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Eve Double Plus

Technical specification

Product Variants

	Article no.
EU generic variants	
Eve Double Plus, 3 phase, 2x type 2 socket, single feeder cable	904463021
Eve Double Plus, 3 phase, 2x type 2 socket, dual feeder cable	904463022
Eve Double Plus, 3 phase, 2x type 2 shutter socket, single feeder cable	904463023
Eve Double Plus, 3 phase, 2x type 2 shutter socket, dual feeder cable	904463024
Eve Double Plus, 3 phase, 2x fixed charging cable, single feeder cable	904463025
Eve Double Plus, 3 phase, 2x fixed charging cable, dual feeder cable	904463026
Eve Double Plus DE	
Eve Double Plus DE, 3 phase, 2x type 2 socket, single feeder cable	904463121
Eve Double Plus DE, 3 phase, 2x type 2 socket, dual feeder cable	904463122
Eve Double Plus DE, 3 phase, 2x type 2 socket, single feeder cable, SPD	904463141
Eve Double Plus DE, 3 phase, 2x type 2 socket, dual feeder cable, SPD	904463142
Eve Double Plus DE, 3 phase, 2x fixed charging cable, single feeder cable	904463125
Eve Double Plus DE, 3 phase, 2x fixed charging cable, dual feeder cable	904463126
Eve Double Plus DE, 3 phase, 2x fixed charging cable, single feeder cable, SPD	904463145
Eve Double Plus DE, 3 phase, 2x fixed charging cable, dual feeder cable, SPD	904463146

General Product Specifications

Number of sockets	2
Types of sockets	• Type 2 sockets, in accordance with IEC 62196-2 • Type 2 shutter sockets, in accordance with IEC 62196-2 • Fixed charging cables, with plug in accordance with IEC 62196-2 (charging cable holders integrated in product)
Energy meter, per socket	4 quadrant meter, MID certified, EN 50470 class B • additional Eichrecht certification (only for Eve Double Plus DE)
Authentication methods	Plug&Power (not available on Eve Double Plus DE) RFID card Autocharge (encoded MAC address) ISO15118 Plug & Charge * Girocard (only for Eve Double Plus DE) *
Status indication	Integrated in display

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Display	7" IPS color display Resolution: 1024 x 600 pixels Brightness: 1000 cd/m^2 Contrast ratio: 800:1	
Earthing systems	TN-S, TN-C-S, TT, IT * *	
Nominal output voltage (+/- 10%)	400 V (3x230 V)	
Maximum current	32 A per phase * * *	
Maximum power	22 kW	
Permissible cos phi	0.9-1	
Switch-Disconnector	Single feeder cable 4P, 80 A, 400 V	Dual feeder cable 8P, 40 A, 400 V
Feeder cable	Cable gland, clamping range for 14-25.5 mm cable thickness Cable clamps on main switch, range: • Single feeder cable: - Rigid copper: 16 mm^2 - Flexible copper: 16 mm^2 - Flexible copper with ferrule: 16 mm^2 • Dual feeder cable: - Solid copper (rigid): 6 mm^2 - Flexible copper (stranded): 10 mm^2 - Stranded copper (without ferrule): 10 mm^2 Only article no. 904463023 can be connected to a single phase power supply.	
Contactors	Integrated per socket, simultaneous activation of all phases Extra safety relay in series for emergency situations	
Overcurrent protection	Integrated in firmware, overcurrent response scenarios: 110-125% after 100 seconds 125% and higher after 5 seconds	
Residual current protection	Per outlet integrated RCD, 30 mA, type B Rated breaking capacity: 10 kA	
Residual current protection + short circuit protection (only for article no. 904463023)	Per outlet integrated RCBO, 30 mA, type A Rated breaking capacity: 10 kA Integrated 6 mA DC fault current detection	
Over voltage protection (only for article no. 904463141, 904463142, 904463145, 904463146)	Per feeder cable: surge protection device (SPD) Type 2+3	

* Will be available in future firmware releases, also depending on car and back office integration.

* * Caution: not all vehicles support the IT system. In that case an isolation transformer is required.

* * * When input current per phase exceeds the design current, use of Standard Load Balancing is required.

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Communication and Protocols

Controller board	Alfen Hardware Platform (AHP) version 2
Vehicle communication	Mode 3 in accordance with IEC 61851-1 ed. 3 (2017) ISO15118 hardware ready (HomePlug Green PHY)
RFID card reader authentication	ISO/IEC 14443A/B, 13.56 MHz MIFARE Classic 1K/4K, MIFARE Ultralight, DESFire (EV1/EV2) Maximum length: 10 bytes
Mobile communication	LTE Cat M1 4G: bands: 3, 8, 20 Wi-Fi / Wireless LAN (802.11 b/g/n, 2.4 GHz) *
Back office communication	OCPP 1.6 (JSON) OCPP 1.6 (JSON) + Security Whitepaper OCPP 2.0.1 (JSON) (upgradeable) * *
Ethernet	RJ-45: 2×1/100 BaseT 2 ethernet ports for ethernet daisy chaining
Available inputs for Smart Charging	• RJ-11: DSMR 4.0-4.2 and SMR 5.0 (port P1) • RJ-45: Modbus TCP/IP (external energy meter) or Modbus TCP/IP Slave (Energy Management System) • RS-485: Modbus RTU (external energy meter) • Télé-Information Client (TIC) (Linky smart meter) • Suspend Signal §14a EnWG

* Will be available in future firmware releases.

* * Ongoing integration, consult the Alfen Knowledge Base for the latest overview.

Information on Radio Frequency

Alfen charging stations are 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.

Radio equipment	Frequency / Frequency bands	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 802.11 b/g/n *	2.4 GHz to 2.4835 GHz	19 dBm

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Cyber Security

Default network interfaces	Web Service on port 443, finds charging station using mDNS
Privacy	When using the NFC reader, the charging station will read, process and cache the unique identifier contained within the tag. This data, along with location data (if configured), can be erased in the ACE Service Installer
SIM card	Mini SIM card (4G), gold plated APN username and password authentication via: • PAP • CHAP *
Charging Station Management System authentication	TLS 1.2 with x509 certificates. Supported CSMS root certificate algorithms: • RSA-2048/4096 • ECDSA (P-256 or P-384)
EVSE authentication	HTTP Basic authentication • with TLS • with TLS and Client Side Certificates • without TLS
Diagnostic files	Encryption: AES-128-CBC
Firmware update files	Encrypted and signed. Algorithms: Encryption: AES-256-CBC Signature: ECDSA (P-384) with SHA-256
Root certificate	Installed in the factory, updateable through OCPP management system using UpdateFirmware message, or locally with ACE Service Installer
Tamper detection *	Security notification will be sent to the back office

* Will be available in future firmware releases.

Available Memory

RFID card	Local list: approx. 1,000 tokens (via the Back office) White list: approx. 1,200 tokens (local)
Transaction database	Approx. 1,500 transactions (of 4 h with 15 min Wh metering values)
Logging for diagnostics	Approx. 1,750,000 lines

Environmental Conditions and Product Properties

Operating temperature *	-25 °C to +40 °C
Electrical safety class	Class I
Ingress protection	IP54
Impact protection	IK10

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Stand-by power consumption	Eve Double Plus: 12.5 W Eve Double Plus DE: 11.8 W
Environmental conditions	Indoor / outdoor use
Electromechanical environmental conditions	E2 * *
Mechanical environmental conditions	M1 * *

* More information about the indicated operating temperature:

- 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.

* * according to 2014/32/EU (Measuring Instruments Directive)

Charging stations which are installed outside without protection will be affected by weather conditions and will discolour. Alfen recommends to install the charging stations in a sheltered environment to optimize the lifetime of the product.

Casing

Type	Wall-mounted charging station	
Mounting options	Wall mounting Pole mounting (optional)	
Material	Fibre-reinforced polyester (Sheet Moulding Compound - SMC)	
Colour	RAL 9016 (Traffic White): front side RAL 7043 (Traffic Grey B): front side (optional) RAL 7043 (Traffic Grey B): rear	
Locking	Torx T25 tamper resistant screws	
Casing	**Dimensions (H x W x D)**	**Weight**
Model with sockets	590 x 338 x 230 mm	17.4 kg
Model with fixed charging cables • Charging cables	590 x 338 x 265 mm 4 m (2x)	16.7 kg 3.7 kg (2x)
Packaging *	**Dimensions (L x W x H)**	**Weight**
Box with Eve Double Plus, both models / Eve Double Plus DE, model with sockets	770 x 390 x 320 mm	18.9 kg
Box with Eve Double Plus DE, model with fixed charging cables	800 x 590 x 330 mm	28.3 kg
Box with charging cable	400 x 290 x 140 mm	4.1 kg

* Eve Double Plus DE charging stations have the fixed charging cables connected to the charging station ex-factory. Non-DE charging stations have the charging cables delivered separately in two boxes (one charging cable per box).

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Installation Instructions

Input: minimum recommended cable diameters (based on assumed max. 50 m cable length)		11 kW charging, 16 A per phase: 5 x 4 mm^2 22 kW charging, 32 A per phase: 5 x 6 mm^2	
Short-circuit protection *		With circuit breakers:	With fuses:
	Single feeder cable:	1x 40 A, 3P, type B or C	3 x 35 A gG
	Dual feeder cable:	2x 40 A 3P, type B or C	6 x 35 A gG
Residual current protection (optional) *		Residual Current Device (RCD): 100 mA S (Selective), 4P Depending on installation and local regulations	
Nominal input voltage		V_{L1-N}: 230 V (+/-10%) V_{L2-N}: 230 V (+/-10%) V_{L3-N}: 230 V (+/-10%) V_{PE-N}: ≈ 0 V	V_{L1-L2}: 400 V (+/-10%) V_{L1-L3}: 400 V (+/-10%) V_{L2-L3}: 400 V (+/-10%)
Nominal frequency		50 Hz	
Earthing system		TN system: separate PE cable TT system: separately installed earthing electrode < 100 Ω spreading resistance IT system: connected to a shared reference (common earth) with other metal parts	

* Please take derating into account to ensure minimum operation of the charging station.

Standard and Selectable Settings Ex-Works

Authorization	Plug&Power (not available on Eve Double Plus DE) RFID card Autocharge (encoded MAC address) * ISO15118 Plug & Charge * *
Smart Charging	Off Standard Load Balancing (single feeder cable models only) Active Load Balancing * * Active Load Balancing + Smart Charging Network * *
Personalized display	Off (Alfen logo) On (your own logo) *
Languages supported	English, Dutch, German, French, Spanish, Portuguese, Italian, Norwegian, Swedish, Finnish, Czech, Danish, Hungarian, Icelandic, Latvian, Polish, Romanian, Slovak, Slovenian.
Management system	Stand alone OCPP charging station management systems *
Direct Payment options	Off Dynamic QR code * Girocard (only for Eve Double Plus DE) * *

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* Optional feature. Adding it may result in additional costs when purchasing your charging station. The default settings are always mentioned first. For more information about the optional features, contact your sales representative.

* * Will be available in future firmware releases.

Accessories

	Article no.
Type 2 spiral charging cable for fixed cable variants, 4 m, 3 phase, up to 32 A (22 kW)	203100322
Eve Double Pole	803881440
Eve Double Duo Pole	803881390
Concrete base	833829300
Metal base	803828601
Wall Cover Eve Double	803881382
Additional RFID Card	203120010

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