

Eve Single

Technical specification



Product variants

Product variant	Article no.
<i>S-line</i>	
Eve Single S-line, 1-phase, LED, type 2 socket	904460603
Eve Single S-line, 1-phase, LED, fixed charging cable	904460605
Eve Single S-line, 1-phase, LED, type 2 socket shutters	904460607
Eve Single S-line, 3-phase, LED, type 2 socket	904460623
Eve Single S-line, 3-phase, LED, fixed charging cable	904460625
Eve Single S-line, 3-phase, LED, type 2 socket shutters	904460627
<i>Pro-line</i>	
Eve Single Pro-line, 1-phase, display, type 2 socket	904460003
Eve Single Pro-line, 1-phase, display, fixed charging cable	904460007
Eve Single Pro-line, 1-phase, display, type 2 socket shutters	904460005
Eve Single Pro-line, 3-phase, display, type 2 socket	904460023
Eve Single Pro-line, 3-phase, display, fixed charging cable	904460027
Eve Single Pro-line, 3-phase, display, type 2 socket shutters	904460025

Specification of Eve Single Product Lines

Specification	S-line	Pro-line
1-phase	✓	✓
3-phase	✓	✓
RFID card authentication	✓	✓
RGB Status LED	✓	—
Display	—	✓
Mobile network communication	✓	✓
Ethernet/LAN dedicated network connection	✓	✓
Energy meter	MID certified	MID certified
Max. 6 mA DC detection	✓	✓

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Specification	S-line	Pro-line
Provision of electrical connection for E-socket	*	*
Type 2 socket	✓	✓
Type 2 socket with shutters	✓	✓
Fixed charging cable	✓	✓

* Provision of electrical connection for E-Socket is only available on shutter socket variants

General Product Specifications

Number of sockets	1
Types of sockets	Fixed charging cable, with plug in accordance with <ul style="list-style-type: none"> • SAE J1772 Type 1 or • IEC 62196 Type 2 socket (charging cable holder integrated in product), in accordance with IEC62196-2 Type 2 socket shutters, in accordance with IEC62196-2, ed. 2
Authentication methods	Plug & Charge RFID card Back office
Status indication	S-line: RGB LED Pro-line: Integrated in display
Display (Pro-line models only)	3.5" TFT color display Resolution: 320 x 240 pixels Brightness: 400 cd/m ²
Supported power systems	TN-S, TN-C-S, TT, IT *
Nominal output voltage (+/- 10%)	230 V, 1-phase products 400 V (3x230 V), 3-phase products
Maximum design current	1-phase products: 32 A per phase S-line 3-phase: 16 A per phase Pro-line 3-phase: 32 A per phase
Maximum design power	1-phase products: 7.4 kW S-line 3-phase: 11 kW Pro-line 3-phase: 22 kW

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Cable diameters	<p>Cable gland, clamping range for 14-25.5 mm cable thickness</p> <p>Cable clamps on main switch, range:</p> <ul style="list-style-type: none"> • Max. 10 mm² per wire: solid wire (PVC cable) • Max. 6 mm² per wire: stranded wire with ferrules (PVC cable)
Contactors	<p>Per phase controllable relays</p> <p>Integrated per socket, simultaneous activation of all phases</p> <p>Extra safety relay in series for emergency situations</p>
Overcurrent protection	<p>Integrated in firmware, overcurrent response scenarios:</p> <p>105% after 1,000 seconds</p> <p>110% after 100 seconds</p> <p>120% after 10 seconds</p> <p>150% after 2 seconds</p>
Residual current protection	<p>Integrated 6 mA DC fault current detection</p> <p>Response time: 0.1-10 seconds</p>

* Caution: not all vehicles support the IT system. In that case, or with 3-phase charging, an isolation transformer is required

Communication and Protocols for the Charging Station Management System

Controller board	NG910
Vehicle communication	Mode 3 in accordance with IEC 61851-1 ed. 3 (2017)
RFID card authentication	<p>ISO/IEC 14443A/B, 13.56 MHz</p> <p>MIFARE Classic 1K/4K, MIFARE Ultralight, DESFire (EV1/EV2)</p> <p>Maximum length: 7 bytes</p>
Internet/networking possibilities	<p>GPRS 2G</p> <p>LTE Cat M1 4G</p> <p>Ethernet/LAN</p> <p>Wi-Fi / Wireless LAN (802.11 b/g/n, 2.4 GHz)</p>
Supported mobile communication bands	<p>2G: EGPRS quad-band: 850 / 900 / 1800 / 1900 MHz</p> <p>4G: LTE Cat M1 bands: 3, 8, 20</p>
Communication protocol Central System	<p>OCPP 1.5 (JSON)</p> <p>OCPP 1.6 (JSON) 2nd edition, certified</p> <p>OCPP 2.0.1 (JSON)</p>
Available inputs for Smart Charging	<p>RJ-11: DSMR 4.0-4.2 and SMR5.0 (port P1) or external relay</p> <p>RJ-45: Modbus TCP/IP (external energy meter) or Modbus TCP/IP Slave (Energy Management System)</p> <p>RS-485: Modbus RTU (external energy meter)</p> <p>Télé-Information Client (Linky smart meter)</p>



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.

Maximum power = rated power + maximum tolerance

Radio equipment	Frequency / Frequency bands	Max. power
DCS1800/PCS1900	1800 / 1900 MHz	32 dBm
GSM850/EGSM900	850 / 900 MHz	35 dBm
LTE-FDD	B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B26/B27/B28/B66/B85	23 dBm
RFID card	13.56 MHz	32 dBm
802.11 b/g/n	2.4 GHz to 2.4835 GHz	19 dBm

Cyber Security

SIM card	Mini SIM card (2G/4G) APN username and password
Charging Station Management System authentication	TLS 1.2 x509 2048/4096 bit root certificate
EVSE authentication	HTTP Basic authentication, with TLS (recommended) or without TLS
Diagnostic files	Encryption: AES 128 bit
Firmware update files	Encrypted and digitally signed Encryption: SHA256 hash (pkcs1/PSS padding with 2048 RSA key) Signature: RSA public key 2048 bit
EVSE Internal Flash	AES 128 bit (erased when read)

Available Memory

RFID card	Local list: approx. 800 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. 45,000 lines

Operating Conditions

Operating temperature *	-25°C to +55°C
Relative atmospheric humidity	5 to 95 %
Electrical safety class	Class I
Degree of protection (casing)	IP55
IK protection (mechanical impact)	IK10

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Stand-by power consumption	S-line: approx. 8.0 W Pro-line: approx. 8.9 W
Environmental conditions	indoor / outdoor use
Electromechanical environmental conditions	E2 * *
Mechanical environmental conditions	M1 * *

* The operating temperature stated is under the following conditions:

- A maximum charging power of 11 kW is guaranteed at an ambient temperature above 40 °C and below the stated maximum operating temperature.
- The influence of direct solar radiation on the charging station is excluded.
- The influence of a front cover with another color than RAL9016 is excluded.
- The influence of customizations applied on the charging station is excluded.
- The stated charging performance is solely applicable to the charging station, actual performance is dependent on the vehicle and the grid connection.

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

Charging stations which are exposed to the elements will gradually age and/ or discolor. Alfen recommends to place the charging stations in a sheltered environment to optimize the lifetime of the product.

Casing

Type	Wall-mounted charging station
Mounting options	Wall mounting or mounting post (accessory)
Material	Polycarbonate, UV resistant and flame retardant
Color	RAL 9 016 (Traffic White): front side RAL 7043 (Traffic White): front side RAL 7043 (Traffic Grey B): rear
Locking	Torx T20 screws
Casing (exterior) dimensions (H x W x D)	S-line/Pro-line
model with socket	373 x 242 x 138mm
model with fixed charging cable *	373 x 242 x 173mm
Packaging Dimensions (H x W x D)	S-line/Pro-line
Packaging	470 x 320 x 250mm
model with socket	470 x 320 x 370mm
model with fixed charging cable, including charging cable	
Weight	S-line/Pro-line
Casing	Approx. 4 kg
Total, incl. packaging	Approx. 4.5 kg

* The charging cable is not part of the delivery scope. It has to be ordered separately and is shipped in a separate box.

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Installation instructions

Input: minimum recommended cable diameters (based on assumed max. 50 m cable length)

1-phase 3.7 kW charging, 16 A per phase: 3 x 4 mm²
 3-phase 11 kW charging, 16 A per phase: 5 x 4 mm²
 1-phase 7.4 kW charging, 32 A per phase: 3 x 6 mm²
 3-phase 22 kW charging, 32A per phase: 5 x 6 mm²

Short-circuit protection

With circuit breakers:	With fuses:
1-phase 16A (3.7 kW): 1 x 20A, 1P, type B or C	1-phase 16A (3.7 kW): 1 x 20A, gG
3-phase 16A (11 kW): 1 x 20A, 3P, type B or C	3-phase 16A (11 kW): 3 x 20A gG
1-phase 32A (7.4 kW): 1 x 40A, 1P, type B or C	1-phase 32A (7.4 kW): 1. x 35A gG
3-phase 32A (22 kW): 1 x 40A, 3P, type B or C	3-phase 32A (22 kW): 3 x 35A gG

Residual current protection (possibly i.c.w. circuit breakers)

Earth leakage circuit breakers: 30 mA type A or B, 4P
 3.7 kW/11 kW charging: minimum 20 A
 7.4 kW/22 kW charging: 40 A

Nominal input voltage

- V_{L1-N} : 230 V (+/-10%)
- V_{L2-N} : 230 V (+/-10%)
- V_{L3-N} : 230 V (+/-10%)
- V_{L1-L2} : 400 V (+/-10%)
- V_{L1-L3} : 400 V (+/-10%)
- V_{L2-L3} : 400 V (+/-10%)
- V_{PE-N} : ≈ 0V

Nominal frequency

50 Hz

Earthing

TN system: separate PE cable
 TT system: separately installed earthing electrode < 100 Ohm spreading resistance) IT system: connected to a shared reference (common earth) with other metal parts

External protection according to EV/ZE-Ready

IEC 61000-4-16 or IEC 61543

Frequency range	Level 3		Level 4	
	Continuous test V_{rms} (V)	Current (mA)	Continuous test V_{rms} (V)	Current (mA)
1 kHz - 1.5 kHz	1	6.6	3	20
1.5 kHz - 15 kHz	1-10	6.6-66	3-30	20-200
15 kHz - 150 kHz	10	66	30	200

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OCPP Specifications

Supported feature profiles and functionalities

	OCPP 1.5	OCPP 1.6
Core (Transactions, Availability, remote control, Authorization, Meter value, Data transfer)	✓	✓
FirmwareManagement	✓	✓
Reservation	✓	✓
LocalAuthlistManagement	—	✓
RemoteTrigger	—	✓
SmartCharging	♣	✓
Security	—	✓
Provisioning	—	✓
Tariff and Cost	♣	♣
ISO 15118 certificate management	—	—
Diagnostics	✓	✓
Display message	—	—

- ✓ Follows OCPP specifications
- ♣ Using Alfen-specific messages and/or license keys
- — Not implemented

Alfen specific OCPP 1.6/2.0.1 performance parameters

Meter value interval request	900
Heartbeat interval	30
Maximum number of data fields per message	9
Authorization of RFID cards	
Size of list	800
Size of list transfer	50
Smart Charging Specifications	
Charging profiles	45
Periods in one charging profile	100
Maximum Stack level of charging profiles	15

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Standard and Selectable Settings ex Works

Authorization	Plug & Charge RFID card * Back office *
Maximum charging current	16 A 32 A *
Smart Charging	Off Active Load Balancing * Smart Charging Network *
Own logo in display (Pro-line models only)	Off (Alfen logo) On (your own logo) *
Languages supported (Pro-line models only)	English, Dutch, German, French, Spanish, Portuguese, Italian, Romanian, Danish, Norwegian, Swedish, Finnish, Polish, Czech, Hungarian, Icelandic, Slovenian, Slovak, Latvian
User availability if temporarily off line	Accept all RFID cards Only accept locally registered RFID cards Charging not possible
Response if plug is released on vehicle side	Stop transactions and release the plug Pause charging until charging cable plugged back in
Selected management system	Stand alone ICU Connect * Other options *
Network communication options *	2G: GPRS 4G: LTE-M UTP/LAN Autodetect

The settings marked with a * may result in additional costs when purchasing your charging station. The default settings are always mentioned first. For more information about the options, please contact your sales representative.

Accessories

Product variant	Article no.
<i>General accessories for Eve Single</i>	
Eve Single pole	803873036-ICU
Dimensions (H x W x D)	Pole: 1,180 x 60 x 120 mm (baseplate: 300 x 200 mm) Backplate: 335 x 196 x 3 mm
Material	Stainless steel AISI 304, fine-structure powder coating
Color	RAL 7043 (Traffic Grey B)

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Product variant	Article no.
Packaging (H x W x D)	1,200 x 340 x 220 mm
Weight	11.4 kg
Eve Single Duo-pole	803873037-ICU
Dimensions (H x W x D)	Pole: 1,180 x 60 x 120 mm (baseplate: 300 x 200 mm) Backplate: 335 x 196 x 3 mm
Material	Stainless steel AISI 304, fine-structure powder coating
Color	RAL 7043 (Traffic Grey B)
Packaging (H x W x D)	1,200 x 340 x 220 mm
Weight	11.4 kg
Concrete base	833829300-ICU
Dimensions (H x W x D)	570 x 350 x 220 mm
Weight	42 kg
Metal base	803828601-ICU
Dimensions (H x W x D)	598 x 204 x 300 mm
Weight	8.2 kg
Packaging (H x W x D)	50 x 295 x 620 mm
Type 2 charging cable, 5 m, 1-phase, up to 32 A (7.4 kW)	203100306-ICU
Type 2 charging cable, 7.5 m, 1-phase, up to 32 A (7.4 kW)	203100303-ICU
Type 2 charging cable, 5 m, 3-phase, up to 32 A (22 kW)	203100304-ICU
Type 2 charging cable, 7.5 m, 3-phase, up to 32 A (22 kW)	203100305-ICU