KEMPOWER

Technical Datasheet

Kempower Power Unit C500

Power Cabinet Version 3 | Power Module Version 2



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

One Power Unit can simultaneously provide energy for up to 8 DC charging outputs: Satellites or Pantographs. By utilizing individual 25 kW power channels in the installed Power Modules, the 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.

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 600 kW

Adaptive voltage range

150–1000 V

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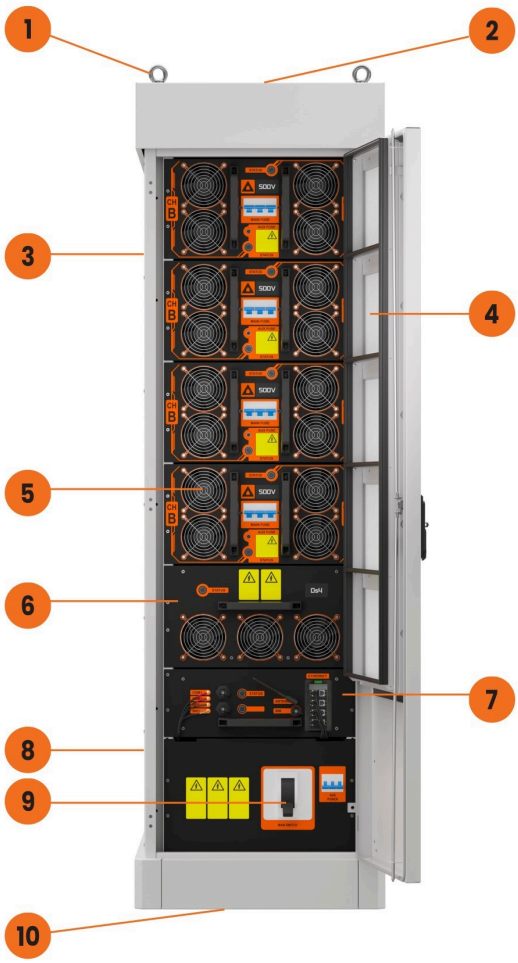

1 Lifting lugs
2 WiFi/cellular/GPS antenna
3 Air outlet (behind cabinet)
4 Air inlet
5 Power Module (1–4 pcs/cabinet)
6 Power distribution module
7 Control module
8 DC output (DIN rail inside cabinet)
9 Main switch
10 AC supply cable entry

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

Improved cost efficiency of the charging system

Lockable door for safety and easy access

Advanced charging control and customization with Kempower ChargEye

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Product code interpretation

Kempower Power Unit consists of Power Cabinet and Power Modules.

C502•D6•V3•C0 Kempower Power Cabinet C500 double • up to 6 dynamic outputs • Version 3• unbranded

Item	Code	Description
Product type	C501	Kempower Power Cabinet C500 single[1] (four Power Module slots)
	C502	Kempower Power Cabinet C500 double[1] (eight Power Module slots)
	C503	Kempower Power Cabinet C500 triple[1] (twelve Power Module slots)
Power distribution modules[2]	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[3]
	R	Static power distribution[4]
Product version	V3	Version 3
Branding options[5]	C0	Unbranded: Solid color RAL7047
	Cn	Branded: Stickers in predefined areas of the unit. Number (n) indicates branding, e.g. C8.

[1] The rated current of a single charging output terminal using a power distribution module is limited to 200 A.
[2] With 300 A charging cables:
500 A (max. 10 min) in +25 ˚C. Requires at least 3 output terminals and a specific hardware configuration.
375 A continuous in +25 ˚C. Requires at least 2 output terminals and a specific hardware configuration.
[3] Power curve according to Figure 1.
[4] Dynamic power distribution upgrade is available.
[5] Branding according to Kempower Customer Branding Guidelines.

PM550V2 Power Module Version 2 for Kempower Power Cabinet C500

Item	Code	Description
Product type	PM550V2	Power Module Version 2 for Kempower Power Unit C500 (50 kW in standard operation)

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General electrical specifications

Input voltage	380...480 VAC ±10%
Network type	TN-S, TN-C, TN-C-S, TT
Input frequency	50...60 Hz
Overvoltage category	III
Icc	70 kA
Power factor at full load	0.98
THDi	< 5%
Output voltage	150...1000 VDC
Output power granularity	25 kW in standard operation
Efficiency at full load	> 95%
Idle power	20 VA
Standby power	C501: 50 W C502: 100 W C503: 150 W

Environmental specifications

Operating temperature	-30...+55 °C
Current derating[1]	Charging current decreases 1.5% for every 1 °C rise in temperature above +40 °C
Maximum altitude without derating	2000 m
Altitude derating	Charging current decreases 1.4% for every 100 m rise above 2000 m
Operational noise level	< 60 dB at 1 m distance
Storage temperature	-40...+60 °C
Ambient air humidity	< 95% relative humidity
Enclosure rating	IP54, IK10

[1] *Thermal performance applies only to a standard, unbranded Kempower Power Unit.*

Connections and protocols

WiFi	802.11 b/g/n (2.4/5 GHz)
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

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Electrical connections (between Power Unit and vehicle connectors)

DC power cable per vehicle connector (terminals 2 x 150 mm² per pole)
Control cable 24 VDC
Control bus cable

Electrical protections

Over/undervoltage
Surge protection
Short circuit
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.

	Standard operation			**Continuous operation**		
Number of Power Modules in cabinet	Charging power	Input current at 400 V	Input current at 480 V	Charging power	Input current at 400 V	Input current at 480 V
1	50 kW	78 A	65 A	40 kW	63 A	52 A
2	100 kW	157 A	131 A	80 kW	125 A	105 A
3	150 kW	235 A	196 A	120 kW	188 A	157 A
4	200 kW	313 A	261 A	160 kW	251 A	209 A

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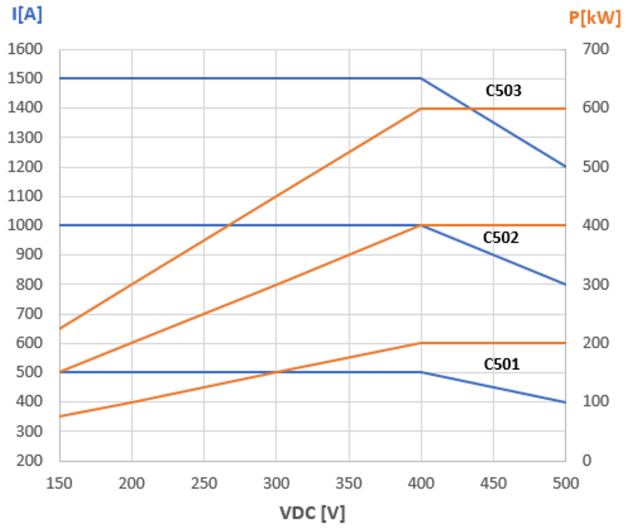
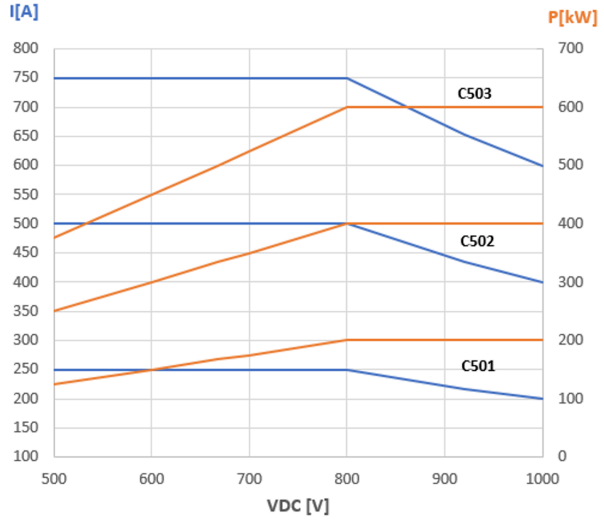
Power curve – standard operation

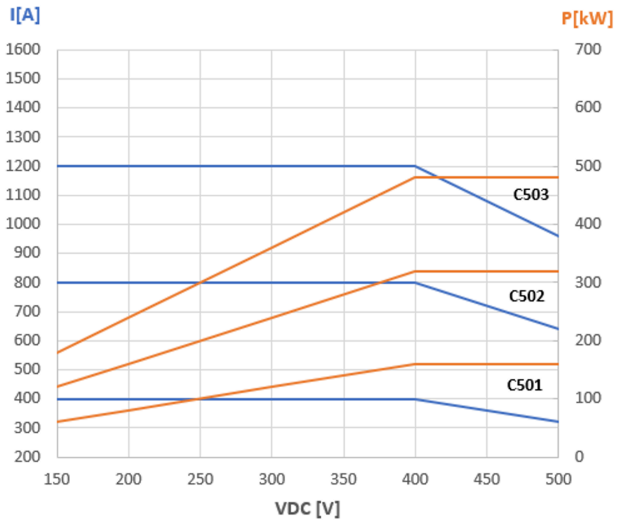


150-500 VDC

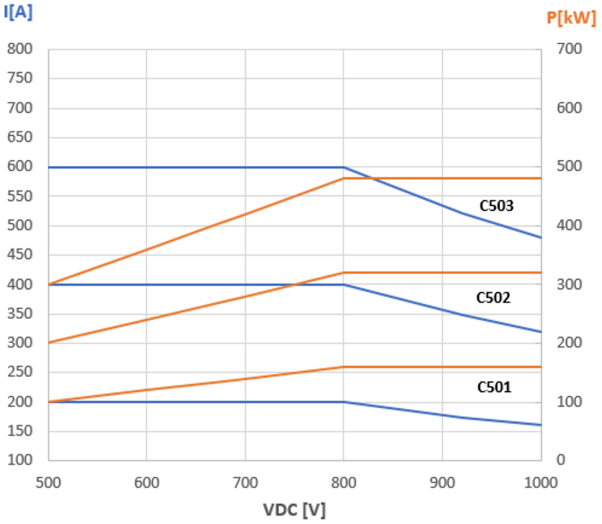


500-1000 VDC

Power curve – continuous operation



150-500 VDC



500-1000 VDC

Compliance to standards

IEC 61851-1
IEC 61851-23
IEC 61851-21-2

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Options

Customized branding	Branding with stickers in predefined areas of the unit Contact Kempower for availability, pricing, and minimum order quantity
Steel base	Installation kit for a single cabinet, for flat surface assembly

Mechanical dimensions

Size (W x H x D)
C501: 650 x 2195[1] x 871 mm
C502: 1250 x 2195[1] x 871 mm
C503: 1850 x 2195[1] x 871 mm

[1] If using the optional base, add 200 mm to the height.

Product type	Number of Power Modules	Weight
C501	1	300 kg
C501	2	340 kg
C501	3	380 kg
C501	4	420 kg
C502	5	735 kg
C502	6	775 kg
C502	7	815 kg
C502	8	855 kg
C503	9	1165 kg
C503	10	1205 kg
C503	11	1245 kg
C503	12	1285 kg

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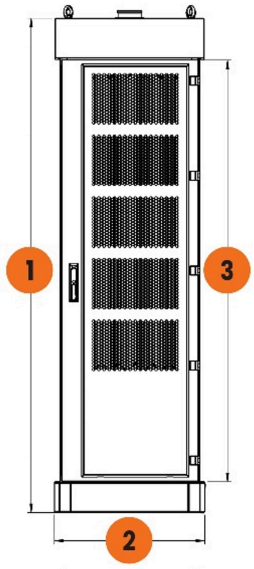

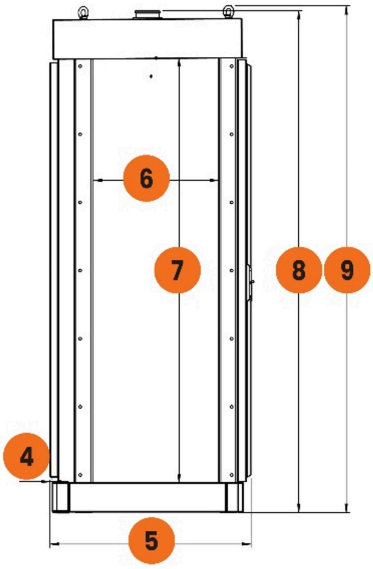

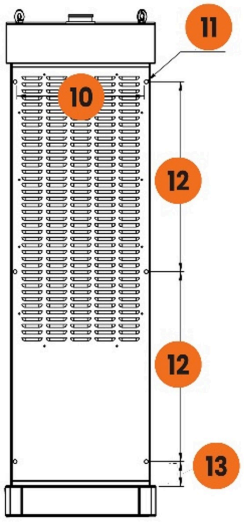

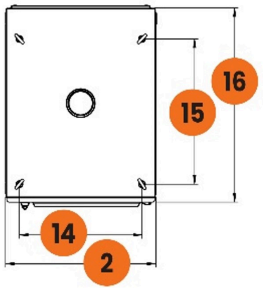

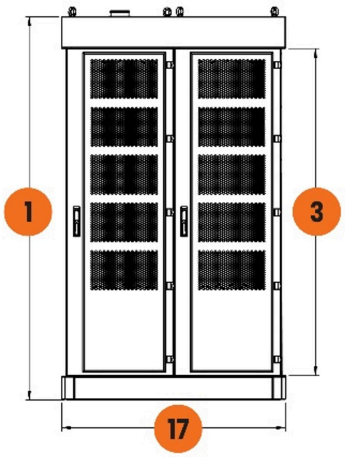

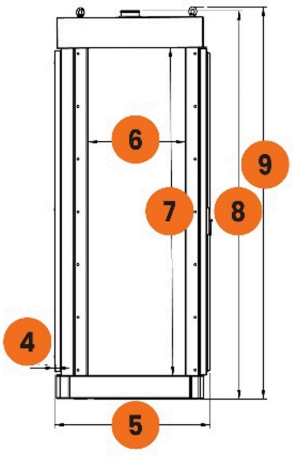

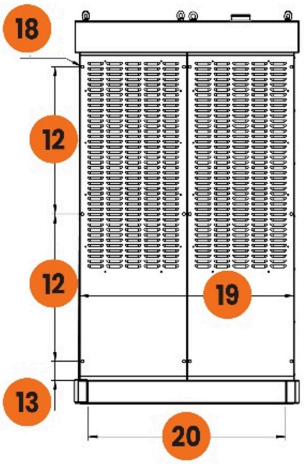

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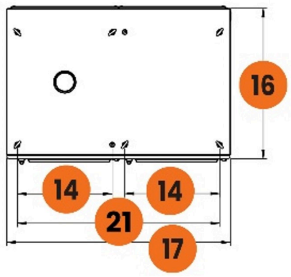

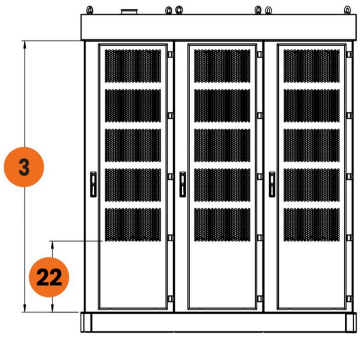

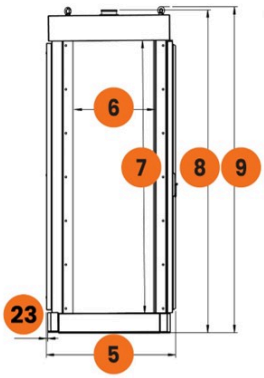

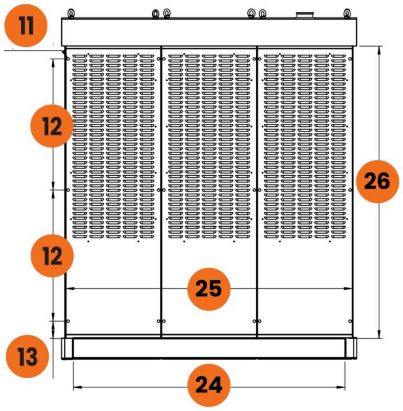

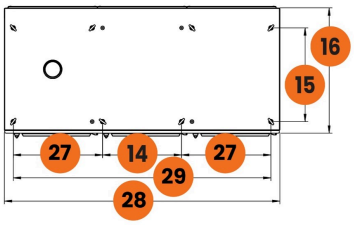

1	2141 mm	9	2195 mm	17	1250 mm	25	1793 mm
2	650 mm	10	551 mm	18	Ø 17 mm	26	1832 mm
3	1826 mm	11	Ø 16 mm	19	1199 mm	27	600 mm
4	10 mm	12	822 mm	20	1102 mm	28	1850 mm
5	871 mm	13	108 mm	21	1130 mm	29	1730 mm
6	543 mm	14	530 mm	22	478 mm		
7	1838 mm	15	629 mm	23	9 mm		
8	2174 mm	16	841 mm	24	1702 mm		

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 Sales Support.*

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