



Kempower • Ala-Okeroistentie 29, 15700 Lahti, Finland

kempower.com

Kempower Power Unit C500

Power Cabinet Version 4 | Power Module Version 2

Kempower Power Unit is the heart of Kempower's flexible, modular and scalable DC charging system with dynamic power management.

One or two Power Units can simultaneously provide energy for up to 8 DC charging outputs in Satellites, Control Units or Pantographs. By utilizing individual 25 kW power channels in the installed Power Modules, Power Unit's unique dynamic power management harnesses the full potential of on-demand power routing. This enables significant cost savings in the installed charging hardware and grid connection while optimizing the charging experience.

A triple cabinet Power Unit can have up to twelve 50 kW Power Modules, providing a maximum nominal power of up to 600 kW. Two Power Units can be connected in parallel for a maximum nominal power of 800 kW for double cabinets or 1200 kW for triple cabinets.

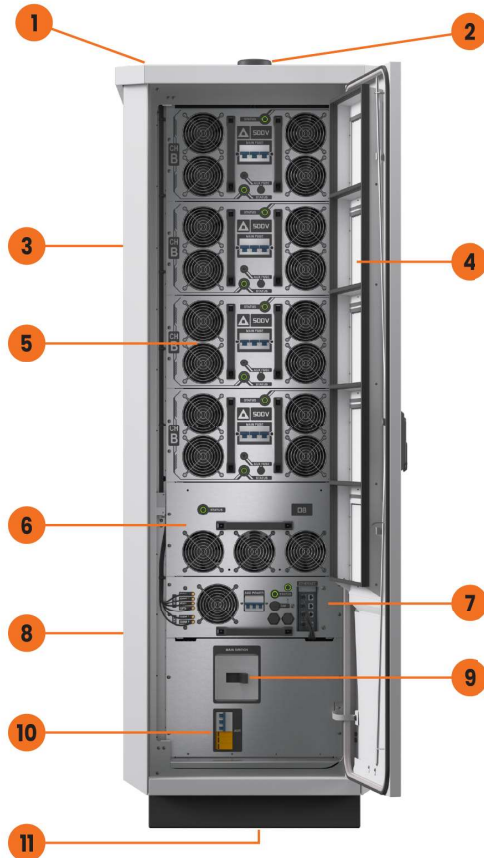
With dynamic power management, the available charging power of all Power Modules is automatically distributed to all connected charging outputs according to the requests of the electric vehicles.

Power range

Up to 1200 kW

Adaptive voltage range

150–1000



1. Lifting lugs
2. WiFi/cellular/GPS antenna
3. Maintenance door with air outlets (behind cabinet)
4. Air inlet
5. Power Module (1–4 pcs/cabinet)
6. Power distribution module
7. Control module
8. DC output (DIN rail inside cabinet)
9. Main switch
10. Surge protection device
11. AC supply cable entry



Charging power for up to 8 charging outputs, 8 single Satellites or 4 double Satellites



1–4 50 kW Power Modules per cabinet



Scalability with add-on Power Modules and a parallel connection of two Power Units



Improved cost efficiency of the charging system



Lockable door for safety and easy access



Advanced charging control and customization with Kempower ChargeEye

Product code interpretation

Kempower Power Unit consists of Power Cabinet and Power Modules.

C502•C•D6•L•V4•C0

Kempower Power Cabinet C500 double • stainless steel enclosure • up to 6 dynamic outputs • ETL certification • Version 4 • unbranded

Item	Code	Description
Product type	C501	Kempower Power Cabinet C500 single ^A (four Power Module slots)
	C502	Kempower Power Cabinet C500 double ^A (eight Power Module slots)
	C503	Kempower Power Cabinet C500 triple ^A (twelve Power Module slots)
Options	C	Stainless steel enclosure frame
	G	Cabinet door switch
Power distribution modules	D4	Up to 4 adaptive dynamic outputs 150–1000 VDC
	D6	Up to 6 adaptive dynamic outputs 150–1000 VDC
	D8	Up to 8 non-adaptive dynamic outputs 150–500 VDC ^B
Certification	BL	Buy America (BABA) compliant, North American version
	L	North American version (ETL-approved product meeting UL and CSA requirements)
Product version	V4	Version 4
Branding options	C0	Unbranded: Solid color RAL7047
	Cn	Branded: number (n) indicates branding, e.g. C8. ^C

^AThe rated current of a single charging output terminal using a power distribution module is limited to 200 A.

^BPower curve according to Figure 1.

^CBranding according to Kempower Customer Branding Guidelines.

PM550LV2

Power Module Version 2 for Kempower Power Unit C500

PM550BLV2

Power Module Version 2 for Kempower Power Unit C500, BABA compliant

Item	Code	Description
Product type	PM550LV2	ETL-approved product meeting UL and CSA requirements
	PM550BLV2	ETL-approved product, Buy America (BABA) compliant

Supported parallel Power Unit configurations

Total power	Power Cabinets	Number of Power Modules	Maximum output available to a vehicle connector ^A
700 kW	2 x C502	14	800 A
800 kW	2 x C502	16	800 A
900 kW	2 x C503	18	1200 A
1000 kW	2 x C503	20	1200 A
1100 kW	2 x C503	22	1200 A
1200 kW	2 x C503	24	1200 A

^ABoth Power Units must be connected to the dispenser.

Note: Connecting Power Units in parallel requires an appropriate charger firmware version.

General electrical specifications

Rated input voltage	480 VAC ±10%
AC power distribution system	3-phase, TN-S, TN-C, TN-C-S, TT
Rated input frequency	50/60 Hz ±5%
Overvoltage category	III (IEC 60664-1)
Icc	35 kA
Power factor at full load	0.99
THDi, at rated input voltage	< 5% at full load
Output voltage	150...500 VDC without adaptive voltage 150...1000 VDC with adaptive voltage
Rated output power per Power Module	Maximum 50 kW Continuous 40 kW at 104 °F/+40 °C
Output power granularity	25 kW in boost operation
Efficiency at full load	Up to 96%
Standby power consumption	C501: max. 0.140 kW
	C502: max. 0.280 kW
	C503: max. 0.420 kW

Environmental specifications

Operating temperature	-22...131 °F/-30...+55 °C (derating above 104 °F/+40 °C)
Maximum operating altitude	6,562 ft./2000 m (derating above 6,562 ft./2000 m)
Audible noise level	< 65 dB average at 3.3 ft./1 m distance in 77 °F/+25 °C ambient temperature and full load
Storage and transport temperature range	-40...140 °F/-40...+60 °C
Ambient air humidity	5–95% relative humidity
Enclosure rating	NEMA 3R, IP54
Pollution degree	3
Enclosure corrosion class	C3

Connections and protocols

WiFi	2.4/5 GHz (802.11 b/g/n)
Cellular/GPS	LTE-FDD, LTE-TDD, WCDMA, GSM
Ethernet	RJ45, IEEE 802.3/802.3u
OCPP	1.6j/2.0.1
Connectivity	Kempower ChargEye solution
Modbus TCP/IP	RJ45, IEEE 802.3/802.3u Compatible with firmware version 3.0 and later

Electrical connections (between Power Unit and vehicle connectors)

DC power cable per vehicle connector (terminals 2 x 300 MCM/2 x 150 mm ² per pole)
Control power cable (24 VDC)
Communications cable (RJ45)

Electrical protections

Over/undervoltage
Surge protection
Short circuit protection (output)
Overload protection
Earth leakage current monitoring
Device overtemperature
Overcurrent (input and output)

Power performance

AC supply current for each cabinet is calculated based on the number of Power Modules to be installed into each cabinet now or in the future.

Number of Power Modules in cabinet	Charging power	Input current per supply cable at 480 V	Charging power	Input current per supply cable at 480 V
	Boost operation		Continuous operation	
1	50 kW	64 A	40 kW	51 A
2	100 kW	128 A	80 kW	102 A
3	150 kW	192 A	120 kW	153 A
4	200 kW	256 A	160 kW	205 A

Figure 1. Power curve - boost operation

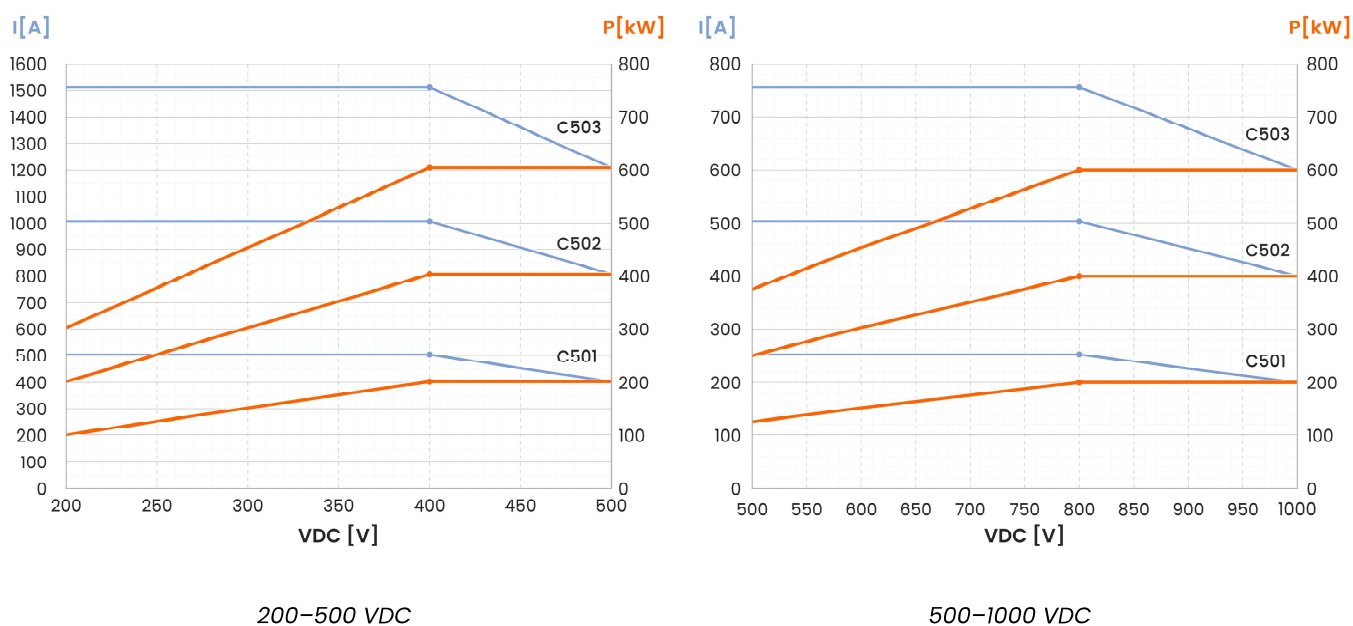
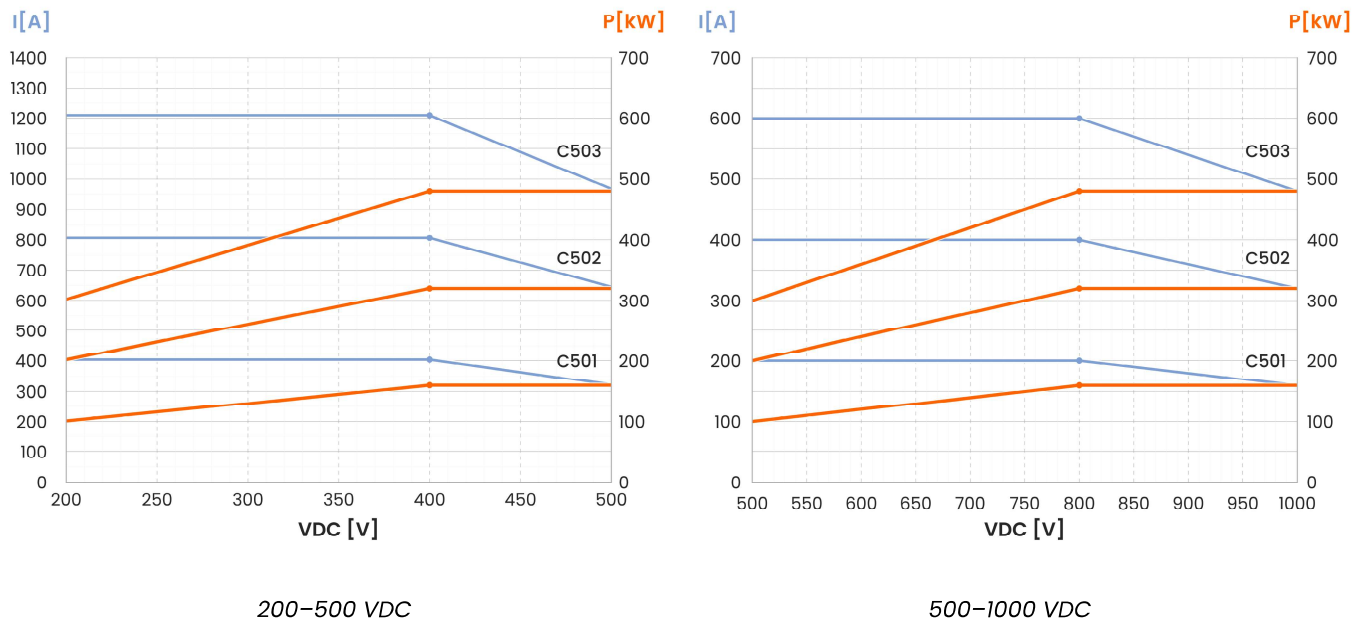


Figure 2. Power curve – continuous operation



Compliance to standards

IEC 61851-1, IEC 61851-21-2, IEC 61851-23, IEC 61851-24

UL 2202, UL 2231-2

CSA Std. c22.2 No. 281.2, CSA Std. c22.2 No. 107.1

FCC 47 CFR Part 15 Subpart B, Class A

Options

Customized branding	Branding options, such as custom colors and stickers Contact Kempower for availability, pricing, and minimum order quantity
Enclosure frame upgrade	Stainless steel enclosure frame for harsh environments. Meets corrosion class C4H/C5M as factory painted (according to ISO 12944-2).
Cabinet door switch	Switch in each cabinet door for stopping charging when the door is opened

Mechanical dimensions

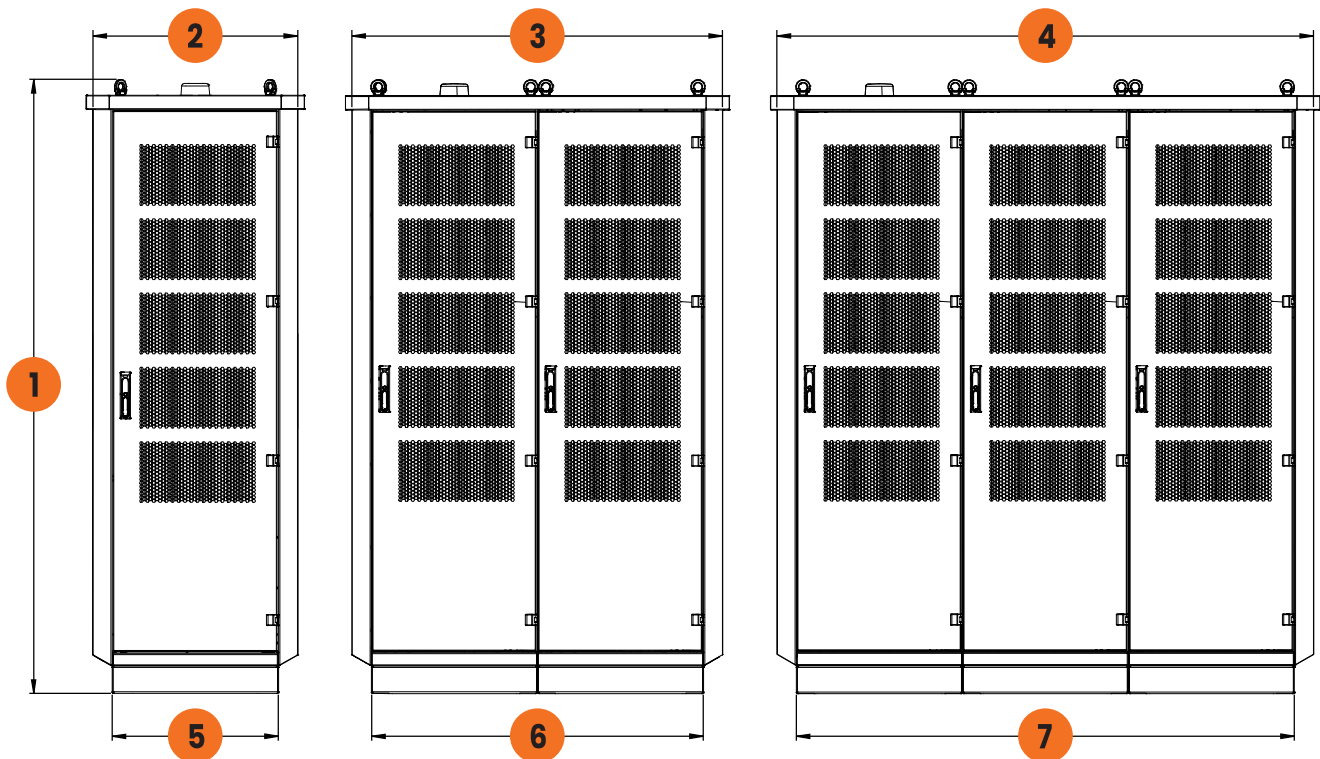
Size (W x H x D)

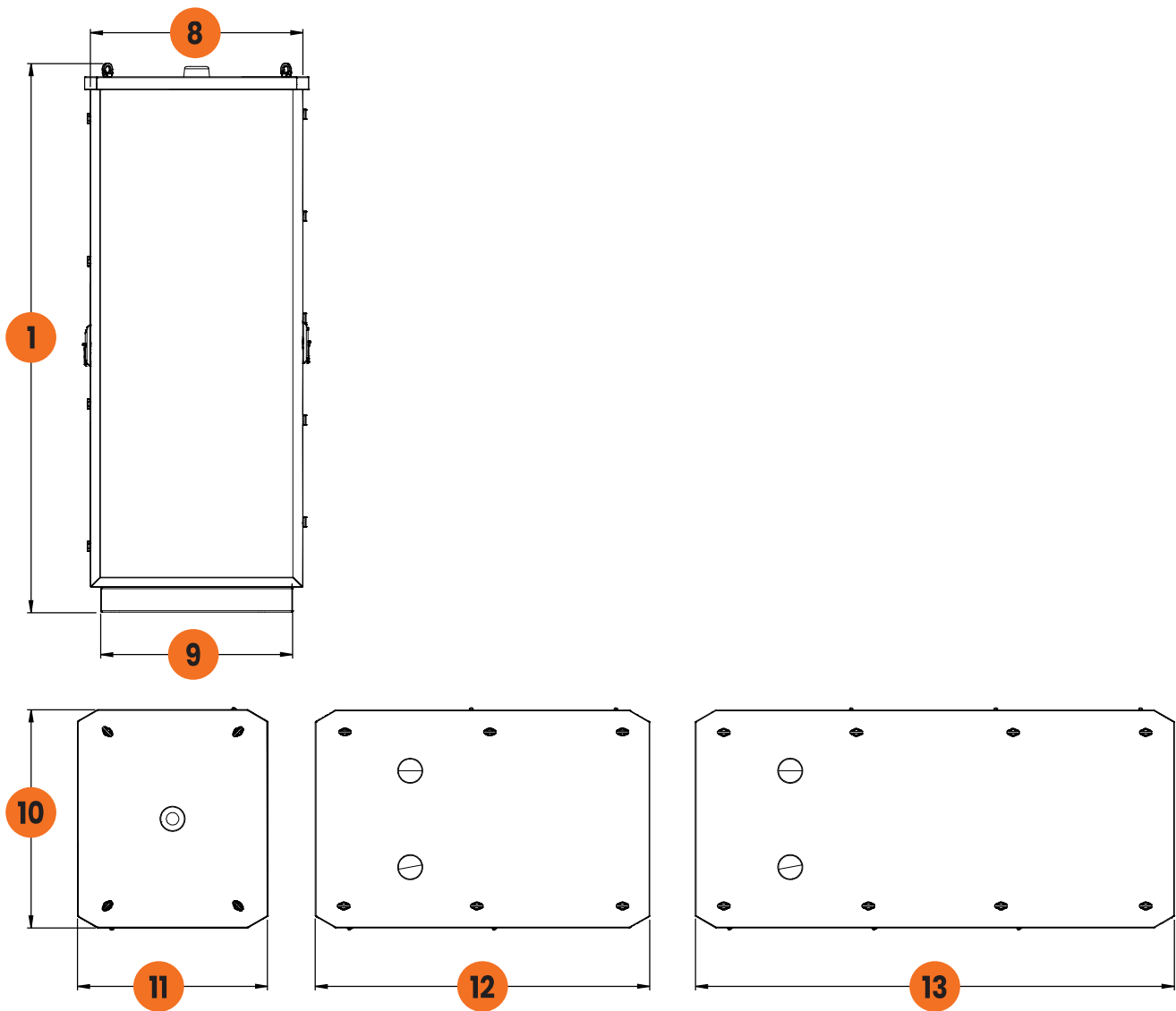
C501: 30.9 x 87.2 x 35.6 in./787 x 2215 x 904 mm

C502: 54.6 x 87.2 x 35.6 in./1387 x 2215 x 904 mm

C503: 78.2 x 87.2 x 35.6 in./1987 x 2215 x 904 mm

Product type	Number of Power Modules	Weight
C501	1	928 lb./421 kg
C501	2	1,016 lb./461 kg
C501	3	1,105 lb./501 kg
C501	4	1,193 lb./541 kg
C502	5	1,940 lb./880 kg
C502	6	2,028 lb./920 kg
C502	7	2,116 lb./960 kg
C502	8	2,205 lb./1000 kg
C503	9	2,945 lb./1336 kg
C503	10	3,034 lb./1376 kg
C503	11	3,122 lb./1416 kg
C503	12	3,210 lb./1456 kg



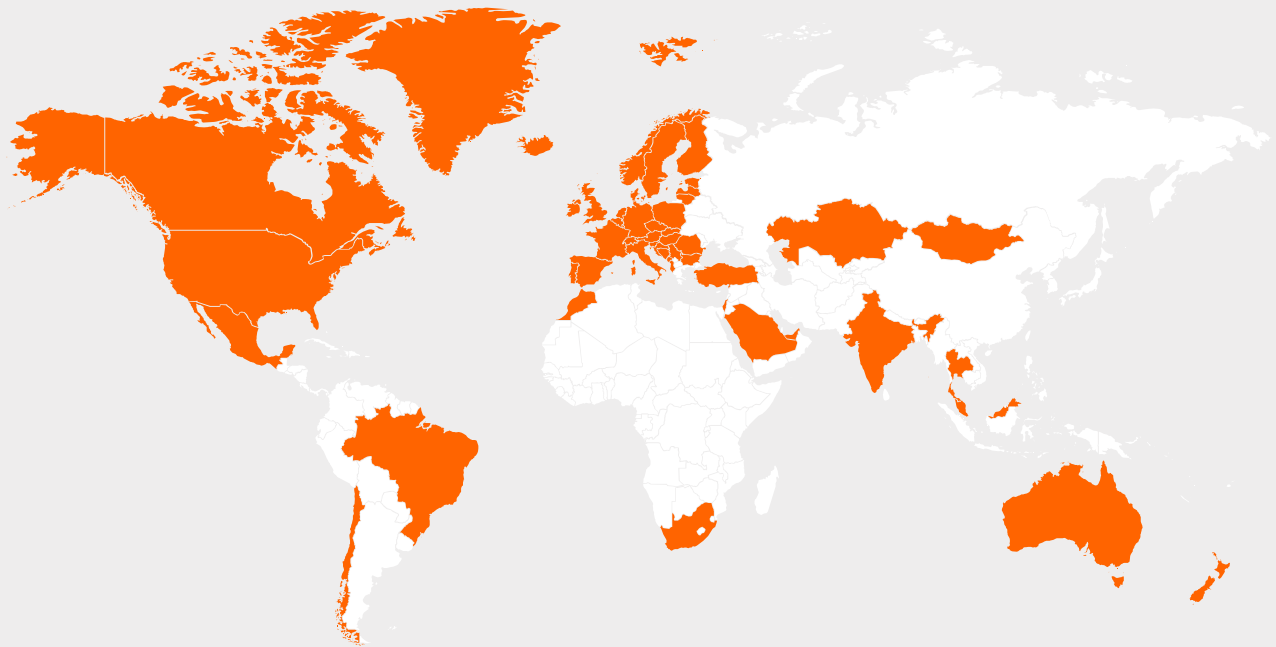


Measurements

1.	87.2 in./2215 mm	6.	47.2 in./1200 mm	11.	30.9 in./787 mm
2.	29.1 in./740 mm	7.	70.9 in./1800 mm	12.	54.6 in./1387 mm
3.	52.8 in./1340 mm	8.	33.7 in./857 mm	13.	78.2 in./1987 mm
4.	76.4 in./1940 mm	9.	30.5 in./775 mm		
5.	23.6 in./600 mm	10.	35.6 in./904 mm		

Note: Leave at minimum 23.6 in./600 mm free space between the back of the cabinet and a solid wall.

Note: Only Kempower approved partners who have completed the Kempower certification training are permitted to install the charging units. Installation done by an unapproved partner voids the warranty. For more information, contact Kempower Solutions Support.



Kempower Inc.

2530 S Tricenter Blvd, Durham, NC 27713 USA

Kempower Satellite

Version 2

The Kempower Satellite DC charging system is the optimal solution for public charging and other sites that need multiple fast charging outputs.

Satellites are connected to Power Unit. One Power Unit can simultaneously provide energy for up to 8 DC charging outputs with 800 VDC systems and up to 6 outputs with Adaptive Voltage systems covering both 400 VDC and 800 VDC charging.

The maximum available charging power of the system is 600 kW, depending on the Power Unit version. Each output can deliver up to 320 kW to the charging Satellite when using the optional 400 A charging cable.

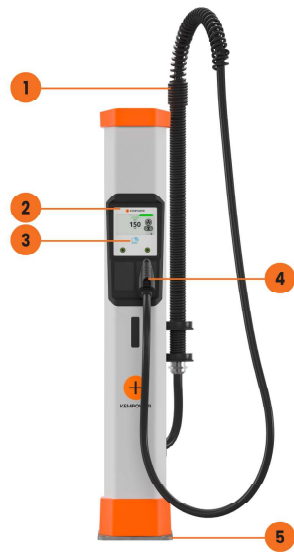
Kempower Satellite is available with CCS1, J3400/NACS and CHAdeMO vehicle connectors, including configurations specifically for NEVI-funded charging sites to provide drivers the flexibility to choose the connector that matches their vehicle.

Maximum charging power

Up to 320 kW

Number of Satellites in the system

1–8



1. Charging cable support system
2. 7" touch screen display
3. RFID reader
4. Vehicle connector
5. Mounting flange



Advanced cable support system for premium user experience



Easy-to-use, intuitive user menu on a 7" touch screen display



On-screen QR code for following the charging status on your mobile phone



Kempower advanced charging Satellite system with up to 8 simultaneous charging outputs



Cabling distance between Power Unit and Satellites up to 262 feet/80 meters



Advanced charging control and customization with Kempower ChargeEye

Product code interpretation

ST•N•7•L•P•L•C0

Kempower Satellite Version 2 • 1 x J3400/NACS connector • 23 ft./7 m charging cable • 350 A cable current • Payter P68 payment terminal • North American version • unbranded

Item	Code	Description
Product type	ST	Kempower Satellite Version 2
Vehicle connector type	U	CCS1
	N	J3400/NACS
	UU	2 x CCS1
	UN	CCS1 & J3400/NACS
	UD	CCS1 & CHAdEMO
	NN	2 x J3400/NACS
	Y	CCS1 or J3400/NACS ^A
Charging cable length	5	16.4 ft./ 5 m
	7	23 ft./ 7 m
Nominal charging cable current	B	125 A (CHAdEMO)
	C	200 A (CCS1)
	D	250 A (J3400/NACS)
	E	300 A (CCS1)
	G	380 A (J3400/NACS) ^B
	H	400 A (CCS1) ^B
	L	350 A (J3400/NACS) ^B
User interface and payment	S	Standard user interface
	O	Payter Apollo: Contactless payment with online PIN entry and verification ^C
	P	Payter P68 payment terminal with contactless, chip reader, and magnetic stripe (no PIN pad) ^D
Equipment stop	E	Equipment stop button ^E
Certification	BL	Buy America compliant North American version ^F
	L	North American version (ETL-approved product meeting UL and CSA requirements)
Branding	C0	Unbranded: roof and base in black color, no stickers
	Cn	Branded: number (n) indicates branding, e.g. C8

^AAvailable in 400 A/380 A configuration for charging one vehicle per Satellite with either CCS1 or J3400/NACS.

^BOnly single-cable Satellites or when configured as Kempower Flex Satellite.

^CWhen a credit card reader is needed in Washington State, use Payter P68 due to local regulations.

^DAvailable in the US only.

^ENot available for Kempower Flex Satellite configuration with vehicle connector type Y. Remote equipment stop button can still be used.

^FOnly available on Satellites with vehicle connector type Y.

Product codes

Product code	Charging outputs	Vehicle connector	Simul. charging with 2 outputs	Max. charging current	Charging power at 400 VDC	Charging power at 800 VDC
Product codes with 16.4 ft./5 m charging cables						
ST•U•5•C•S•L•	1	CCS1	N/A	200 A	80 kW	160 kW
ST•U•5•H•S•L•	1	CCS1	N/A	400 A	160 kW	320 kW
ST•N•5•D•S•L•	1	J3400/NACS	N/A	250 A	100 kW	200 kW
ST•N•5•G•S•L•	1	J3400/NACS	N/A	380 A	152 kW	304 kW
ST•N•5•L•S•L•	1	J3400/NACS	N/A	350 A	140 kW	280 kW
ST•UU•5•C•S•L•	2	2 x CCS1	Yes	2 x 200 A	2 x 80 kW	2 x 160 kW
ST•UU•5•E•S•L•	2	2 x CCS1	Yes	2 x 300 A	2 x 120 kW	2 x 240 kW
ST•UD•5•CB•S•L•	2	CCS1 & CHAdeMO	Yes	200 A & 125 A	80 kW & 50 kW	160 kW & 100 kW
ST•UD•5•EB•S•L•	2	CCS1 & CHAdeMO	Yes	300 A & 125 A	120 kW & 50 kW	240 kW & 100 kW
ST•UN•5•CD•S•L•	2	CCS1 & J3400/NACS	Yes	200 A & 250 A	80 kW & 100 kW	160 kW & 200 kW
ST•UN•5•ED•S•L•	2	CCS1 & J3400/NACS	Yes	300 A & 250 A	120 kW & 100 kW	240 kW & 200 kW
ST•NN•5•D•S•L•	2	2 x J3400/NACS	Yes	2 x 250 A	2 x 100 kW	2 x 200 kW
ST•Y•5•HG•S•L•	2	CCS1 or J3400/NACS	No	400 A or 380 A	160 kW or 152 kW	320 kW or 304 kW

Note: Versions with 23 ft./7 m charging cables: Change **5** to **7** in the product code, e.g. from STU**5**CSL to STU**7**CSL.

Note: Versions with a payment terminal: Change **S** to **O** or **P** in the product code, e.g. from STU**5**CSL to STU**5**COL or STU**5**CPL.

General electrical specifications

DC charging connector options	CCS1, CHAdeMO, J3400/NACS
Voltage	Max. 1000 VDC
Standby power	25 W

Environmental specifications

Operating temperature	-22...122 °F/ -30...+50 °C
Derating	Charging cable pin temperature limits charging current. For other limiting variables, see the applicable Power Unit datasheet.
Storage temperature	-40...140 °F/-40...+60 °C
Ambient air humidity	< 95% relative humidity
Enclosure rating	NEMA 3R

Connections and protocols

Ethernet	RJ45, IEEE 802.3/802.3u
OCPP	1.6j/2.0.1
Connectivity	Kempower ChargEye solution
CCSI	SAE J1772/CCS, DIN 70121:2012, ISO 15118-1:2013, ISO 15118-2:2014
CHAdeMO	0.9/1.0
NACS	SAE J3400
Authentication methods	RFID: ISO 14443A, ISO 15693, ISO 14443B (STM SRI512) Customer backend via OCPP Payment terminal AutoCharge ISO 15118-2 Plug & Charge

Electrical connections (between Satellite and Power Unit)

DC power cable per vehicle connector (terminals 2 x 300 MCM/2 x 150 mm ² per pole)
Control power cable (24 VDC)
Communications cable (RJ45)

Electrical protections

Vehicle connector pin temperature monitoring
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Compliance to standards

IEC 61851-1, IEC 61851-23, IEC 61851-21-2
UL 2202, UL 2231-2
CSA Std. c22.2 No. 281.2, CSA Std. c22.2 No. 107.1
FCC 47 CFR Part 15 Subpart B, Class A
CTEP Certified to Accuracy Class 2.0 (< 1.0% error):
- COA No. 5982-24 for Kempower standard devices without a 3rd party DC meter - COA No. 5981-24 for Kempower devices with an integrated 3rd party DC meter

Options

Payment terminal	Payter Apollo: Contactless payment with online PIN entry and verification ^A Payter P68 payment terminal with contactless, chip reader, and magnetic stripe (no PIN pad) ^B
Equipment stop button ^C	
Customized branding	Branding options, such as custom colors and stickers Contact Kempower for availability, pricing, and minimum order quantity

^AWhen a credit card reader is needed in Washington State, use Payter P68 due to local regulations.

^BAvailable in the US only.

^CNot available for Kempower Flex Satellite configuration with vehicle connector type Y. Remote equipment stop button can still be used.

Mechanical dimensions

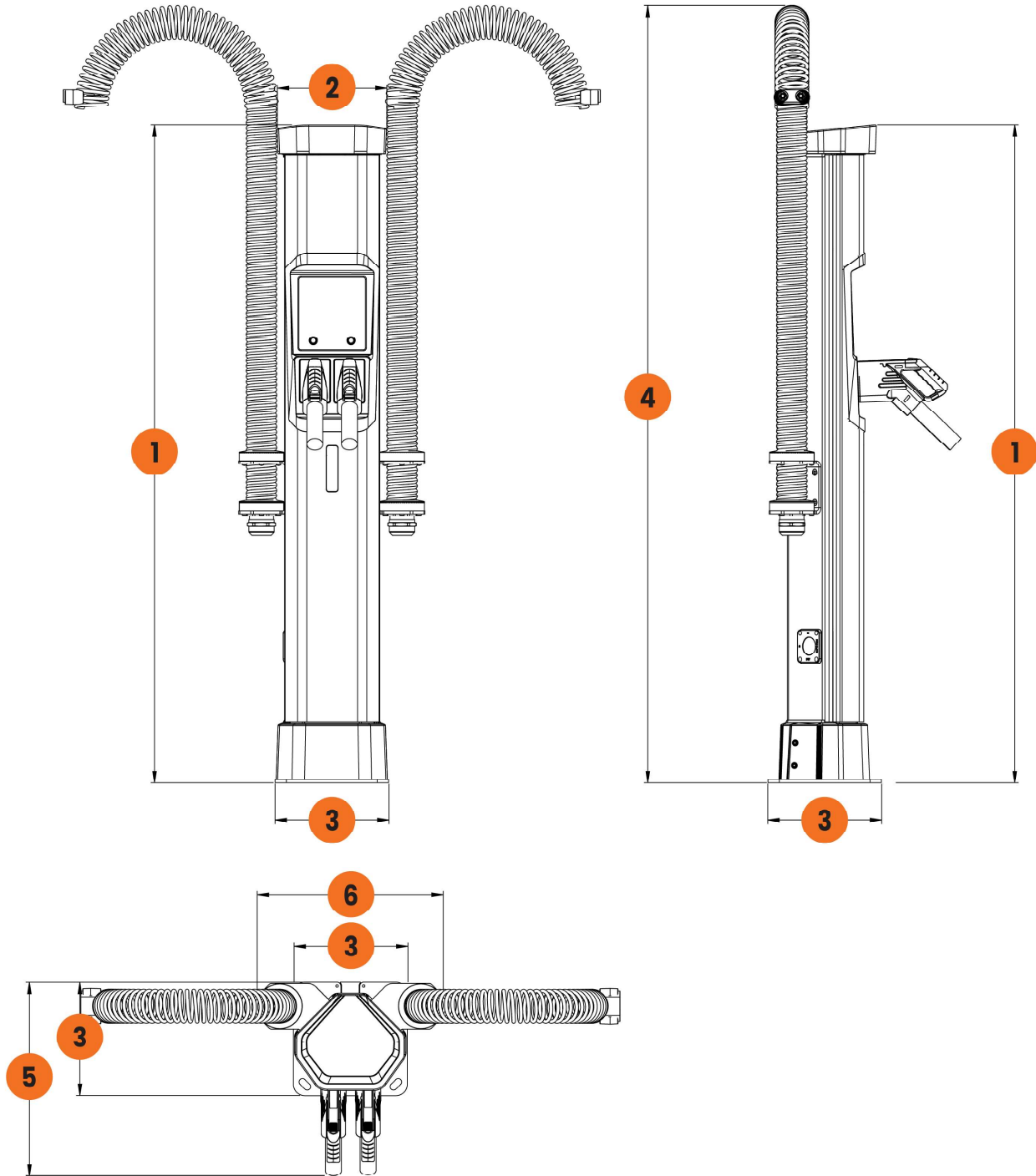
Size (W x H x D)

11.8 x 68.4 x 11.8 in./300 x 1738 x 300 mm

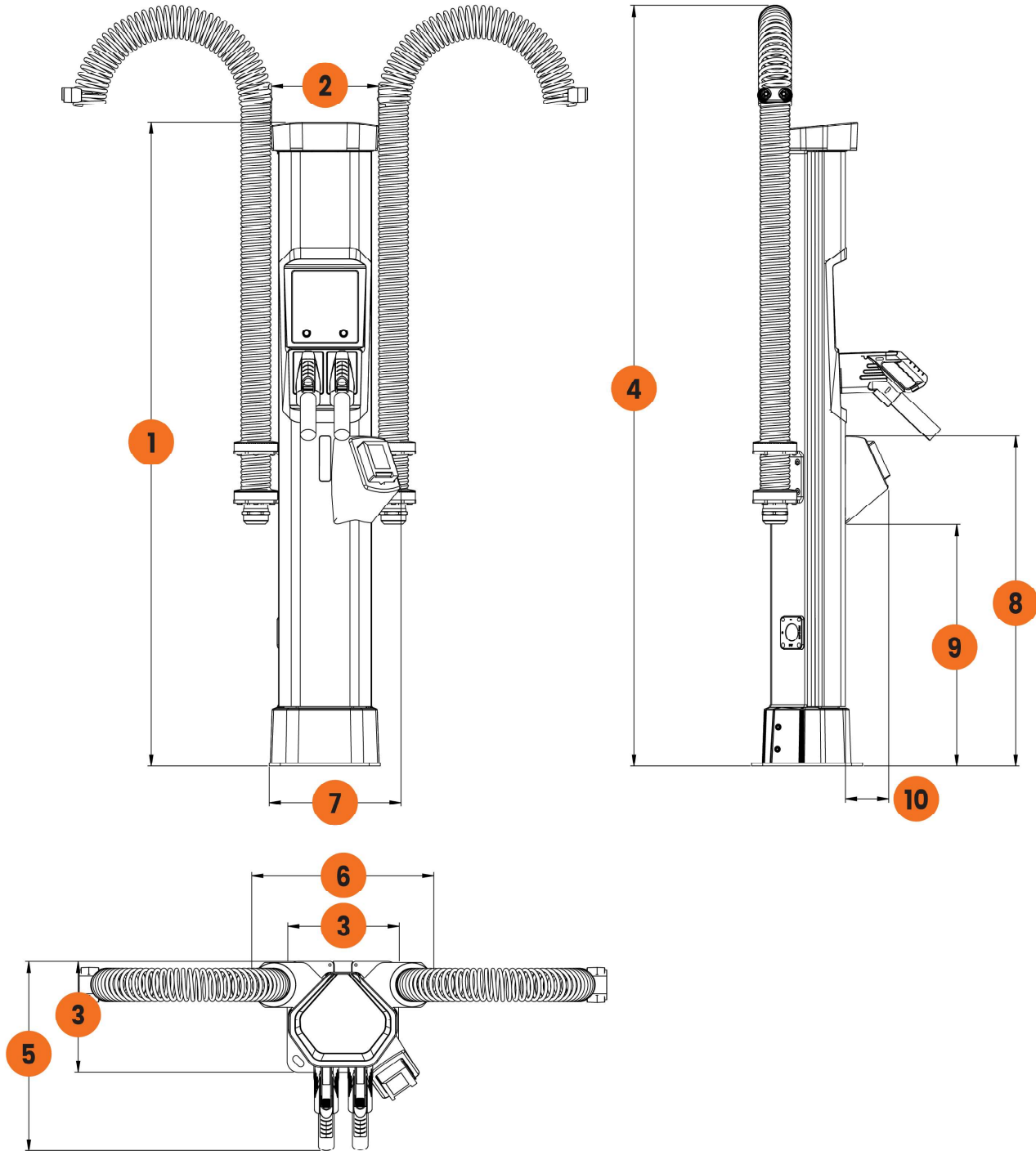
Product code	Weight
ST•U•5•C•S•L•	179 lb./81 kg
ST•U•5•H•S•L•	193 lb./87 kg
ST•N•5•D•S•L•	176 lb./80 kg
ST•N•5•G•S•L•	188 lb./85 kg
ST•N•5•L•S•L•	188 lb./85 kg
ST•UU•5•C•S•L•	269 lb./122 kg
ST•UU•5•E•S•L•	295 lb./134 kg
ST•UD•5•CB•S•L•	256 lb./116 kg
ST•UD•5•EB•S•L•	270 lb./122 kg
ST•UN•5•CD•S•L•	274 lb./124 kg
ST•UN•5•ED•S•L•	304 lb./138 kg
ST•NN•5•D•S•L•	267 lb./121 kg
ST•Y•5•HG•S•L•	302 lb./137 kg

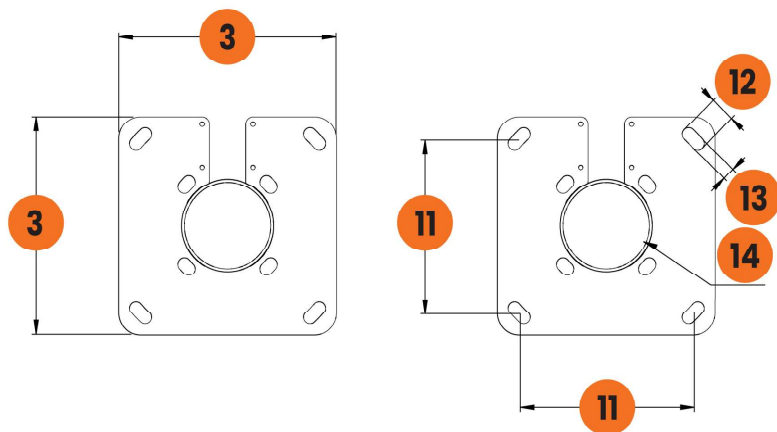
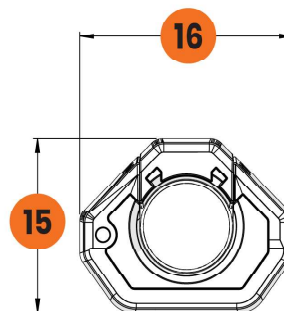
Note: Versions with 23 ft./7 m charging cables: Add 8.8 lb./4 kg to the weight.

Satellite with two DC charging outputs

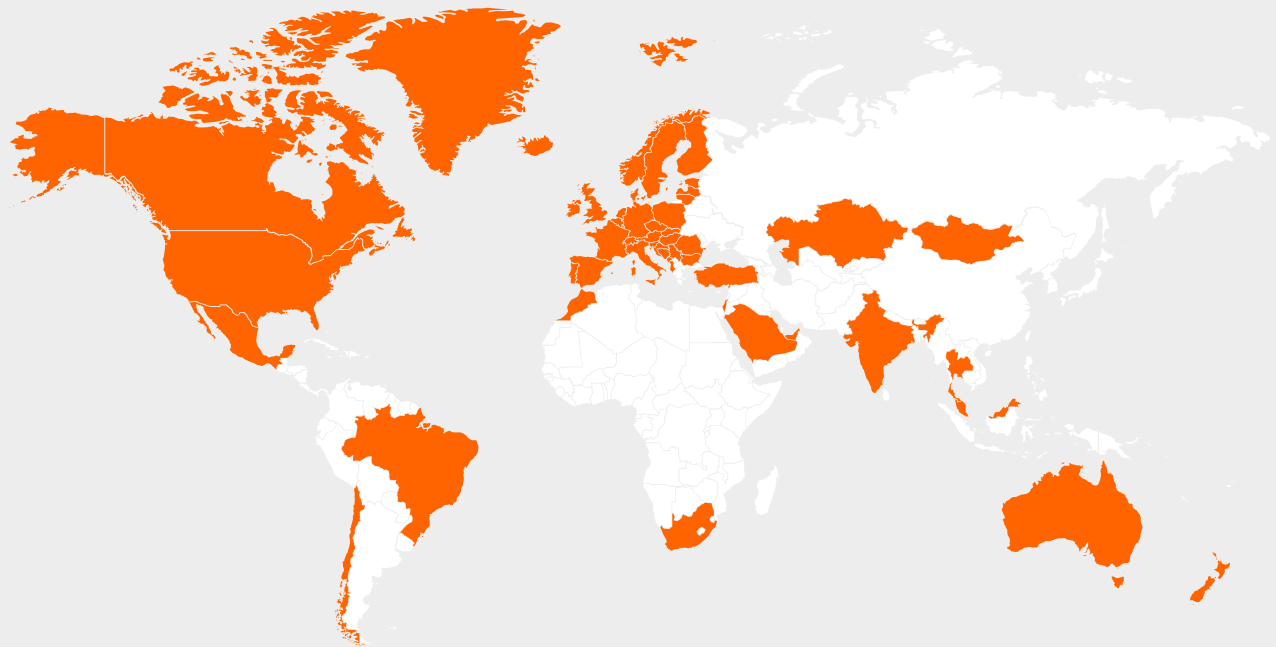


Satellite with two DC charging outputs and payment terminal



Footprint of standard installation flange

Footprint with mounting tube

Measurements

1. 68.4 in./1738 mm	6. 19.4 in./493 mm	11. 9.4 in./240 mm	16. 11.6 in./294 mm
2. 11.4 in./289 mm	7. 13.9 in./354 mm	12. 1.4 in./36 mm	
3. 11.8 in./300 mm	8. 35.9 in./911 mm	13. 0.7 in./18 mm	
4. 82.7...94.5 in./2100...2400 mm	9. 26.6 in./675 mm	14. 4.7 in./120 mm	
5. 18.6 in./473 mm	10. 4.5 in./115 mm	15. 9.4 in./239 mm	



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