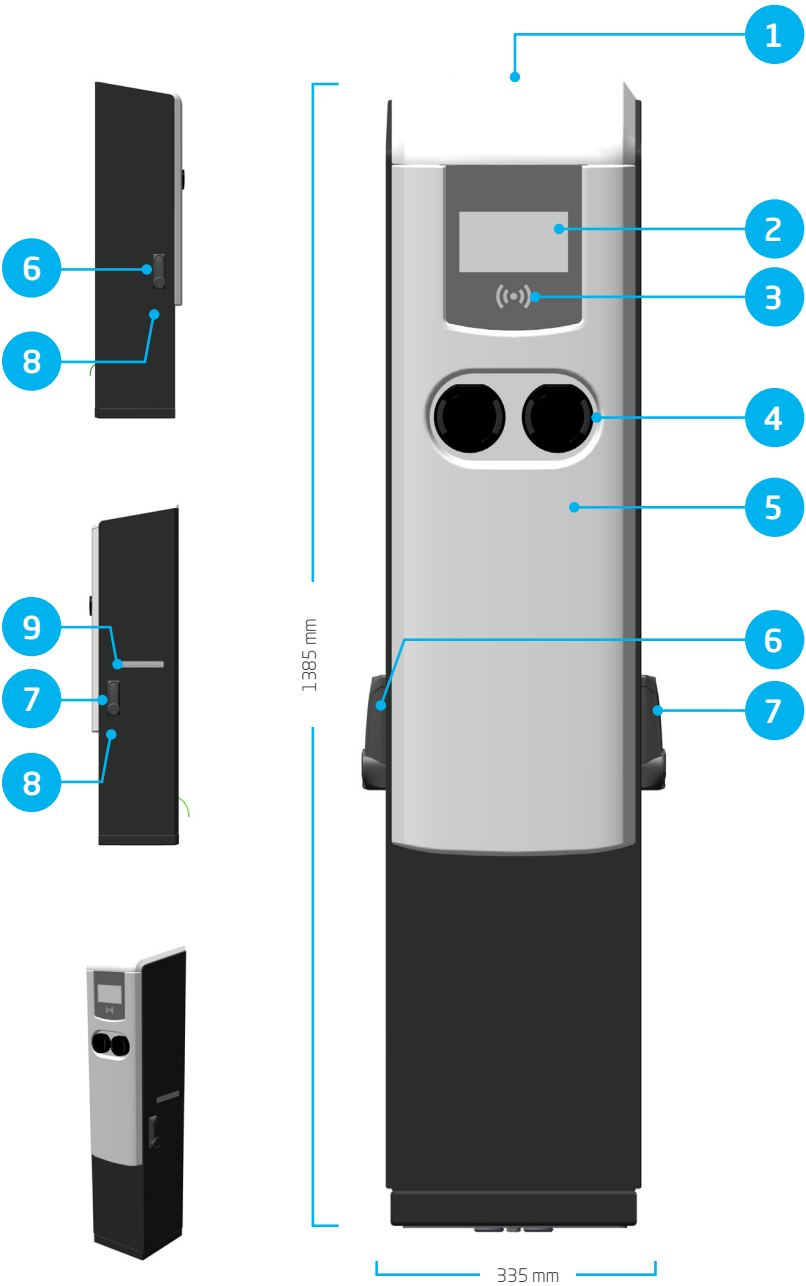
Eve Double PG-line DE

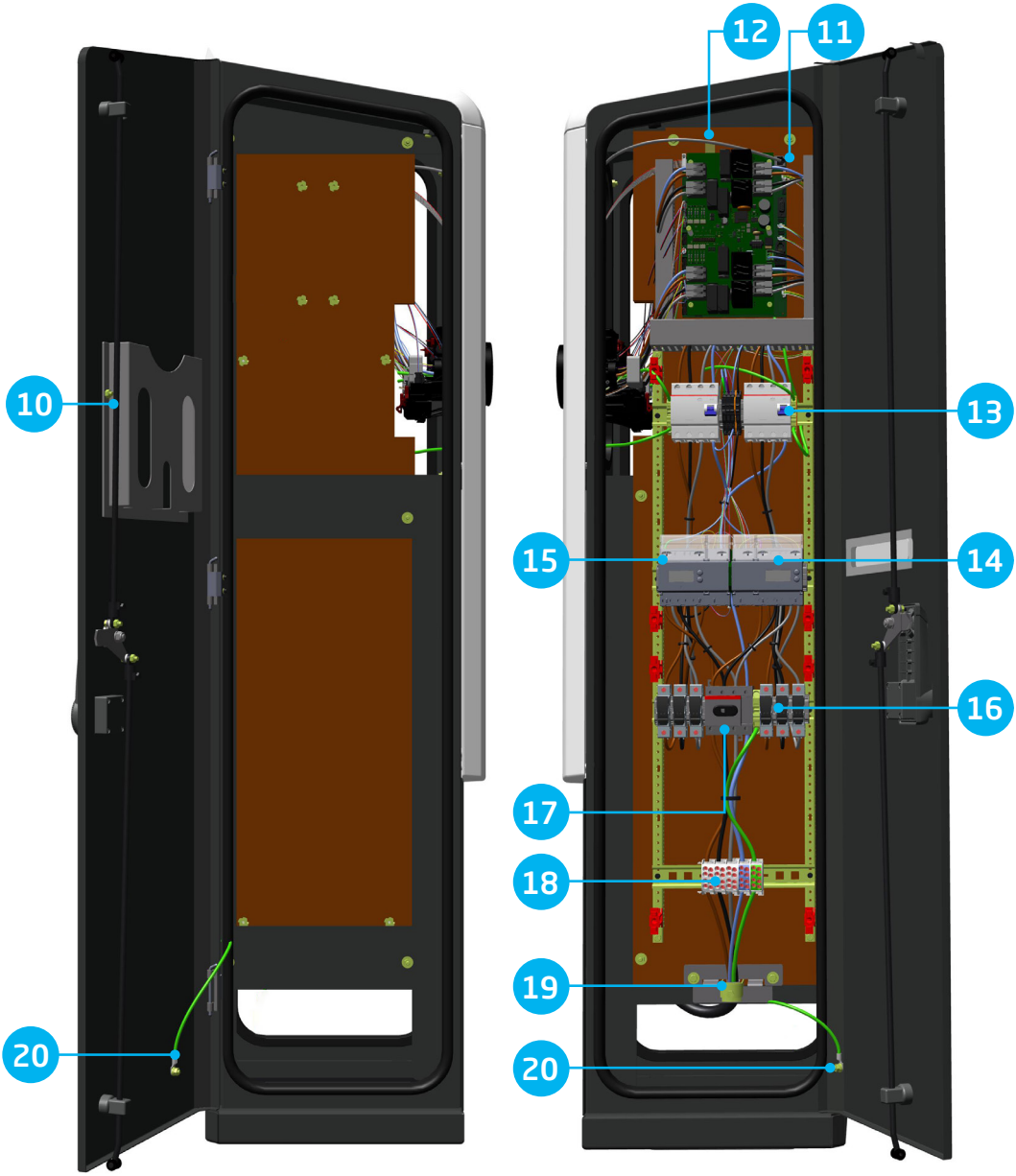
Manual

ALFEN
POWER TO ADAPT

EXTERIOR VIEW



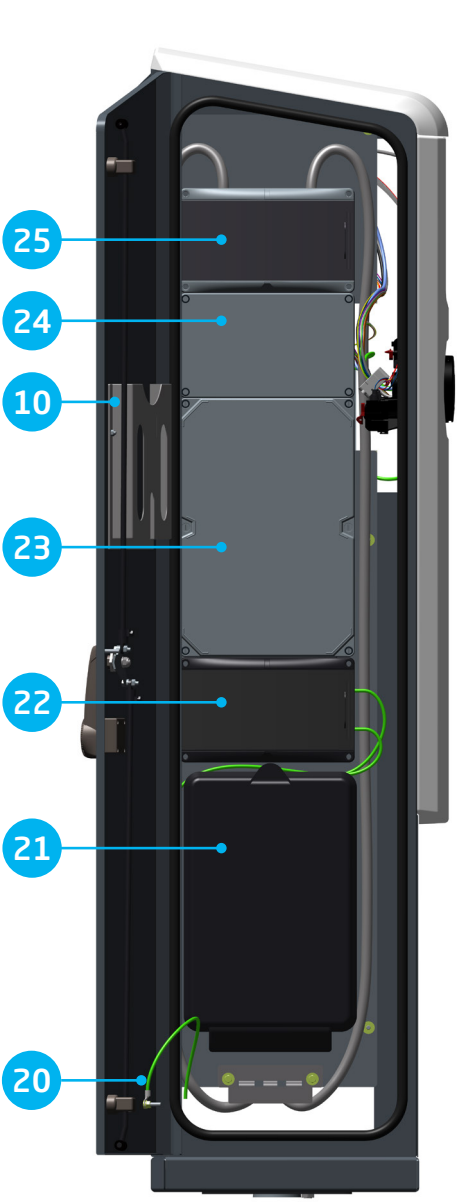
INTERIOR VIEW
EVE DOUBLE PG DE WITHOUT GRID CONNECTION BOX UNIT (NO. 904462002)



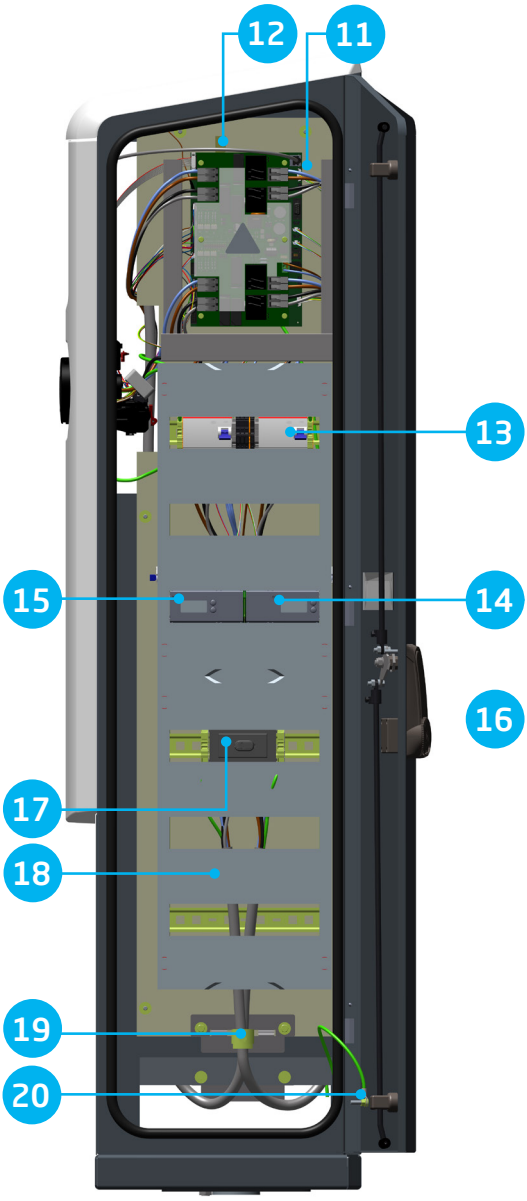
SIDE VIEW LEFT

SIDE VIEW RIGHT

INTERIOR VIEW
EVE DOUBLE PG DE WITH GRID CONNECTION BOX UNIT (NO. 904462003 AND 904462004)



SIDE VIEW LEFT
(GRID CONNECTION BOX UNIT)



SIDE VIEW RIGHT
(CHARGING UNIT)

CURRENT DESIGN
GRID CONNECTION BOX UNIT

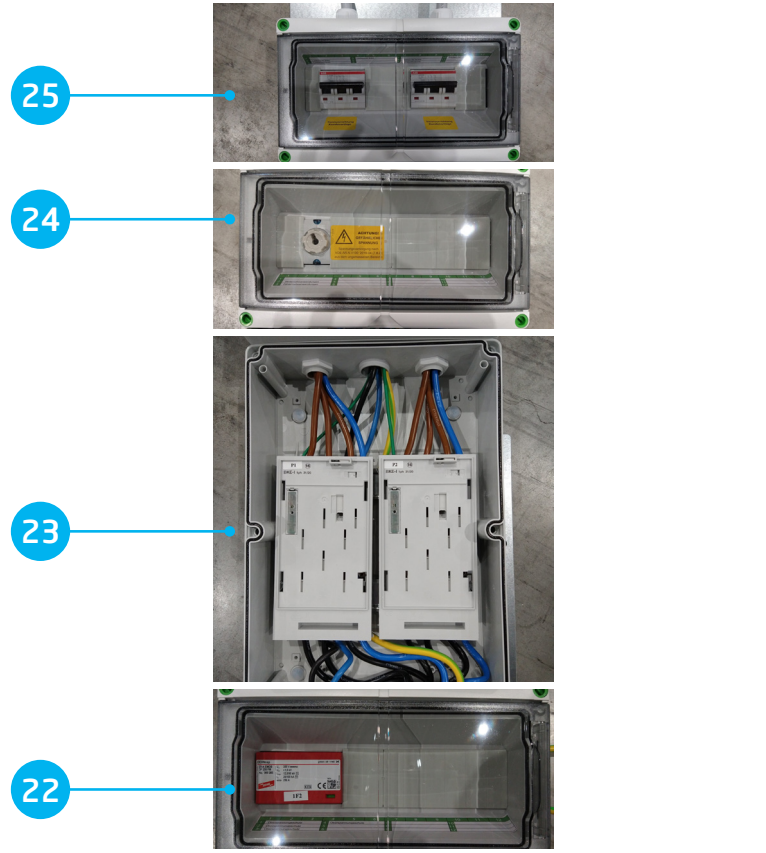


Figure showing No. 904462004 as example

ENGLISH

Step-by-step assembly and Commissioning of the Eve Double PG-line DE

Thank you for purchasing this Alfen charging station for electric vehicles!

To ensure a safe installation process and to fully utilise all the functions of the device, we recommend you to read this manual carefully. Please keep these instructions for use in a safe place.

Although these instructions for use has been compiled with the greatest care, future changes and improvements are possible. For the latest version, we therefore refer you to https://alfen.com/de/ladestationen-ev/alfen-ladestationen.

ENGLISH

TABLE OF CONTENTS

1. Safety and usage instructions 9
1.1 Purpose of manual and intended audience 9
1.2 General safety 9
1.3 Disclaimer 9
1.4 Copyright 9

2. Product 10
2.1 The charging station 10
2.2 User interface 11
2.2.1 Status displays 11
2.2.2 Status display symbols 11
2.3 Operation 12
2.3.1 LED status displays 12
2.3.2 RFID - Charging station with user authorisation 12
2.4 German Measurement and calibration Law 13
2.5 Technical specification Eve Double PG-line DE 14
2.5.1 Input / power supply 14
2.5.2 Charging and access 15
2.5.3 Performance/Power Supply 15
2.5.4 Protective and integrated components 15
2.5.5 Housing 16
2.5.6 Specifications grid connection box unit 16
2.5.7 Operating conditions 17
2.6 Optional factory settings 18
2.7 Accessories 18

3. Assembly and connecting 19
3.1 Installation and connection 19
3.2. Assembly and connecting prerequisites 20
3.3 Mechanical installation 20
3.4 Electrical installation 22

4. Commissioning the charging station 23
4.1 Safety instructions before use 23
4.2 Putting into initial use 23

5. Connectivity 24
5.1 Operating systems 24
5.2 Setting up a connection 24
5.2.1Wireless connection 24
5.2.2 UTP (Ethernet) connection 24
5.3 Registering your ICU Connect account 25
5.4 Signing up for your ICU Connect account 25

Appendix A: Error codes and problem solving 26
Appendix B: Giro-E 29
Waste electrical and electronic equipment (WEEE) 31

DECLARATION OF CONFORMITY

Manufacturer information:
Alfen ICU B.V.
Hefbrugweg 28
1332 AP Almere
The Netherlands

hereby declares that the charging station, type **Alfen Eve Double PG-line DE**, to which this declaration applies, **fulfils the following**:

1) The provisions of the low voltage directive 2014/35/EU
2) The provisions of the EMC guideline 2014/30/EU
3) The following harmonised standards: IEC 61851-1 ed. 3 (2017) - Conductive charging system electrical vehicle charging systems - General requirements, implemented at a national level under DE DIN-EN 61851-1.
4) Measurement and calibration law certified by the CSA Group Bayern GmbH (1948) Module-B : DE MTP 19 B 004 M Module-D : DE MTP 19 D 003 MI-003

- German Measurement and Verification Act dated 25.07.2013 (BGBl. I, P. 2722), as last amended by Article 1 of the Act on 11.04.2016 (BGBl. I, Page 718)
- German Measurement and Verification Ordinance dated 11.12.2014 (BGBl. I, Page 2010), as last amended by Artic le 10 of the Ordinance on 30.04.2019 (BGBl. I, Page 2034.
- REA document 6-A "Regeln und Erkenntnisse des Regeler mittlungsausschusses nach § 46 des Mess- und Eichge setzes für Messgeräte und Zusatzeinrichtungen im Anwen dungsbereich der E-Mobilität", Stand: 16 März 2017. ["Rules and findings of the REA committee according to § 46 of the Measuring and Verification Act for measuring instruments and auxiliary equipment in the e-mobility application field" Status: 16 March 2017.]
- PTB Requirements for electronic and software-controlled measuring instruments and additional equipment for electricity, gas, water and heat [PTB-A 50.7] of April 2002.

All products mentioned are marked with the CE symbol.

Almere, Netherlands, 3 February 2020.

Ir. M. Roeleveld
CEO

1.1 Purpose of manual and intended audience

The Alfen charging station (the "Product") is intended exclusively for charging electric vehicles and, when installed correctly, may be used by untrained single users.

Installation, commissioning and maintenance of this Product may only be performed by a qualified electrician (Alfen certified partner). It is essential that the qualified technician has:

- Expertise on all relevant general and specific rules concerning safety and accident prevention
- Comprehensive knowledge of the applicable regulations for electrical installations.
- The ability to identify risks and avoid potential hazards.
- In addition, he/she should have received these installation and operating instructions and read them.

1.2 General safety

DANGER!

These safety instructions are important to ensure a safe operation. Failure to comply with the general electrical safety regulations can result in electrical shocks, fire and/or life threatening injuries.

The use of this product is expressly prohibited in the following cases:

- In the vicinity of explosive or highly flammable substances
- If the product is located in or close to water
- If the product or individual components are damaged
  The use by children or persons, who are not able to properly assess the risks of using this products, is forbidden.

Alfen N.V. ("Alfen") shall not be liable in any way, for any kind of damage, and all warranties on both the product and accessories shall become void in the following situations:

- The Products have been subject to misuse, faulty installation or maintenance; or
- The Products have been disassembled, modified or repaired; or
- The manuals, conditions of use and maintenance instructions which are applicable for (parts) of the products or have been provided by Alfen are not observed; or
- The Products are used in the vicinity of explosive or highly flammable substances or in or near to water; or
- In case of normal wear and tear; or
- There is a breakdown in the distribution network; or
- There is a situation of a force majeure, or the defect has an otherwise external cause.

More extensive safety information is available in the relevant sections of this document.

1.3 Disclaimer

This manual applies to products with firmware version 4.7.0 or higher.
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. The content of this document has been compiled for information purposes only.

Although Alfen has made its best efforts to keep the document as precise and up-to-date as possible, Alfen shall not assume any liability for errors and damage which results from the use of the information contained herein.

In no event will Alfen be liable for direct, indirect, special or consequential damages (including loss of profits) resulting from any errors or omissions in this manual. All obligations of Alfen are the result of the relevant contractual agreements. Alfen reserves the right to revise this document from time to time.

Any deviation to the Products including, but not limited to, customer-specific modifications (such as the application of labels or SIM cards or the usage of different colours), hereafter referred to as "customer-specification modification", can ultimately alter the product experience, product appearance, product quality and/or product lifespan. Alfen is not liable for any damage to, or caused by, the product (including applied customer-specific modifications), if that damage is caused by the customer-specification modifications that were made. If you require further information on customer-specific changes carried out on a series product, please contact your dealer.

1.4 Copyright

Copyright © Alfen N.V. 2022. All rights reserved. The disclosure, duplication, distribution and editing of this document, as well as the utilisation and communication of the content are not permitted without written authorisation. All rights, including rights due to the granting of a patent or the registration of a utility model or a design, are reserved.

2. PRODUCT

ENGLISH

2.1 The charging station

You will find the corresponding illustrations of the charging station on pages 2, 3, 4 and 5 of this manual. Here you will find more information regarding the contents of the product and how to use it to charge your vehicle.

Eve Double PG-line DE (Page 2, 3)	Eve Double PG-line DE (Page 2, 4, 5)
Exterior	*Exterior*
① Roof with lifting eye connection below	① Roof with lifting eye connection below
② Colour screen	② Colour screen
③ SRFID card reader and authorisation display	③ SRFID card reader and authorisation display
④ Type 2 plug connection with status LEDs, lockable	④ Type 2 plug connection with statusLEDs, lockable
⑤ Public key	⑤ Public key
⑥ Locking of the power supply side	⑥ Locking of the power supply side
⑦ Locking of the Alfen side	⑦ Locking of the Alfen side
⑧ Identification label	⑧ Identification label
⑨ Electricity meter compliant with Measurement and calibration law	⑨ Electricity meter compliant with Measurement and calibration law
Interior	*Interior*
⑩ Document holder	⑩ Document holder
⑪ UTP (Ethernet) connection	⑪ UTP (Ethernet) connection
⑫ SIM card holder	⑫ SIM card holder
⑬ Circuit breaker	⑬ Circuit breaker
⑭ LH energy meter compliant with Measurement and calibration law	⑭ LH energy meter compliant with Measurement and calibration law
⑮ RH energy meter compliant with Measurement and calibration law	⑮ RH energy meter compliant with Measurement and calibration law
⑯ Fusing cartridges	⑯ Fusing cartridges
⑰ RCD switch	⑰ RCD switch
⑱ Connection clamps	⑱ Connection clamps
⑲ Strain relief	⑲ Strain relief
⑳ Grounding of the door	⑳ Grounding of the door
	㉑ Grid connection box
	㉒ Mains switch
	㉓ Domestic supply meter Single / Dual
	㉔ Space for power meter connectivity equipment
	㉕ Circuit breaker

The identification label ⑧ contains the following information:

- Model, production date and serial number
- Technical specification number
- Item number and maximum charging current

When contacting Alfen, always have your serial number available so we can assist you as quickly as possible.

2.2 User interface

The Eve Single Pro-line DE has a colour display, which informs the user on the progress of the charging by using status displays.

2.2.1 Status displays

General information about the charging station

① The charge point ID: Identification is performed by the reseller or operator of the backoffice management system. You can use this ID, for example, to inform a Help desk, which charging station you need support for.

② Date and time: Date and time: these are set via an (automatic) maintenance system or during installation, using the Service Installer application. If the product does not have information about the current time, this field is not visible.

Status and information screen:

The charging station informs the user about the current status and reacts to actions taken by the user. The following information is available:

③ Status information

④ Status display (symbols)

⑤ Current charging capacity to the connected vehicle

⑥ Maximum charging power of the charging point

⑦ Current energy consumption during the current transaction

⑧ Duration of the current transaction

Info field

⑨ During a charging session the public key is shown on the display

⑩ Usage instructions will be displayed in this location. If an error occurs, an error code and an instruction will be displayed (see Appendix A for more information).

⑪ The progress bar indicates the progress of the authorisation process in which the user is involved. A full progressbar indicates that the necessary steps have been completed and the charging process is beginning.

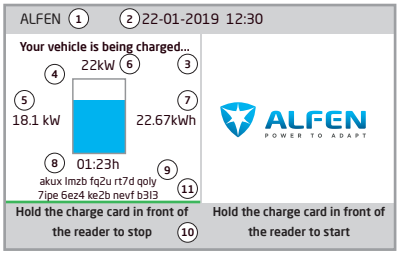


Figure 1a: Eve Double PG-line DE display during charging process using an electrical outlet

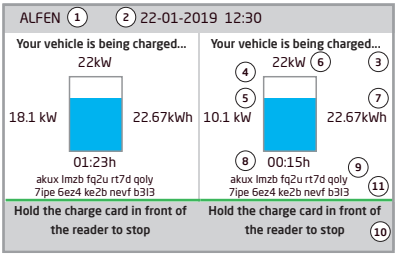


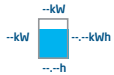
Figure 1b: Eve Double PG-line DE display during charging process with two electrical outlets

2.2.2 Status display symbols

Charge card accepted, Cable connected

Communicating with vehicle or charging process completed

Warning, notification with error code



Charging process active, display showing charging speed

Error message with error code

Progress bar

2.3 Operation

Specific user actions are portrayed in a sequence that clearly shows the progress and corresponding status displays. The first steps can be conducted in any sequence. Upon detecting a charging cable or holding up a charge card, the status of all Eve Double PG-line DE products will be displayed in "green". The light blue (cyan) status will only be displayed if and when a connection is established between the vehicle and charging station and the user is authorised.

2.3.1 LED status displays

General status information

LED	Stand-by, ready for use	Charging card accepted, cable connected	Communication with vehicle or charging complete	Load transaction active

Status displays during intelligent charging of an electric vehicle (load management)

The Eve Double PG-line DE wiring indicates activated intelligent charging functions, e.g. Last management (see Appendix B for more information) in the following way:

LED	Load management off	Load management activated: Reduced charging	Last management activated: Charging process paused

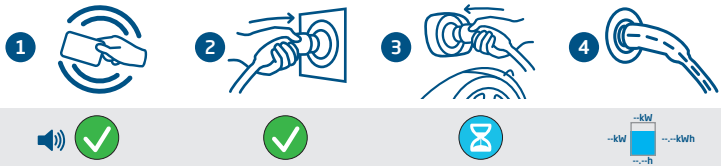
Status display for errors

Any user error or defect is indicated by a red LED.

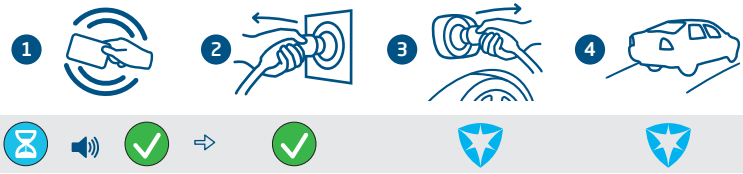
LED	The charging station detected an error. Contact our service department	The presented charging card does not authorise recharging. Charging cable is connected, but no charging process takes place

2.3.2 RFID - Charging station with user authorisation

Start



Stop



2.4 German Measurement and calibration Law

The charging stations are measurement and calibration law compliant. The charging stations are equipped with measuring equipment to ensure the meter values can be verified and validated by the end user. According to the Measurement and calibration law and regulation the operator must provide the correct value on the energy meter at the time of Invoicing. In addition the charging station will show how much has been charged at the end of a charging session.

A digital signature protects the meter values according to the calibration law and regulations. With this digital signature, the end user can check the correct kWh counter value on the Eichrecht compliant electricity meter. The Eichrecht compliant energy meter is located on the side of the charging station.

Compliant with Measurement and calibration law Energy meter

Figure 3. The Eve Double PG-line DE with the ammeter conforming to Measurement and calibration law on the side

During a charging session the public key and the kWh value are shown as the unit of measure. The measurement unit is illuminated making it readable at all time.

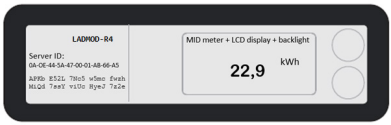


Figure 3: The Eichrecht compliant energy meter display with kWh value and public key

NOTE

For more information and operation of the Measurement and calibration law function, please refer to the 'Eichrecht Benutzerhandbuch Anhang Eichrechtskonform EV-Ladelösung'-Addendum to this manual delivered with your product.

2.5 Technical specification Eve Double PG-line DE

The international standard for conductive charging systems for electric vehicles is the IEC-61851-1. All charging stations should be installed in accordance with IEC-61851-1 standard.

Product variants

Model name	Item number	OCPP ChargePointModel
2x 22kW, electrical outlets type 2, 3-phase, max. 1x100A input current, 1 supply cable, RCD switch type B, colour display, without grid connection box unit	904462002	NG920-62000
2x 22kW, (in total max. 30 kW), electrical outlets type 2, 3-phase, max. 1x100A input current, 1 supply cable, RCD switch type B, colour display, grid connection box unit prepared for 1 electronic domestic supply meter	904462003	NG920-62003
2x 22kW, electrical outlets type 2, 3-phase, max. 1x100A input current, 1 supply cable, RCD switch type B, colour display, grid connection box unit prepared for 2 electronic domestic supply meters	904462004	NG920-62004

2.5.1 Input / power supply

NOTE!

Your installation must comply with the locally applicable standards and laws. The following tables show our advice on how to make the charging stations work well according to the framework conditions.

Printing errors expressly reserved.

Input current	3-phase 22 kW charging, 32A per phase selected
Recommended minimum cable diameter (based on assumed max. 50 m cable length)	17mm² to 95mm²
Nominal voltage	400 VAC (3 x 230 VAC)
Nominal frequency	50 Hz/ 60 Hz
Terminal block (only present in 904462002)	N,L1,L2,L3,PE: max. 25mm² per phase
Grounding system	TN system: (PE cable) TT-System (self-applied ground electrode)
Mains switch 904462002 904462003 904462004	 4-pole, 80 A, 400 VAC 8-pole, 40 A, 400 VAC 8-pole, 40 A, 400 VAC
Connection method	Permanently connected

2.5.2 Charging and access

Control system	Central unit for charging point control unit and communication
Communication with charging mode according to IEC61851	Mode 3
Status display	Status LEDs on the electrical outlets
User interface	Graphic colour display, TFT 7" Resolution: 800x480 pixels Background lighting: 400 NITS
Card reader	RFID (NFC) ISO/IEC 14443A/B, MiFare Classic 13.56 MHz, DESFire
Internet / network functions	GPRS (2G), Ethernet/LAN
Communication interfaces	OCPP 1.5 (JSON) OCPP 1.6 (JSON) OCPP 2.0.1 (JSON)
Backoffice communication	ICU Connect (optional) or other backoffice management system (on request)
Local energy management	Modbus TCP/IP (Master or Slave)
Inclination sensor	Register changes with vertical inclination

2.5.3 Performance/Power Supply

Vehicle connection	2 x Type 2 electrical outlet, in accordance with IE62196-2, lockable
Output voltage	400 VAC (3 x 230VAC)
Max. charging current	32 A per phase (22kW per charge point)
Local load management	Required if the input power is less than the total power of the two charge points

2.5.4 Protective and integrated components

Short circuit protection	Variant 904462002: 32A type gG fusing cartridjes in (right hand side) operator cabinet
	Variant 904462003 / 904462003: MCB 40 A type C in (left hand side) grid connection box
Energy measurement	1 x kWh meter per charging point, MID-certified, compliant with Measurement and calibration law
Circuits	3-fold protection circuit, with soft-start via triacs
Overcurrent protection	Integrated in firmware; Throttling to: 105% after 1000 seconds; 110% after 100 seconds; 120 % after 10 seconds; 150% after 2 seconds.
Overvoltage protection	Type 1 and Type 2 (only in variant 904462003 and 904462004)

2.5.5 Housing

Type	Charging station	
Installation options	Directly on solid underground or on an optional concrete base	
Material	Stainless steel 304 (body), fibreglass-reinforced DCPD polyester resins Concrete plywood panel on the power supply side for grid connection box unit installation	
Colour	RAL 7043: Traffic grey (body) RAL 9016: Traffic white (front)	
Interlock	Interlocking lever with space for 2 lock cylinders on the energy provider and charging station operator	
	Lock cylinder operator side: Half cylinder 30/10 mm	
Dimensions (HxWxD) Energy provider side Charging station Packaging	 1226 x 250 x 163 mm 1631 x 357 x 426 mm 1795 x 515 x 601 mm	
Weight Charging station Incl. packaging and pallet	904462002 (without grid connection box unit) approx. 80 kg approx. 90 kg	904462003 / 904462004 (with grid connection box unit) approx. 90 kg approx. 100 kg

2.5.6 Specifications grid connection box unit

ATTENTION!

The product including grid connection box unit must only be operated by a certified electrician.

Conformity	According to VDE-AR-N 4100: 2019-04 with Ber 1:2019-10 and DIN EN 61439-2: 2012-06
Space for customer installation side containing:	Dimensions: approx. 250 x 150 mm
Single meter variant (904462003)	1 mains switch 63 A, serves as main switch for charging unit for grid operator 2 MCB type C, 32 A, 10 kA, 3 pole
or Dual meter variant (904462003)	2 MCB type C, 32 A, 10 kA, 3 pole serve as cut-off device for charging unit
Space for power meter connectivity equipment	According to VDE AR 4100, for installing data transmission devices of the electronic meters. 1 x D0-built-in fuse block, E14, 1-pole, 16A, Incl. fuse and plug. Dimensions: approx. 250 x 150 mm
Domestic supply meter (Single / Dual)	According to VDE AR 4100, 1 or 2 BKE-I adapter plate each with optical interface. Dimensions: approx. 250 x 370 mm
Space for overvoltage protection devices	Overvoltage protection type 1+2 (Dehn combi arrester 1+2/ I+II, DVA EMOB 3P 255 FM). Dimensions: approx. 250 x 150 mm
Grid connection box	Holder for NH00 fuses Input connection terminal: steal frame clamp in input and output 10-95mm². Dimensions: approx. 412 x 238 x 132 mm

2.5.7 Operating conditions

Operating temperature	-25°C - 40°C
Relative atmospheric humidity	5% - 95%
Class of protection	I
Degree of protection (housing)	IP55
IK protection (mechanical impact)	IK10
Stand-by use	Approx. 9-12W
Environmental conditions	For indoor use / For outdoor use
Electromechanical environmental conditions	Residential environment (inland) Commercial and light industrial environment Industrial environment
Mechanical environmental conditions	Stationary equipment
Access	Locations with restricted access Locations with non-restricted access

ATTENTION!

The specified operating temperature is assumed to be the ambient temperature of a product that is delivered in the default casing colour 'RAL9016'. Direct exposure to sunlight may have an adverse effect on the temperature range.

The ambient temperatures in the above table refer to a product in the standard housing, colour RAL9016. Other (darker) colours may have an adverse effect on the product. If the product is exposed to lower or higher temperatures, continuous operation at full output cannot be guaranteed.

If temperatures exceed the maximum values, the charging station will automatically decrease the charging current to decrease the internal temperature. This stabilises the internal temperature and makes it less likely that a transaction will be unexpectedly interrupted.
If the product is directly exposed to sunlight, the automatic temperature control unit may activated below the specified maximum ambient temperature.

2. PRODUCT

2.6 Optional factory settings

Description	Options
Authorisation	RFID*
Maximum approved charging current	32A*
Options for intelligent charging	OFF Modbus (Master) via TCP/IP SCN
Own logo in display	Off (Alfen logo) On (your own logo)
Languages supported	English, Dutch, German, French, Spanish, Portuguese, Italian, Norwegian, Swedish, Finnish
User availability, if temporarily offline	Accept all RFID cards Valid cards recorded only in database Not available
Response in event of connector release on part of vehicle	Stop transaction and release the connector Pause charging until connector is plugged back in
Select backoffice management system	Stand-alone, ICU Connect*, other options*
Communication through *	GPRS, UTP/LAN, Autodetect

* Settings may involve additional costs. The default settings are always displayed first.

2.7 Accessories

Concrete base	Art. 833829300-ICU
Dimensions (H x W x D)	570 x 350 x 220 mm
Weight	Approx. 42 kg

Package contents

The package contents of the charging station consists of: Alfen Eve Double PG-line DE installation manuals, assembly accessories and lifting eyes

1 x

Eve Double PG-line DE

1 x

Pin lock key

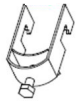
1 x

gland M12x1.5

1 x

union nut M12x1.5

1 x



Strain relief K24U

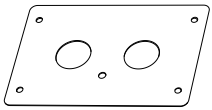
2 x

lifting eyes

2 x

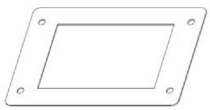
Grommet 30-45 mm

1 x



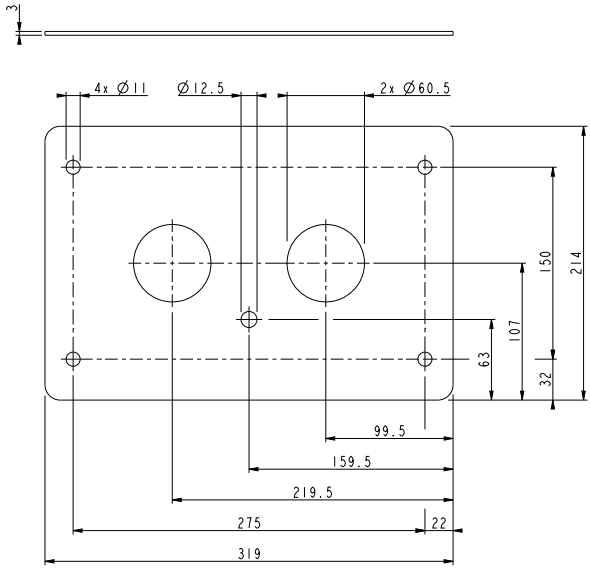
base plate

1 x



gasket

Detail view base plate



3.1 Installation and connection

Carefully read these instructions prior to installing the charging station. Alfen shall not be liable for consequential damage caused by the use of this manual.

NOTE

The installation must be carried out by a qualified professional who has read this manual and works in compliance with IEC 60364 standards. Neglecting this may lead to severe injuries or hazardous situations while working with electricity.

NOTE

This work may not be carried out during rain or when humidity exceeds 95%.

NOTE

A charging station must always be installed in a dedicated power circuit.

DANGER!

Hazard of fatal injury if installed incorrectly! Non-compliance with the installation and environmental requirements may lead to hazardous situations when working with electricity.

DANGER!

The charging station contains electric components that may still contain electrical charge after being disconnected. Wait at least 10 seconds after disconnection before commencing with work.

WARNING

Adaptors or conversion adaptors are not allowed to be used.

WARNING

Cord extension sets are not allowed to be used.

DANGER!

The electrical system must be entirely disconnected from every power source prior to performing installation or maintenance work!

NOTE

The conditions at the specific location may influence the installation requirements.

3. ASSEMBLY AND CONNECTING

3.2. Assembly and connecting prerequisites

See Table in 2.4.2 for safety options and cable thickness required to ensure an optimum connection.

Make sure that the requirements for the installation of the Alfen Eve Double PG-line DE are met:

- The cable routing from the main distribution board to the Alfen Eve Double PG-line DE must be protected against short circuits and overcurrent.
  - A circuit breaker characteristic B or C (or according to local standards and laws).
  - Fusing cartridges type gG (or according to local standards and laws).

The charging stations with grid connection box unit (904462003 and 904462004) do not need pre-protection.

- The cable routing and the charging station are part of a TN-S system; the device must be earthed via the main distribution board.
- The cable routing must be installed according to the usual professional standards applicable on site.

NOTE

The installation and cables should be designed to match the maximum charging current at the input of the charging station. A continuous load is assumed here. The cable diameters stated in this manual are reference values. The installer remains responsible for choosing the correct cable diameter and complying with the relevant standards and regulations.

NOTE

Protect Alfen products installed in public areas and in parking lots against mechanical impact and/or collisions, as they can cause damage to the equipment.

NOTE

The conditions at the specific location may influence the installation requirements.

When selecting the installation location, you must consider the following:

- Never install in a potentially explosive atmosphere.
- Never install in areas prone to flooding, without resorting to additional measures.
- Fully comply with local technical requirements and safety regulations.
- The installation site must have a flat and solid base.
- Ambient temperature of -25° C - 40° C.
- Temperature differences in 24 hours maximum 35° C.
- Ensure that the location of the charging station is selected in such a way that users can use the charging cable (approximately 5 m) without it being stretched causing tension (fixed).
- Prevent other persons from driving over the cable.
- Prevent pedestrians from being able to trip over cable.

3.3 Mechanical installation

Please use the following tools and materials to install the Eve Double PG-line DE:

- Spirit level
- Phillips screwdriver
- Screwdriver for the terminal block
- Wire stripper
- Carpet knife

For installation on an optional concrete base:
Concrete base, with the following supplied parts:

- 4 x M10 x 30 mm RVS compression fitting with threaded end
- 4x M10 RVS nut
- 4x M10 RVS rings
- Shovel

NOTE

Make sure you dig in a safe place. Due to the size of the concrete base, you must dig a hole that is approximately 60 cm deep. There is a risk that you may dig into underlying power cables. Proceed carefully.

Position the concrete base (optional):

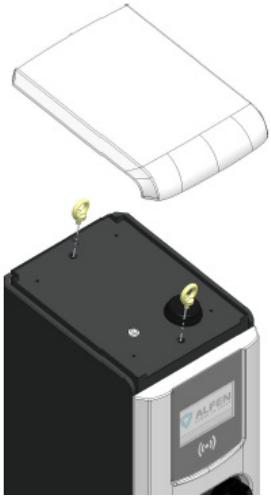
1. Dig a hole of about 50 x 50 cm with a depth of 65 cm;
2. Place the concrete base in this hole;
3. Fill the hole and stamp down any loose soil.

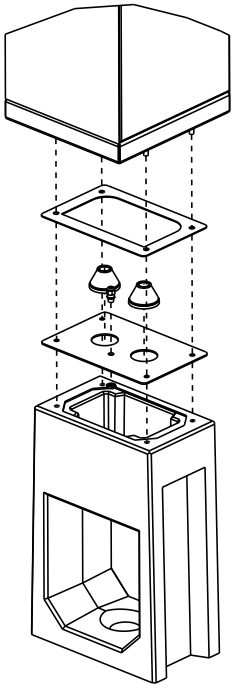
Prepare the installation:

4. Position the earth electrode or use the TT system.
5. Place the grommets in the base plate and cut them to the desired size to allow the power cable and the grounding electrode to be run through them.
6. Feed the power cord and earth electrode through the pipe collar (not included), concrete base (optional) and grommets into the base plate.
   Please refer to the specifications for the appropriate cable diameters. Set the base plate on the base and place the gasket on the base plate.
7. The power cable must have an excess length of at least 25 cm (measured from the ground). Due to the installation of the strain relief, it is advisable not to cut the cable beforehand.

Remove the charging station from its packaging:

1. Loosen the screws from the packaging of the charging station and remove the packaging.
2. Remove the roof of the charging station.
3. Screw in the two lifting eyes provided into the corresponding holes at the top of the charging station.
4. Pass a lifting sling through the lifting eyes and carefully lift the charging station off the pallet.
5. Lower the charging station onto the concrete base or over the wire ends onto the firm base.





Installation of the charging station:

6. Open both doors of the charging station with the supplied pin lock key and insert the four wire ends through the hole of the charging station into the concrete base.
7. Slide the supplied M10 RVS rings over the wire ends, place the washers over the bolts and place them in the screw holes in the base. Tighten all bolts.
8. Remove the lifting eyes.
9. Replace the top of the charging station and secure it with the supplied bolts and nylon washers.
10. Remove the supply cable covering with a carpet knife and remove the sheathing of the separate wires with wire strippers.

WARNING

Always attach the earth conductor first!

WARNING

Read and comply with all safety instructions in this manual!

DANGER!

The electric system must be completely disconnected from every power source prior to carrying our installation and maintenance work. Always wait 10 seconds after disconnecting from an energy source before proceeding.

3.4 Electrical installation

1. The charging station must be earthed. Connect the earth electrode first. An earth connection is installed in the sub-distribution board; the earth electrode can be connected to it.
2. The grid operator's earth electrode may only be used for earthing after obtaining its prior written permission.
3. The earth electrode resistance must be below 100 ohms.
4. For products without grid connection box unit:
   - Switch off the main protection in the installation
   For products equipped with a grid connection box unit:
   - remove the fusing cartridges from the sub-distributor.
5. Connect the phase wires to the fusing cartridge holders in the sub-distributor.
6. A PUK strain relief is included in the scope of delivery.
7. In the case of charging stations supplied with a grid connection box, insert the fusing cartridges into the holders and close the holders.
8. Make sure that the power switch and the RCD switches are switched on.
9. Both doorlocks of the charging station can hold two cylinders. For example, place a cylinder of the grid operator and a customer cylinder on both sides (Alfen and energy provider side). See illustration.
10. Close the door and the lock and make sure that it is properly locked.

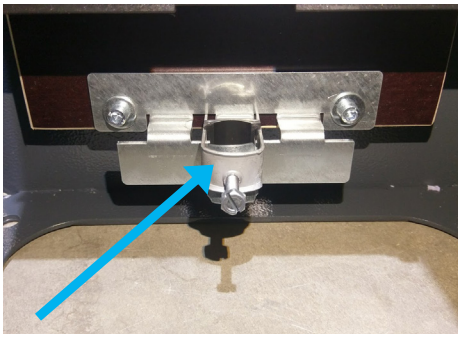


Figure 5: Example of a PUK strain relief

NOTE

Make sure that the cables are not jammed in the door when closing the door.

DANGER!

If no cylinders are installed, the door can be opened by unauthorised persons. Always install two cylinders in both doors.

Space for two cylinders
(Locking cylinder operator side: half cylinder 30/10 mm)

NOTE

There must be absolutely no gaps between individual housing parts. This is harmful to the moisture and dust protection and affects the life cycle of your charging station.

NOTE

The Service Installer application is available for download for Microsoft Windows: www.alfen.com/de/downloads. See the chapter 'EV charging points'. If you have not been able to sign up for an user account to use the "Service Installer" application yet, you can request an account at http://support.alfen.com > "Configuration Tool" > „Sign up for Account".

NOTE

Would you like to learn more about the Service Installer? Then visit our website for the latest version https://alfen.com/de/downloads

4.1 Safety instructions before use

Follow the safety instructions below before commissioning your charging station:

1. Ensure that the charging station is correctly connected to the power supply as described in this manual.
2. Make sure that the distribution of the power supply is protected separately by a suitable circuit breaker (automatic or fusing cartridges) (charging stations equipped without grid connection box unit).
3. Make sure that the charging station is installed in accordance with the details in this manual.
4. Make sure that the housing is closed during normal operation.
5. Make sure that the charger cable is not twisted and that the cable, plug and housing do not display any damage.

4.2 Putting into initial use

Turn on the power at the power cord. The charging station now performs a self-test. It runs through the following steps during this process:

1. The screen lights up briefly and then turns off.
2. The outputs are checked one by one:
   - Checking of the interlock
   - Checking of the internal relays, you can hear them switching.
3. The screen lights up briefly.
4. The screen turns on and "Charging station is starting" appears on the screen.
5. The screen shows the start screen, recognisable by the logo on the screen.
6. The Alfen Eve Double PG-line DE is now ready for operation. When the charging station is set to charge a connection with an operating system, this is done automatically and immediately.
7. If required, the charging station can be further confi gured. Use the Service Installer software package to gain access.
8. Have you had the charging station configured for the smart charging functionality?
   Then check the settings with your Service Installer to have the charging station optimally adjusted to the situation on site.

5. CONNECTIVITY

5.1 Operating systems

You are the owner of an intelligent Alfen charging station that can communicate through an online operating system. Operating systems offer the possibility, for example, to monitor energy consumption of individual users, to monitor the charging process from a distance, or to make the maintenance of the charging station less complicated.

If you ordered an additional service from a (backoffice management system) partner or from Alfen (for the ICU Connect services), your charging station is already pre-configured by the factory to connect to the selected back end. The Internet connection is established via GPRS or a UTP (Ethernet) connection If you have chosen a GPRS connection (SIM card), then your charging station is already equipped with it and establishes this connection as soon as the product is started.
If the SIM card holder (12 on page 3) does not contain a SIM card, please contact your backoffice management provider or Alfen Sales Support.

5.2 Setting up a connection

5.2.1Wireless connection

To establish a wireless connection, the charging station must be equipped with a SIM card suitable for GPRS. In addition, the correct settings must be selected in order to establish a connection with the required operating system.

Here are some of the options (quick connections) that are available in the Service Installer. With these quick connections, you can easily select the desired system with the corresponding settings. After installation, always check the signal strength using the Service Installer.

NOTE

A connection to the operating system can only be set up if you and your supplier have made arrangements to start this service. The services of third party supplies are not included in the service provided by Alfen.

If you indicated that you want to use ICU Connect when you placed your order, then the charging station is already equipped with a SIM card. Immediately after being switched on, the Eve Double PG-line DE, it establishes a connection with ICU Connect.

If you specified a different operating system when ordering, you may have to install the SIM card yourself.
Figure 6 shows where the SIM card holder is located.

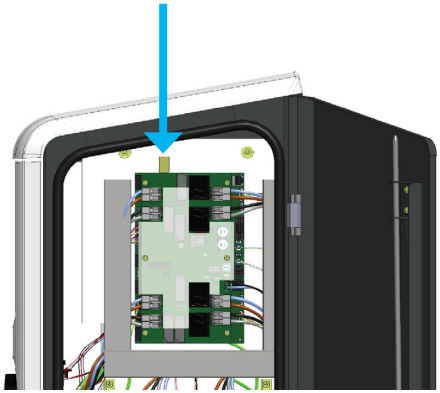


Figure 6: SIM card holders

NOTE

The SIM card holder must be handled with care.

5.2.2 UTP (Ethernet) connection

Which cables do you need?
A CAT5 UTP cable (max. 100 metres) is the minimum required to connect the charging station to the internet. These cables are suitable for speeds up to 100 Mbps.

Installation

1. Connect the UTP cable to your router.
2. Connect the UTP cable to the output.
3. In order to let your Base Station communicate with the ICU Connect via a UTP Ethernet connection, it may be necessary to adjust your network settings, if they are additionally secured. Here is the necessary information to obtain access to the network:

- IP address ICU EZ: 93.191.128.6
- Output: 9090
- Inbound - Outbound

5.3 Registering your ICU Connect account

It may also be necessary to enter a MAC address. You will find this on the test report of the charging station. You can request this report from Alfen.

NOTE

Please ensure your network settings permit the establishing of a connection to the Alfen servers through a secured FTP connection. This is used for software updates and to exchange diagnostics.

5.4 Signing up for your ICU Connect account

NOTE

You can only register as a user at ICU Connect once you own the charging station. When you register, you will need the information of your first charging station. We use this information to identify you. As soon as your account has been set up, Alfen will contact you with login details.

Did you forget to register, but you have already ordered the ICU Connect? No problem. If you Are having the loading station configured when ordering ICU Connect, then your charging station is already registered and the operating system is active. All transactions and other actions from the past are saved and visible to you.

If you wish to use your own or a third party backoffice management system, please ensure that the charging station model is correctly registered.

Each twin model has its own so-called ChargePoint model, which is automatically sent out with the registration according to the OCPP specifications. This consists of a platform identification combined with a unique product identification:

- 904462002
- With Alfen NG920 platform: NG920-62000

The following table shows the various options. If the charging station is correctly registered, connecting n to the administration system is easy.

Item No.	OCPP ChargePointModel
904462002	NG920-62000
904462003	NG920-62003
904462004	NG920-62004

APPENDIX A: ERROR CODES AND PROBLEM SOLVING

This attachment provides a description of the error codes that can be generated by the Eve Double PG-line DE charging station, and information on these. If you cannot find a working solution, contact the charging station vendor or Alfen support. The contact details can be found on the back of this manual.

Display			Troubleshooting		
Code	**Error message text**	**Icon**	**Possible causes**	**Possible solutions**	
General					
001	Unable to charge. Please call for support.		Unknown general error.	Contact your charging station supplier's service department.	
Charging station related errors					
101	One moment please. Your charging session will resume shortly.		DC fault current (>6mA) detected by charging station.	One specific vehicle:	Contact your car dealership.
				Multiple vehicles:	Contact your charging station supplier's service department.
102	Unable to charge. Please call for support.		Internal error. Unexpected or no voltage at power board output.	• Contact your charging station supplier's service department. Check power board.	
104	Unable to charge. Please call for support.		Internal error. Voltage to low on internal power supply (power board).	• Contact your charging station supplier's service department. Check power board.	
105	Unable to charge. Please call for support.		Internal error. No communication with internal power meter.	• Contact your charging station supplier's service department. Check if power meter is connected correctly. • Check if power meter is configured correctly. • Check the internal power meter.	
106	Unable to charge. Please call for support.		Power interrupted by internal 30mA AC residual current protection device.	Contact your installation engineer. Internal RCD tripped.	
Installation related error					
201	Installation error Please check installation or call for support.		Protective earth not connected or unstable.	Contact your installation engineer. • . Recommended earth resistance of system <100 Ohm.	
202	Input voltage too low, unable to charge. Please call your installer.		Supply voltage below 210 VAC.	Contact your installation engineer.	
206	Temporarily set to unavailable. Contact CPO or try again later.		Charging station is set to "inoperative" by the charging station Operator / the charging station is updating.	Contact your charging station operator.	

APPENDIX A: ERROR CODES AND PROBLEM SOLVING

Display			Troubleshooting		
Code	**Error message text**	**Icon**	**Possible causes**	**Possible solutions**	
Installation related error					
211	Not able to lock cable. Please call for support.		Unable to move locking motor during built-in self-test.	• Contact your charging station operator. Check if locking motor is connected correctly. • Check if the locking motor can move freely.	
212	Installation error Please check installation or call for support.		Missing installation phase	• Contact your installation engineer. Check voltage level.	
Vehicle related error					
301	One moment please, your charging session will resume shortly.		Unknown error in communication with car.	• Check car and charging cable. Contact your charging station supplier's service department.	
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 your charging station supplier's service department .
303	One moment please, your charging session will resume shortly.		Safety measure, charging is being started too frequently within 1 minute.	• Check car and charging cable. Contact your charging station supplier's service department.	
304	The charging process has not yet started. Reconnect the cable		Cable connected for more than 2 minutes without starting a charging session.	• Reconnect cable and start charging session within 2 minutes. • Otherwise contact your charging station supplier's service department.	
Ambient or equipment related error (user, plug, cable, weather influences, etc.)					
401	High interior temperature. Charging will resume shortly.		Temperature inside the charge point above 70° C.	Unexpected: • Ambient temperature. • No EV charging.	Contact your charging station supplier's service department .
				Expected: • Ambient temperature. • Installed in direct sunlight. • EV charging.	Contact your installation engineer.

APPENDIX A: ERROR CODES AND PROBLEM SOLVING

Display			Troubleshooting		
Code	**Error message text**	**Icon**	**Possible causes**	**Possible solutions**	
Ambient or equipment related error (user, plug, cable, weather influences, etc.)					
402	Low interior temperature. Charging will resume shortly.		Temperature inside the charge point below -40 degrees Celsius.	Unexpected ambient temperature. • Contact your charging station supplier's service department.	
				Expected ambient temperature.	
403	The charging process has not yet started. Reconnect the cable		General error.	Contact your charging station supplier's service department.	
404	Not able to lock cable. Please reconnect cable.		Unable to lock the charging cable.	Contact the service department of your charge point supplier. • Check electrical outlet and charging cable plug. • Check if the lock motor can move freely.	
405	Cable not supported. Please try connecting your cable again.		Measure the PP resistance of the charging cable outside of the area according to the IEC 61851.	One specific cable: • Problems with other charging stations.	Defective cable.
				All cables: • No problems with other charging stations.	Contact your charging station provider's service department .
406	No communication with the vehicle. Check the charging cable.		Monitored CP voltage level is out of range according to the IEC 61851 norm.	One specific cable: • Problems with other charging stations.	Defective cable.
				All cables: • No problems with other charging stations.	Contact your charging station provider's service department .

Giro-e

Giro-e is a 'direct payment' method that is available only in Germany. By using Giro-e, all users with a Girocard can pay directly at charging stations without having to register in advance.

To use Giro-e on the charging station, the backoffice management system must support the Giro-e functionality. It is required that the backoffice management system of the charging station is connected to the Giro-e system and that the Giro-e functionality has been implemented. Please check with your service provider if Giro-e is supported for the Alfen charging stations.

The user and Giro-e

In order to use the contactless payment function, the Girocard must have been activated according to the instructions of the Girocard supplier. After activation of the Girocard, a charging session can be started with Giro-e without prior registration or additional contracts with providers of electric mobility. Also a dedicated smartphone app or access to a mobile wireless network are not needed anymore.

Payment and Giro-e

Using Giro-e guarantees price transparency and safe and secure transactions, in accordance with regulations.
After the Girocard has been accepted by the charging station, the display shows the offered price.
The user must agree to this price to begin actual charging.
Once the charging session has ended the display shows the total price of the session.

Billing information is provided on the cardholders bank statement. It is only possible to access and view the invoices, and the history of the charging sessions, if you register as a Giro-e user. Registration provides you with the possibility to obtain official PDF invoices.

Safety and Giro-e

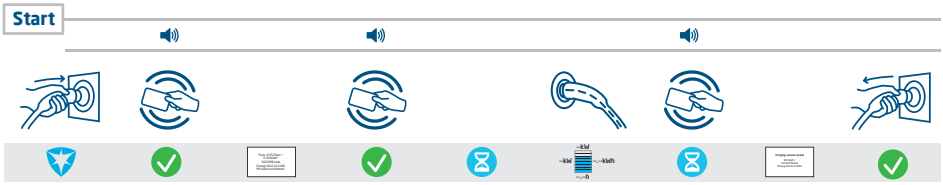
After the initial swipe of the Girocard all information is encrypted on the charging station. Accepting the transaction sends this encrypted information to the Girocard backoffice. The data on the Girocard is the only information required to successfully pay for the charging session.

Operation

Specific user actions are presented in a sequence that clearly shows the progress and corresponding status indications.

- Hold the Girocard in front of the RFID reader on the charging station until the green 'Charge card accepted' symbol appears to show that the Girocard has been detected..
- A pop-up screen shows the transaction information, including the price.
- Hold the Girocard in front of the RFID reader again to indicate that you approve the transaction. The screen shows a light blue (cyan) 'hourglass' symbol.
- Connect the charging cable to start charging. During charging the status indicator will show the charging transaction is active. Charging will automatically end when the accus are fully charged.
- After the charging has completed, or if you want to end the session, hold the Girocard in front of the RFID reader to end the charging session. A pop-up screen shows the transaction data and settlement.
- Disconnect the charging cable. The charging session has ended.

Giro-e customer journey with user authorisation



Giro-e display sequence

APPENDIX B: GIRO-E

User interface

The charging station has a display which informs the user on the progress of the charging by using status indications. For Giro-e two additional information screens can appear on the display:

- One 'start' screen that shows transaction information for approval
- One 'end of transaction' screen that shows the final transaction information.

Status indications on Eve Single Pro-line DE models:

Giro-e start screen

① The starting price in Euro for the transaction.
② The offered price in Euro for charging per kWh.
③ Price per hour in Euro.
④ Authorisation/transaction code.
⑤ Hold the Girocard in front of the RFID reader to approve transaction conditions.

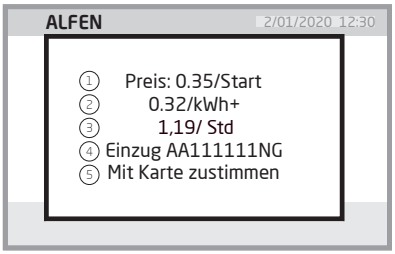


Figure: Giro-e start screen

Giro-e end of transaction screen

⑥ Duration of the transaction.
⑦ Total amount of kWh during transaction.

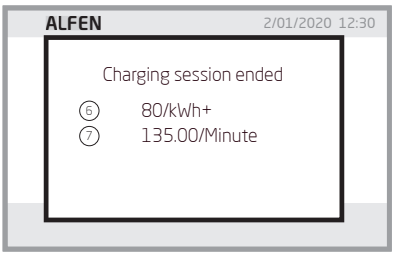


Figure: Giro-e end of transaction screen

Enabling or disabling Giro-e in the Service Installer application

- When the Giro-e direct payment functionality is ordered at the purchase of the charging station the Giro-e functionality will be set to 'enabled' in the factory settings. The Giro-e functionality will show 'unlocked' in the 'License key' window under the 'General' tab. The user can switch Giro-e to 'enabled' or 'disabled' using the check box in the Authorization tab.
- If the charging station is upgraded at a later stage to add the Giro-e direct payment functionality, the Giro-e functionality will initially show 'unlocked' in the 'License key' window under the 'General' tab. In order to use the Giro-e functionality it must to be set to 'enabled' using the check box in the Authorization tab.

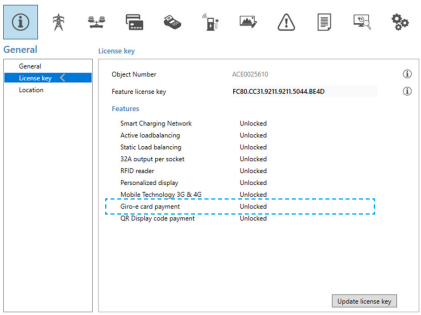


Figure: Service installer General tab/Giro-e card payment.

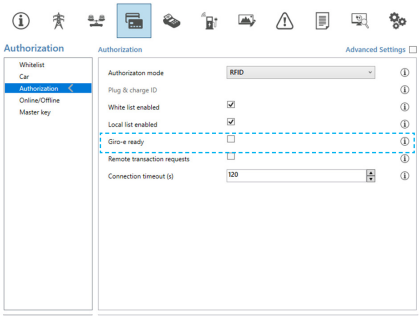


Figure: Service installer Authorization tab With Giro-e check box.

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

Electrical and electronic equipment (EEE) contains materials, components and substances that may be hazardous and present a risk to human health and the environment when electrical and electronic equipment (WEEE) is not handled correctly.
Equipment marked with the crossed-out trash bin shown below is electrical and electronic equipment.

The crossed-out trash bin icon indicates that waste electrical and electronic equipment should not be disposed of together with non-separated household waste, but must be collected separately.

For this purpose, all local authorities have established collection schemes under which residents can dispose waste electrical and electronic equipment at a recycling centre or other collection points. Waste electrical and electronic equipment is collected directly from households. More detailed information is available from the technical administration of the respective local authority.

Users of electrical and electronic equipment must not dispose of waste electrical and electronic equipment together with household waste. Residents must use the communal collection systems to reduce negative environmental influences in connection with the disposal of waste electrical and electronic devices and to increase the possibilities for reuse, recycling and the recovery of waste electrical and electronic equipment.

Contact

Alfen N.V.
Hefbrugweg 28
1332 AP Almere
The Netherlands

P.O. Box 1042
1300 BA Almere
The Netherlands

Tel. Sales Support: +31 (0)36 54 93 402
Tel. Service: +31 (0)36 54 93 401
Website: www.alfen.com/en/ev-charge-points
www.alfen.com/de/ladestationen-ev

ALFEN
POWER TO ADAPT