable from the charging station.



Remove the charging cable from the charging station.



The bank statement of the transaction contains a link to the detailed information about the charging session. If you provided an email address, the charge point operator will send an invoice (with the link) to the email address.

NOTE

The payment service provider settles the costs of the transaction.

4. OPERATION

4.9.3 Starting and stopping the charging process with (mobile) bank card on the payment terminal

1. In order to authorize the payment, present your (mobile) bank card to the card reader of the payment terminal.
2. Plug the charging cable into the car and into the socket if applicable.
3. Charging is in progress. During charging the status indication on the charging station shows the progress. Charging will stop automatically when the battery has been charged completely.
4. When you wish to stop the transaction, present your (mobile) bank card to card reader of the payment terminal.
5. Remove the charging cable from the car and the socket if applicable. Put the charging cable into the corresponding support or in your car after use.
6. Leave the charging location. The bank statement of the transaction will contain a link to the detailed information about the charging session. If you provided an email address, the charge point operator will send an invoice (with the link) to the email address.

NOTE

The payment service provider settles the costs of the transaction.

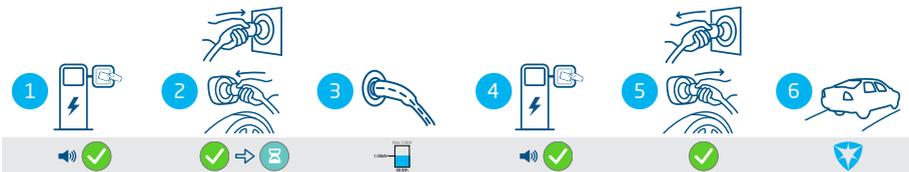


Figure 4.9: Customer Journey: Paying on the payment terminal

5.1 Casing cleaning procedure

NOTE

The casing of the charging station can be easily damaged. Do not use aggressive cleaning agents, a high-pressure cleaner, scouring pads or other aggressive cleaning supplies.

1. Make sure the charging station is fully closed before performing any cleaning procedure.
2. Annual cleaning:
 - Use water and mild soap to clean the casing of the charging station.

5.2 Display window cleaning procedure

NOTE

Handle the display window with care to ensure proper drying and prevent damage and colour change. Do not use aggressive cleaning agents, a high-pressure cleaner or abrasive materials.

NOTE

Be cautious with cards, tags, keys, and jewellery to avoid damaging the display window. Do not use a cloth or a squeegee.

1. Make sure the charging station is fully closed before performing any cleaning procedure.
2. Use a gentle stream of air to blow off any dust or sand particles.
3. Rinse the surface with a generous amount of water or a mild detergent solution.
4. If the surface appears to be clean, let the remaining water evaporate.
5. If needed, gently remove any remaining dirt and water:
 - Use a clean, soft brush.
 - Brush from top to bottom.
 - Apply minimal force.
 - Avoid circular motions.

6. ERROR CODES AND TROUBLESHOOTING

Code	Error message displayed	Icon	Possible cause	Possible countermeasures
Error inside charging point				
101	Not able to charge. Please check installation or call for support.		DC fault current (>6mA) detected by charging station.	One specific vehicle: Contact your car dealership. All vehicles: Contact the service department of your charge point supplier.
102	Not able to charge. Please check installation or call for support.		Internal error. Unexpected or no voltage on output of power board.	Contact the service department of your charge point supplier. <ul style="list-style-type: none"> • Check power board.
105	Error in installation. Please check installation or call for support.		Internal error. No communication with internal power meter.	Contact the service department of your charge point supplier. <ul style="list-style-type: none"> • Check if internal power meter is connected correctly. • Check if internal power meter is configured correctly. • Check internal power meter.
106	Not able to charge. Please check installation or call for support.		Power interrupted by internal RCD.	Contact your installation engineer. <ul style="list-style-type: none"> • Internal RCD (Type A: 30 mA AC) tripped.
109	Not displayed.	Not displayed.	No connection / connection lost to RFID reader.	Contact the service department of your charge point supplier. <ul style="list-style-type: none"> • Check if the RFID reader is connected correctly.
110	Not displayed.	Not displayed.	No connection / connection lost to one or more internal devices.	Contact the service department of your charge point supplier <ul style="list-style-type: none"> • Check if device cables are connected correctly.
111	Not able to charge. Please check installation or call for support.		Missing an energy meter that supports signed meter values when the station is configured to be Eichrecht compliant.	Contact your installation engineer. <ul style="list-style-type: none"> • Check if the installed energy meter supports signed meter values.
112	Not able to charge. Please check installation or call for support.		Internal error. Unexpected or no voltage on output of power board or power interrupted by internal RCD when the station is configured to be Eichrecht compliant.	Contact your installation engineer. <ul style="list-style-type: none"> • Either internal RCD (Type A: 30mA AC) tripped. • Or check power board.
Error in installation				

6. ERROR CODES AND TROUBLESHOOTING

Code	Error message displayed	Icon	Possible cause	Possible countermeasures
202	Input voltage too low, not able to charge. Please call your installer.		Supply voltage below 205 V AC.	Contact your installation engineer.
212	Error in installation. Please check installation or call for support.		Missing phase in installation.	Contact your installation engineer. <ul style="list-style-type: none"> • Check voltage levels.
214	Not displayed.		Tariffs not configured, required for ad-hoc payments with Eichrecht.	Contact your charge point operator. <ul style="list-style-type: none"> • Tariffs not configured (StartPrice & EnergyPrice).
Error in car				
302	One moment please your charging session will resume shortly.		Safety measure, Vehicle draws more power than allowed / did not reduce power in time according to the IEC 61851 standard.	One specific vehicle: Contact your car dealership. All vehicles: Contact the service department of your charge point supplier.
303	One moment please your charging session will resume shortly.		Safety measure, vehicle has started and stopped charging too often within 1 minute.	<ul style="list-style-type: none"> • Check car and charging cable. • Otherwise contact the service department of your charge point supplier.
Error from outside (user, plug, cable, weather influences etc.)				
401	Inside temperature high. Charging will resume shortly.		Temperature inside the charge point above 70 degrees Celsius.	<p>Unexpected: When there is no EV charging and the ambient temperature is not high: contact the service department of your charge point supplier.</p> <p>Expected: When there is an EV charging in high ambient temperature in direct sunlight: contact your installation engineer.</p>
404	Not able to lock cable. Please reconnect cable.		Unable to lock the charging cable.	<p>Mostly: cable not inserted correctly/fully by the user.</p> <p>Contact the service department of your charge point supplier.</p> <ul style="list-style-type: none"> • Check socket and charging cable plug. • Check if the lock motor can move freely.

6. ERROR CODES AND TROUBLESHOOTING

Code	Error message displayed	Icon	Possible cause	Possible countermeasures
405	Cable not supported. Please try connecting your cable again.		Short at Proximity Pilot.	Mostly: cable needs to be replaced. Contact the service department of your charge point supplier. <ul style="list-style-type: none">• Check socket and charging cable plug.
406	No communication with vehicle. Please check your charging cable.		Monitored CP voltage level is out of range according to the IEC 61851 norm.	<ul style="list-style-type: none">• One specific cable: cable broken.• All cables / issues with other charge points: contact the service department of your charge point supplier.

7.1 Waste electrical and electronic equipment (WEEE)



Electrical and electronic equipment contains materials, components and substances that may be hazardous and present a risk to human health and the environment if not handled correctly.

Equipment marked with the illustrated crossed out wheeled bin is electrical and electronic equipment. The crossed out wheeled bin indicates that this waste must be collected separately and must not be discarded together with household waste.

Refer to your local authority for collection schemes under which residents can dispose waste electrical and electronic equipment at a recycling center or other collection points.

For region-specific indication on how to dispose the materials, consult the information below:

France



Contact

Alfen ICU B.V.
Hefbrugweg 79
1332 AM Almere
The Netherlands

P.O. box 1042
1300 BA Almere
The Netherlands

Alfen Knowledge Base: knowledge.alfen.com
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