

# Datasheet

## Eve Double Plus

### Technical specification



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### Product Variants

|  | Article no. |
|--|-------------|
| <i>EU generic variants</i>   |             |
| 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   |
| <br><i>Eve Double Plus DE</i>  |             |
| 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         | <ul style="list-style-type: none"><li>• Type 2 sockets, in accordance with IEC 62196-2</li><li>• Type 2 shutter sockets, in accordance with IEC 62196-2</li><li>• Fixed charging cables, with plug in accordance with IEC 62196-2 (charging cable holders integrated in product)</li></ul> |
| Energy meter, per socket | 4 quadrant meter, MID certified, EN 50470 class B<br>• additional Eichrecht certification (only for Eve Double Plus DE)  |
| Authentication methods   | Plug&Power (not available on Eve Double Plus DE)<br>RFID card<br>Autocharge (encoded MAC address)<br>ISO15118 Plug & Charge <b>*</b><br>Girocard (only for Eve Double Plus DE) <b>*</b>  |
| Status indication        | Integrated in display  |



|  |  |                                      |
|--|--|--------------------------------------|
| Display  | 7" IPS color display<br>Resolution: 1024 x 600 pixels<br>Brightness: 1000 cd/m <sup>2</sup><br>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<br>4P, 80 A, 400 V   | Dual feeder cable<br>8P, 40 A, 400 V |
| Feeder cable   | Cable gland, clamping range for 14-25.5 mm cable thickness<br>Cable clamps on main switch, range:<br><ul style="list-style-type: none"> <li>Single feeder cable:               <ul style="list-style-type: none"> <li>Rigid copper: 16 mm<sup>2</sup></li> <li>Flexible copper: 16 mm<sup>2</sup></li> <li>Flexible copper with ferrule: 16 mm<sup>2</sup></li> </ul> </li> <li>Dual feeder cable:               <ul style="list-style-type: none"> <li>Solid copper (rigid): 6 mm<sup>2</sup></li> <li>Flexible copper (stranded): 10 mm<sup>2</sup></li> <li>Stranded copper (without ferrule): 10 mm<sup>2</sup></li> </ul> </li> </ul> Only article no. 904463023 can be connected to a single phase power supply. |                                      |
| Contactors   | Integrated per socket, simultaneous activation of all phases<br>Extra safety relay in series for emergency situations  |                                      |
| Overcurrent protection   | Integrated in firmware, overcurrent response scenarios:<br>110-125% after 100 seconds<br>125% and higher after 5 seconds   |                                      |
| Residual current protection  | Per outlet integrated RCD, 30 mA, type B<br>Rated breaking capacity: 10 kA   |                                      |
| Residual current protection + short circuit protection<br>(only for article no. 904463023) | Per outlet integrated RCBO, 30 mA, type A<br>Rated breaking capacity: 10 kA<br>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)<br>ISO15118 hardware ready (HomePlug Green PHY)   |
| RFID card reader authentication     | ISO/IEC 14443A/B, 13.56 MHz<br>MIFARE Classic 1K/4K, MIFARE Ultralight, DESFire (EV1/EV2)<br>Maximum length: 10 bytes  |
| Mobile communication                | LTE Cat M1 4G: bands: 3, 8, 20<br>Wi-Fi / Wireless LAN (802.11 b/g/n, 2.4 GHz) *   |
| Back office communication           | OCPP 1.6 (JSON)<br>OCPP 1.6 (JSON) + Security Whitepaper<br>OCPP 2.0.1 (JSON) (upgradeable) **   |
| Ethernet                            | RJ-45: 2×1/100 BaseT<br>2 ethernet ports for ethernet daisy chaining   |
| Available inputs for Smart Charging | <ul style="list-style-type: none"><li>RJ-11: DSMR 4.0-4.2 and SMR 5.0 (port P1) *</li><li>RJ-45: Modbus TCP/IP (external energy meter) or Modbus TCP/IP Slave (Energy Management System) *</li><li>RS-485: Modbus RTU (external energy meter) *</li><li>Télé-Information Client (TIC) (Linky smart meter) *</li><li>Suspend Signal §14a EnWG *</li></ul> |

\* Will be available in future firmware releases.

\*\* Ongoing integration, consult the Alfén 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            |

\* Will be available in future firmware releases.

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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<br>APN username and password authentication via: <ul style="list-style-type: none"><li>• PAP</li><li>• CHAP *</li></ul>  |
| Charging Station Management System authentication | TLS 1.2 with x509 certificates. Supported CSMS root certificate algorithms: <ul style="list-style-type: none"><li>• RSA-2048/4096</li><li>• ECDSA (P-256 or P-384)</li></ul>   |
| EVSE authentication                               | HTTP Basic authentication <ul style="list-style-type: none"><li>• with TLS</li><li>• with TLS and Client Side Certificates</li><li>• without TLS</li></ul>   |
| Diagnostic files                                  | Encryption: AES-128-CBC  |
| Firmware update files                             | Encrypted and signed. Algorithms:<br>Encryption: AES-256-CBC<br>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)<br>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<br>Pole mounting (optional)   |             |
| Material   | Fibre-reinforced polyester (Sheet Moulding Compound - SMC)  |             |
| Colour   | RAL 9016 (Traffic White): front side<br>RAL 7043 (Traffic Grey B): front side (optional)<br>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   | 590 x 338 x 265 mm  | 16.7 kg     |
| • Charging cables  | 4 m (2x)  | 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).



## Installation Instructions

|   |   |   |
|---|---|---|
| Input: minimum recommended cable diameters<br>(based on assumed max. 50 m cable length) | 11 kW charging, 16 A per phase: 5 x 4 mm <sup>2</sup><br>22 kW charging, 32 A per phase: 5 x 6 mm <sup>2</sup>  |   |
| Short-circuit protection *  | With circuit breakers:<br><br>Single feeder cable: 1x 40 A, 3P, type B or C<br>Dual feeder cable: 2x 40 A 3P, type B or C   | With fuses:<br><br>3 x 35 A gG<br>6 x 35 A gG   |
| Residual current protection (optional) *  | Residual Current Device (RCD): 100 mA S (Selective), 4P<br>Depending on installation and local regulations  |   |
| Nominal input voltage   | V <sub>L1-N</sub> : 230 V (+/-10%)<br>V <sub>L2-N</sub> : 230 V (+/-10%)<br>V <sub>L3-N</sub> : 230 V (+/-10%)<br>V <sub>PE-N</sub> : ≈ 0 V   | V <sub>L1-L2</sub> : 400 V (+/-10%)<br>V <sub>L1-L3</sub> : 400 V (+/-10%)<br>V <sub>L2-L3</sub> : 400 V (+/-10%) |
| Nominal frequency   | 50 Hz   |   |
| Earthing system   | TN system: separate PE cable<br>TT system: separately installed earthing electrode < 100 Ω spreading resistance<br>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)<br>RFID card<br>Autocharge (encoded MAC address) *<br>ISO15118 Plug & Charge * *   |
| Smart Charging         | Off<br>Standard Load Balancing (single feeder cable models only)<br>Active Load Balancing * *<br>Active Load Balancing + Smart Charging Network * *                           |
| Personalized display   | Off (Alfen logo)<br>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<br>OCPP charging station management systems *   |
| Direct Payment options | Off<br>Dynamic QR code *<br>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   |