

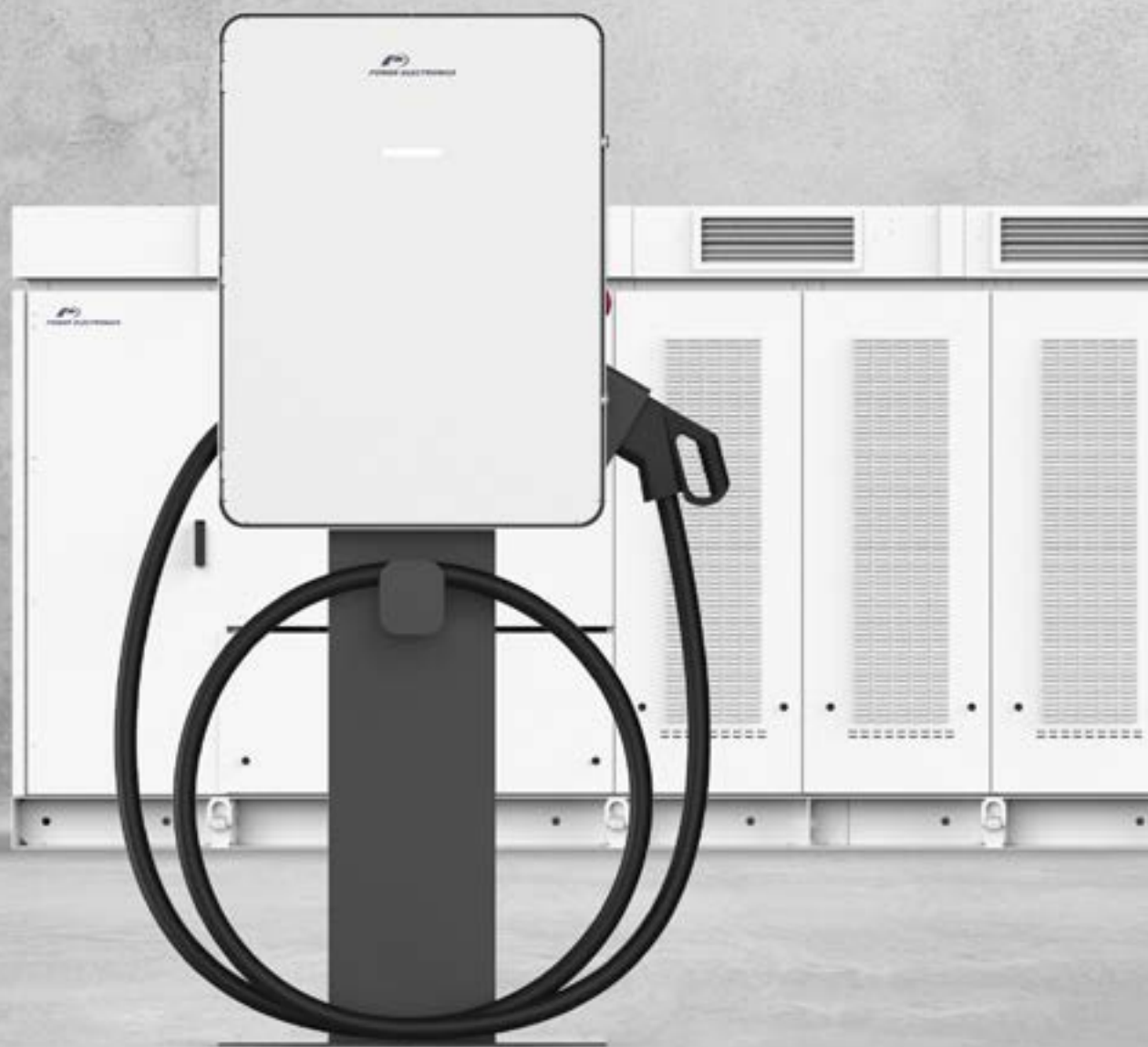


Product range

Industrial

Power Electronics offers unique solutions for customers who need a dedicated electric vehicle charging system for both light and heavy duty vehicles. The industrial product range focuses on providing robust, durable and innovative solutions.





NBi Station

TURN-KEY SOLUTION

MAXIMUM FLEXIBILITY

USER-FRIENDLY INTERFACE

SMART POWER BALANCE

BUS PLUS READY

BACK-OFFICE INTEGRATION OCPP 1.6

HEAVY VEHICLES CHARGING SOLUTIONS

NBi Station offers a complete flexible turn-key solution with its successful and revolutionary outdoor design based on our more than 30 years of experience in the manufacture of power electronics. NBi Station consists of a central power station which supplies energy to DC charging posts or pantographs. Specially designed with a modular concept, the central power station can reach up to 1200 kW, combining DC posts up to 350 kW and pantographs up to 600 kW. It is the ideal solution to optimize the CAPEX and OPEX of the charging infrastructure. NBi Station is the best solution for bus stations, depots and motorways, applications with high rotation of vehicles and where it is required a simple, fast and safe charging experience.

TURN-KEY SOLUTION

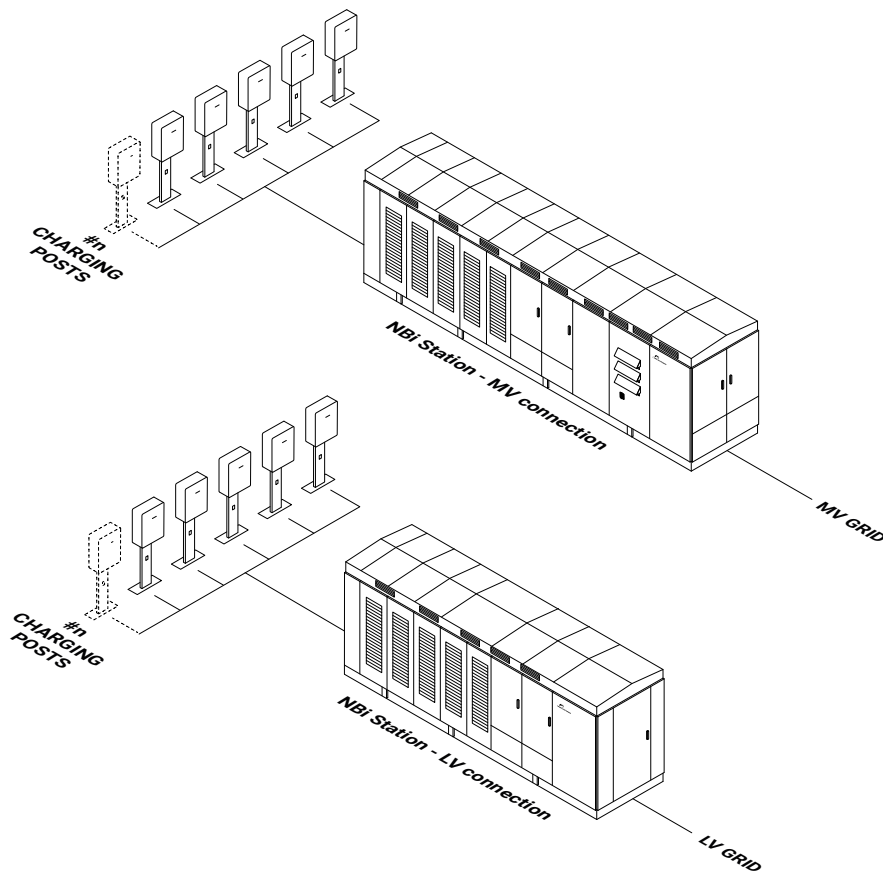
NBi Station reduces site design, simplifies the installation and significantly reduces connection costs and resources needed.

NBi Station consists of a central power station which supplies energy to charging posts, designed for an easy interaction with the electric vehicle drivers and following the current standards of user safety.

Being expandable over time, the central power station, has been developed to be able to increase the charging power, offering a solution which can grow with the electric vehicles market demand and the batteries technologies. It can be a low voltage or a medium voltage station.

The central power station according to the client's needs can integrate the following medium voltage components:

- MV switchgear.
- MV transformer.
- Metering supervision equipment.
- Customizable user cabinet with an independent electric circuit for the client's needs.

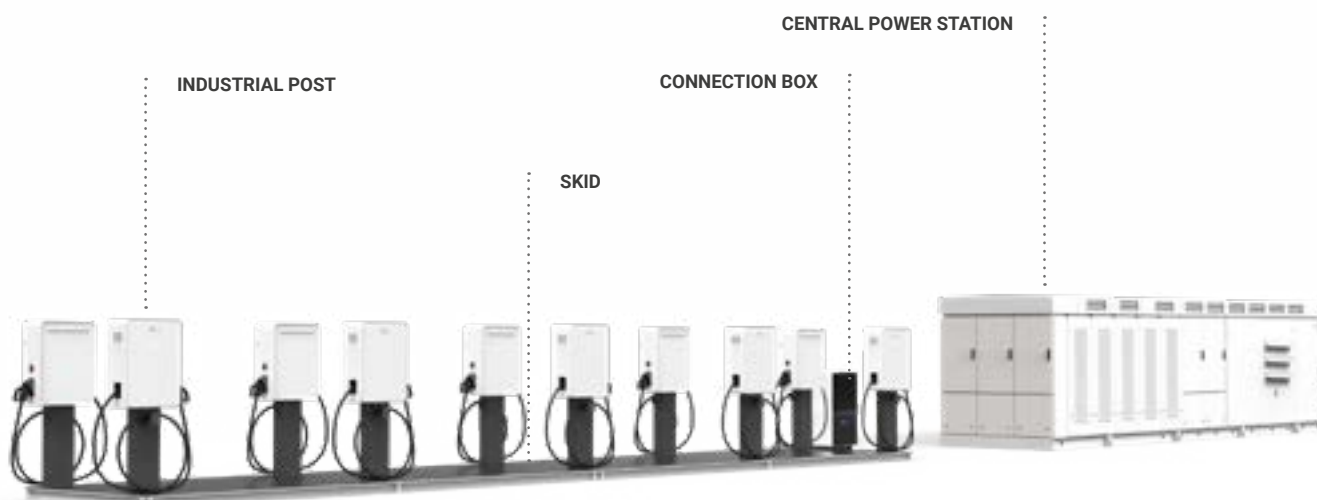


Speed up your charging installation with a flexible turn-key platform

Depending on the output power required, the client can choose a wide number of charging posts to fit any project and to configure the best layout. The skid solution, which is based on an outdoor platform made of high resistance galvanized steel with a non-slip surface, offers a plug and play solution. In the skid, all posts are wired and a connection box is included to connect to the central power station.

Field replaceable power stages

Following a modular philosophy, NBi Station is composed of FRUs (Field Replaceable Units), designed to be easily replaceable on site without the need of advanced technical service personnel, providing a safe, reliable and fast Plug&Play assembly system. In the event of a fault, the faulty module is taken off-line and its power is distributed evenly among the remaining functioning FRUs. It is a solution to be easily upgraded for the next EV generation and the most reliable charger in the market.



MAXIMUM FLEXIBILITY

Power Electronics has a wide range of high power chargers up to 1000 V, designed to serve long-range electric vehicles. NBi Station is compatible with industrial posts and automatic pantograph based charging solutions.

Suitable with any application that requires an efficient solution, maximum flexibility and availability for high rotation electric vehicles fleets. Power Electronics charging stations are compatible with current and future heavy electric vehicles, buses and electric trucks.

NBi Station + industrial post

Compatible with the most extended DC connectors (CCS and CHAdeMO). Industrial charging posts are the most cost effective solution for depot charging infrastructure and industrial areas.

NBi Station + pantograph

Compatible with multiple pantograph manufacturers, "bottom-up" and "top-down". Wireless communication with the electric vehicle according to ISO/IEC 15118 (OPPCharge compatible) and IEC 61851-23 (CCS) to speed up charging processes and to avoid wasting valuable bus operating time.



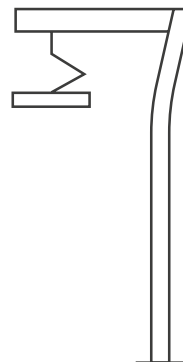
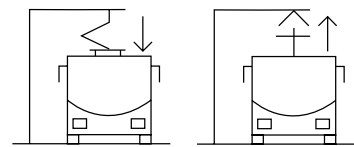
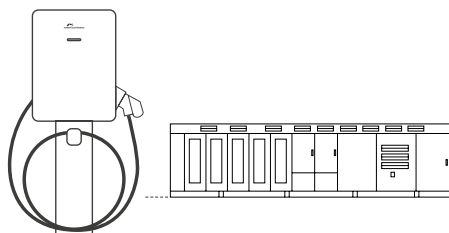
DC CONNECTOR
CCS-1



DC CONNECTOR
CHAdeMO



DC CONNECTOR
CCS-2



USER-FRIENDLY INTERFACE

Intuitive experience

Power Electronics posts integrate a status indicator so that the drivers can easily identify its availability. It provides drivers a fast, safe and simple interaction.

Payment and authentication system

Every charging post is compatible with the most extended payment and authentication systems, offering the most useful solutions in the market for an easy interaction with the customer.



RFID

Drivers can launch a charging session by tapping their RFID card.



Credit / debit card

Compatibility with contact-less (NFC) solutions, letting drivers initiate the charging process by simply tapping their credit / debit card.



Smartphone

Compatible with the most extended apps in the market. These apps for EV drivers are able to start a charging session, reserve a post at any time, or simply manage their historical charging sessions.

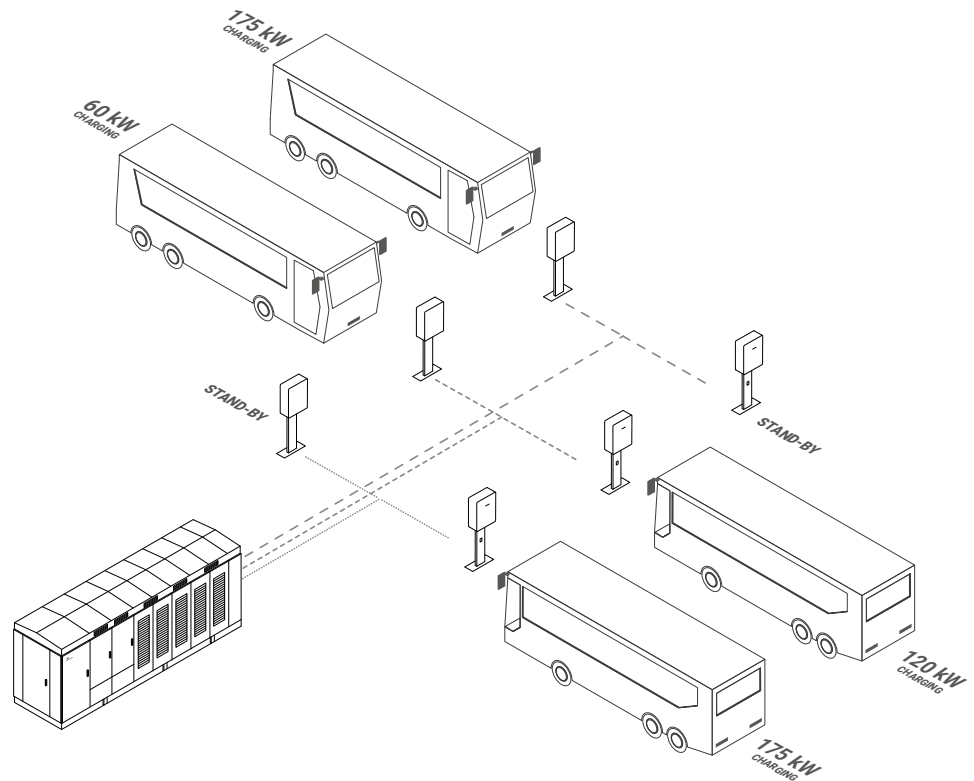
SMART POWER BALANCE

SMART POWER BALANCE TECHNOLOGY

NBi Station allows the optimization of the use of the charging point and dynamic balancing of power depending on the vehicle to be charged.

EXAMPLE CONFIGURATION

NBi Station NBSK0500S
Six charging posts of 175 kW



Power Balance

Power Electronics has developed the most advanced functionality for power balancing in vehicle fleet management.

NBi Station includes an advanced DC Smart Power Balance technology that allows for charging at different power levels matching all EV needs.



BUS PLUS READY

Our wide experience in the renewable energy sector, designing and manufacturing solar inverters, allows us to offer an integral solution.

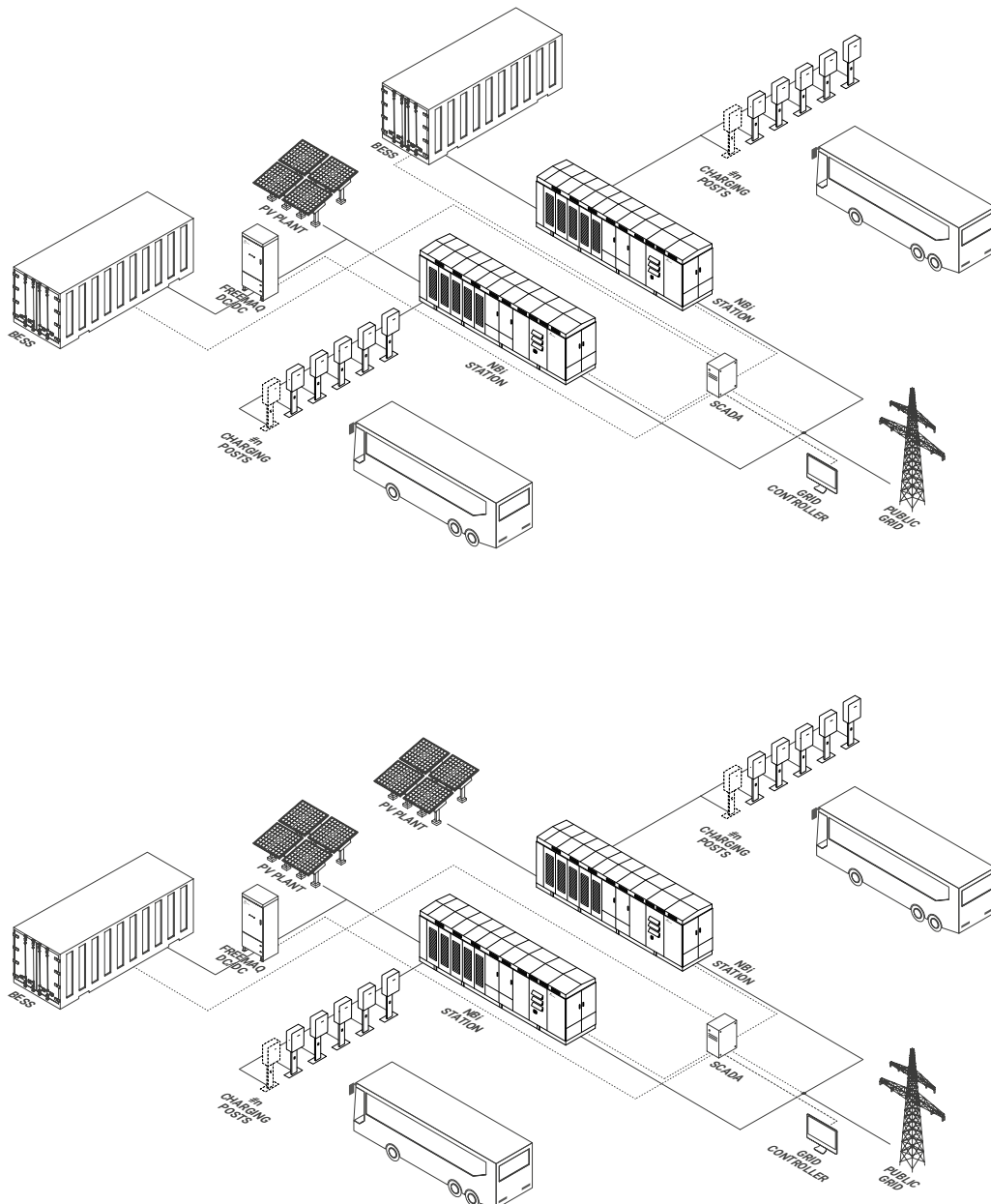
**NBi STATION IS ABLE TO TAKE
ADVANTAGE OF AN ENDLESS
ENERGY SOURCE, THE SUN**



NBi Station allows the EV charging from different power sources: photovoltaic field, battery system and utility grid.

In addition, the battery system allows to attenuate the intermittent nature of renewable energy sources offering a continuous charging system.

Adding a Freemaq DC/DC converter allows to store the photovoltaic excesses in the battery system. Stored energy can be exported to the grid when the price is higher, maximizing the revenues of the charging business.



SMART AND CUSTOMIZABLE DESIGN

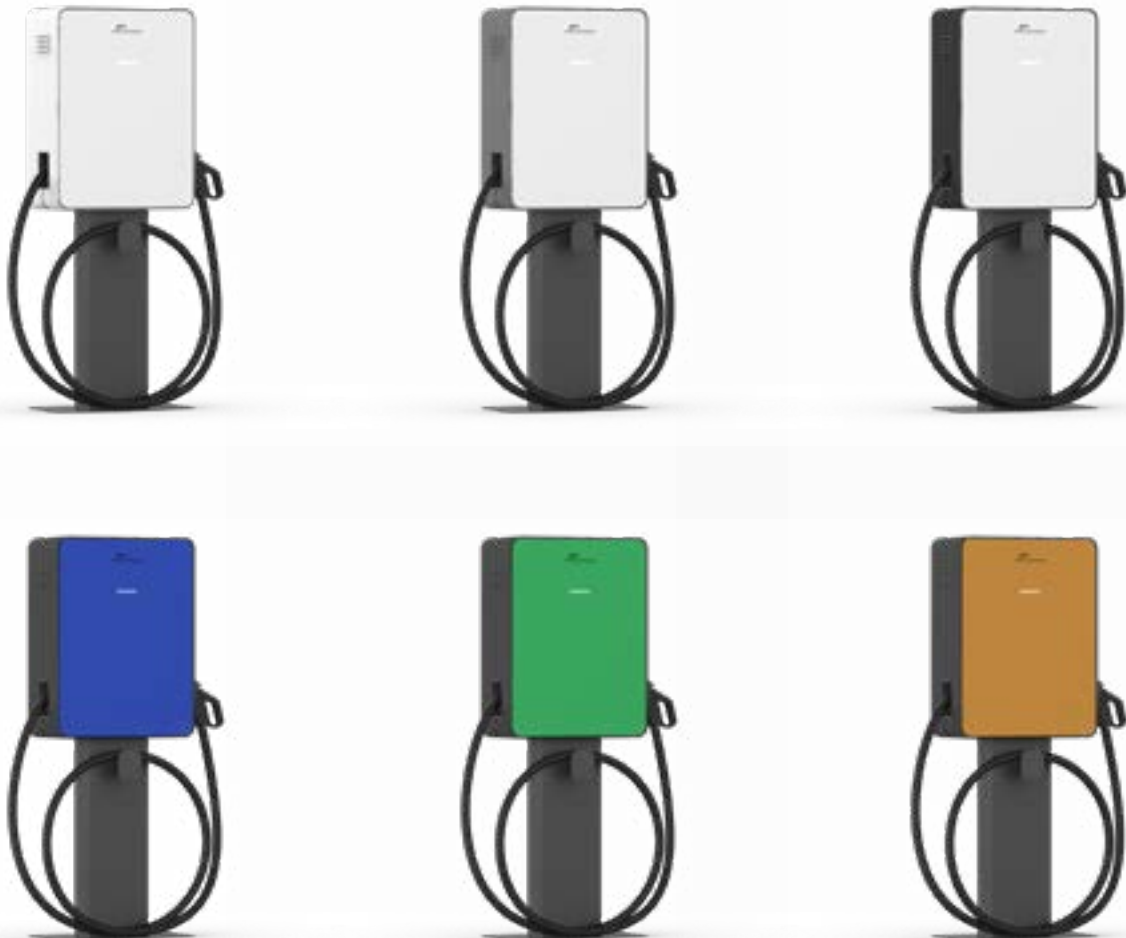
EXACTLY THE WAY YOU WANT

Customizable external enclosures

Power Electronics offers customizable external enclosures for the central power station and the posts. The colour can be modified or logos and advertising can be added.



EXAMPLES OF POST CUSTOMIZATIONS



EXAMPLES OF POWER STATION CUSTOMIZATIONS

NBS



NBSK



NBS STATION + POSTS

NBS

REFERENCE	NBS0350 NBS0350S	NBS0500 NBS0500S	NBS0700 NBS0700S	NBS1000 NBS1000S
DC OUTPUT	Station maximum power [kW]	420	600	840
	Charging post power [kW]	60 / 120 / 175		
	Voltage range [V]	50 - 500 / 150 - 1000		
	Available connectors	CCS ^[1] , CHAdeMO		
AC INPUT	Voltage [kV]	15 / 20 / 25 ^[2]		
	Power factor	> 0.99		
	Frequency [Hz]	50 / 60		
	Efficiency	93 % (preliminary)		
GENERAL	Interface	Status LED indicator		
		Button to stop charging		
		Emergency stop (optional)		
		RFID card reader (optional)		
	Protections	Isolation monitoring		
		Over-voltages / under-voltages		
		Over-currents / short-circuits		
		Over-temperatures		
	User auxiliary services supply [kW]	25 (optional)		
	Cable length [m] ^[3]	4		
	Cable length [ft] ^[3]	13.12		
	Degree of protection	NEMA 3R - IP54 / IK10 ^[4]		
	Operating temperature	From -25°C to 50°C (optionally, from -30°C to 50°C)		
	Relative humidity	4% - 95%		
	Maximum altitude (above sea level)	2000 m; > 2000 m power derating (max. 3000 m)		
	Enclosure station colour	Grey (RAL 7035)		
	Post colour (enclosure / foot)	White (RAL 9016 - microtexture painting) / Grey (RAL 7016 - microtexture painting)		
	Customization	Enclosure		
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity		
	Charging post dimensions (W x D x H) [mm]	600 x 300 x 800		
Charging post dimensions (W x D x H) [ft]	2.0 x 1.0 x 2.6			
Other station options	Motorized protection switchgear (remote operation)			

STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	POSTS		
		NBDI060	NBDI120	NBDI175
NBS0350	-	7	3	2
NBS0350S	√	-	6	4
NBS0500	-	10	5	3
NBS0500S	√	-	10	6
NBS0700	-	14	7	4
NBS0700S	√	-	14	8
NBS1000	-	20	10	6
NBS1000S	√	-	20	12

[1] CCS-1 for US market. CCS-2 for IEC market.
[2] Consult with Power Electronics.

[3] Optional cable length of 7 m / 22.97 ft.
[4] IK08 for ventilation grilles.

NBS STATION + PANTOGRAPHS

NBS

REFERENCE		NBS0350 NBS0350S	NBS0500 NBS0500S	NBS0700 NBS0700S	NBS1000 NBS1000S
DC OUTPUT	Station maximum power [kW]	420	600	840	1200
	Charging power [kW]	175 / 350 / 450 / 600			
	Voltage range [V]	150 - 1000			
AC INPUT	Voltage [kV]	15 / 20 / 25 ^[1]			
	Power factor	> 0.99			
	Frequency [Hz]	50 / 60			
	Efficiency	93 % (preliminary)			
GENERAL	Protections	Isolation monitoring			
		Over-voltages / under-voltages			
		Over-currents / short-circuits			
		RCD			
		Over-temperatures			
	User auxiliary services supply [kW]	25 (optional)			
	Degree of protection	NEMA 3R - IP54			
	Enclosure station colour	Grey (RAL 7035)			
	Operating temperature	From -25°C to 50°C (optionally, from -30°C to 50°C)			
	Relative humidity	4% - 95%			
	Maximum altitude (above sea level)	2000 m; > 2000 m power derating (max. 3000 m)			
Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity				
Other station options	Motorized protection switchgear (remote operation)				

STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	PANTOGRAPHS			
		175 kW	350 kW	450 kW	600 kW
NBS0350	-	2	1	-	-
NBS0350S	√	4	2	-	-
NBS0500	-	3	-	1	-
NBS0500S	√	6	-	2	-
NBS0700	-	4	2	-	1
NBS0700S	√	8	4	-	2
NBS1000	-	6	3	2	-
NBS1000S	√	12	6	4	-

[1] Consult with Power Electronics.

NBS STATION + POSTS

NBSK

REFERENCE	NBSK0350 NBSK0350S	NBSK0500 NBSK0500S	NBSK0700 NBSK0700S	NBSK1000 NBSK1000S	
DC OUTPUT	Station maximum power [kW]	420	600	840	1200
	Charging post power [kW]	60 / 120 / 175			
	Voltage range [V]	50 - 500 / 150 - 1000			
	Available connectors	CCS ^[1] , CHAdeMO			
AC INPUT	Voltage [V]	400 ± 10 % / 480 ± 10 %			
	Power factor	> 0.99			
	Frequency [Hz]	50 / 60			
	Efficiency	94 % (preliminary)			
GENERAL	Interface	Status LED indicator			
		Button to stop charging			
		Emergency stop (optional)			
		RFID card reader (optional)			
	Protections	Isolation monitoring			
		Over-voltages / under-voltages			
		Over-currents / short-circuits			
		Over-temperatures			
	User auxiliary services supply [kW]	25 (optional)			
	Cable length [m] ^[2]	4			
	Cable length [ft] ^[2]	13.12			
	Degree of protection	NEMA 3R - IP54 / IK10 ^[3]			
	Operating temperature	From -25°C to 50°C (optionally, from -30°C to 50°C)			
	Relative humidity	4% - 95%			
	Maximum altitude (above sea level)	2000 m; > 2000 m power derating (max. 3000 m)			
	Enclosure station colour	Grey (RAL 7035)			
	Post colour (enclosure / foot)	White (RAL 9016 - microtexture painting) / Grey (RAL 7016 - microtexture painting)			
	Customization	Enclosure			
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity			
	Charging post dimensions (W x D x H) [mm]	600 x 300 x 800			
Charging post dimensions (W x D x H) [ft]	2.0 x 1.0 x 2.6				

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REFERENCE	SMART POWER BALANCE	POSTS		
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NBSK0350S	√	-	6	4
NBSK0500	-	10	5	3
NBSK0500S	√	-	10	6
NBSK0700	-	14	7	4
NBSK0700S	√	-	14	8
NBSK1000	-	20	10	6
NBSK1000S	√	-	20	12

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[2] Optional cable length of 7 m / 22.97 ft.

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NBSK STATION + PANTOGRAPHS

NBSK

REFERENCE		NBSK0350 NBSK0350S	NBSK0500 NBSK0500S	NBSK0700 NBSK0700S	NBSK1000 NBSK1000S
DC OUTPUT	Station maximum power [kW]	420	600	840	1200
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NBSK0350S	√	4	2	-	-
NBSK0500	-	3	-	1	-
NBSK0500S	√	6	-	2	-
NBSK0700	-	4	2	-	1
NBSK0700S	√	8	4	-	2
NBSK1000	-	6	3	2	-
NBSK1000S	√	12	6	4	-