



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

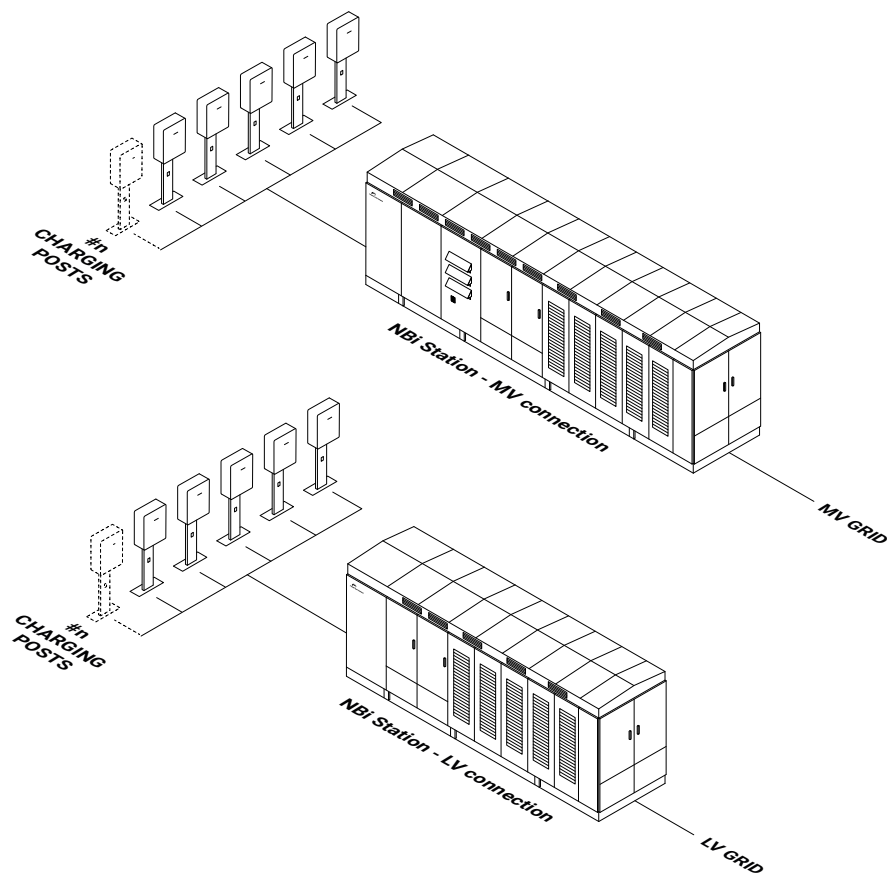
**NBi Station reduces site design, simplifies the installation and significantly reduces connection costs and resources needed.**

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.

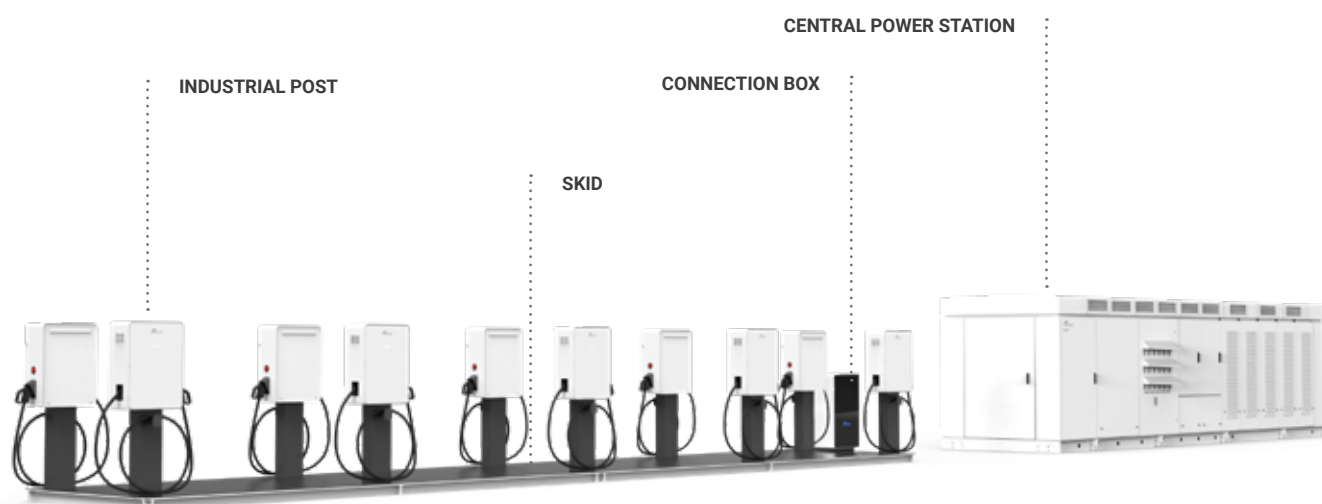


### Speed up your charging installation with a flexible turn-key platform

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, CHAdeMO and GB/T). 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**



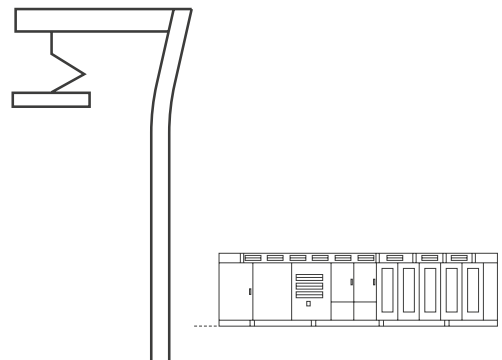
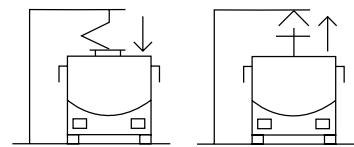
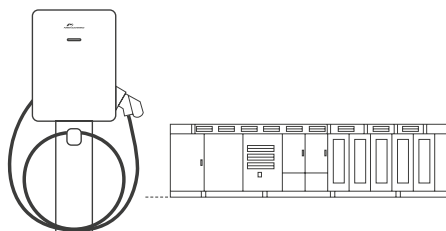
DC CONNECTOR  
**CHAdeMO**



DC CONNECTOR  
**CCS-2**



DC CONNECTOR  
**GB/T**



# 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 any payment and authentication system, 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

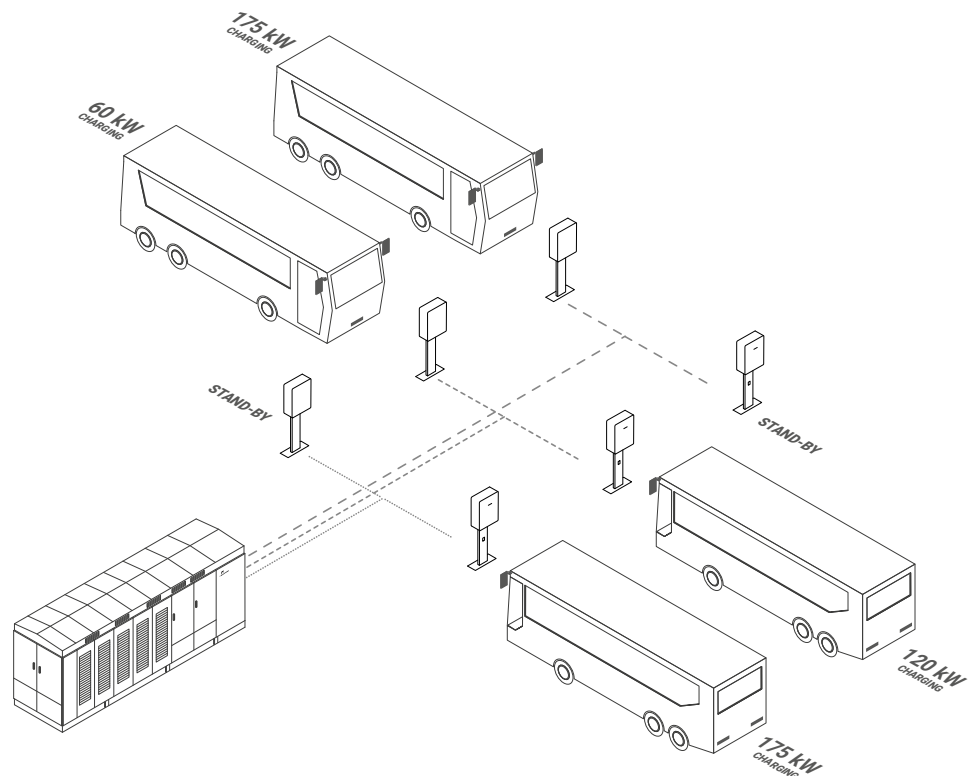
## SMART POWER BALANCE TECHNOLOGY

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.**

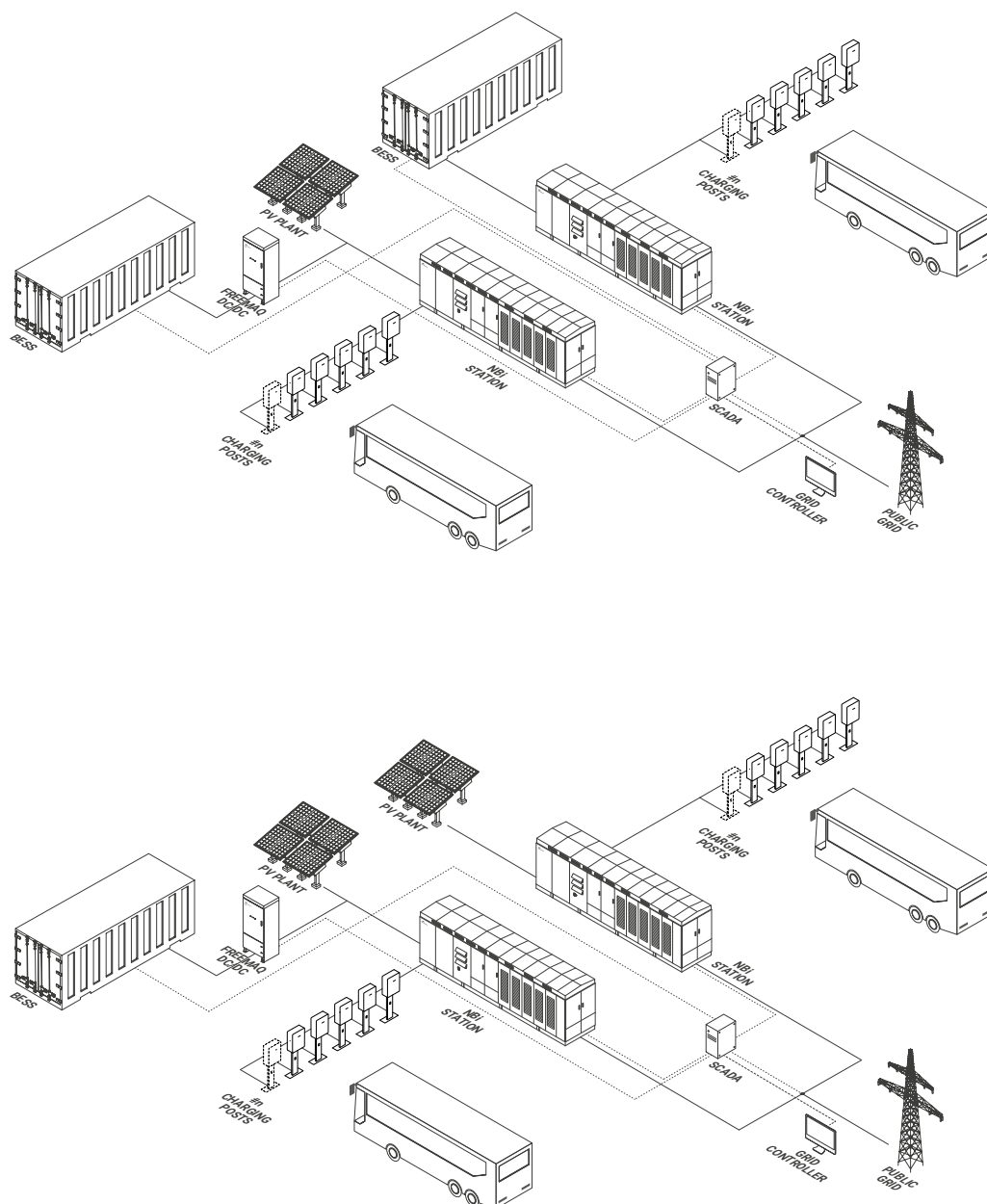
NBI STATION IS ABLE TO TAKE  
ADVANTAGE OF AN ENDLESS  
ENERGY SOURCE, THE SUN



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

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.

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



# 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 color can be modified or logos and advertising can be added.

### **Vehicle detection**

Optionally, it is possible to include the vehicle detection function, which allows starting the charging process when the car is close to the charging post.



## EXAMPLES OF POST CUSTOMIZATIONS

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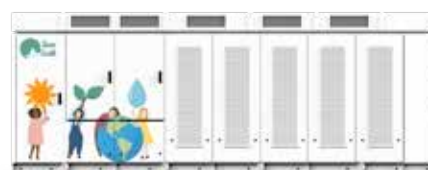
## EXAMPLES OF POWER STATION CUSTOMIZATIONS

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### NBS



### NBSK



## NBI 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 <sup>[1]</sup> , CHAdeMO, GB/T		
AC INPUT	Voltage [V] <sup>[2]</sup>	15 / 20 / 25 <sup>[2]</sup>		
	Power factor	> 0.99		
	Frequency [Hz]	50 / 60		
	Efficiency	94%		
GENERAL	Interface	Status LED indicator		
		Button to stop charging		
		Emergency stop (optional)		
	Protections	Isolation monitoring		
		Over-voltages / under-voltages		
		Over-currents / short-circuits		
		Over-temperatures		
	Auxiliary services power [kW]	15 / 20 / 25		
	Cable length [m] <sup>[3]</sup>	4		
	Cable length [ft] <sup>[3]</sup>	13.12		
	Degree of protection	NEMA 3R - IP54 / IK10 <sup>[4]</sup>		
	Operating temperature	From -25°C to 50°C (optionally, from -35°C to 50°C)		
	Relative humidity	4% - 95%		
	Maximum altitude (above sea level)	2000 m		
	Customization	Enclosure		
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)		
	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 display and ventilation grilles.

## NBI 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 [V]	15 / 20 / 25 <sup>[1]</sup>			
	Power factor	> 0.99			
	Frequency [Hz]	50 / 60			
	Efficiency	94%			
GENERAL	Protections	Isolation monitoring			
		Over-voltages / under-voltages			
		Over-currents / short-circuits			
		RCD			
		Over-temperatures			
	Auxiliary services power [kW]	15 / 20 / 25 <sup>[1]</sup>			
	Degree of protection	NEMA 3R - IP54			
	Operating temperature	From -25°C to 50°C (optionally, from -35°C to 50°C)			
	Relative humidity	4% - 95%			
	Maximum altitude (above sea level)	2000 m			
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)			
	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.



## NBI STATION + POSTS

## NBSK

REFERENCE	NBSK0350 NBSK0350S	NBSK0500 NBSK0500S	NBSK0700 NBSK0700S	NBSK1000 NBSK1000S
OUTPUT (DC)	Station maximum power [kW]	420	600	840
	Charging post power [kW]	60 / 120 / 175		
	Voltage range [V]	50 - 500 / 150 - 1000		
	Available connectors	CCS <sup>[1]</sup> , CHAdeMO, GB/T		
INPUT (AC)	Voltage [V] <sup>[2]</sup>	400 ± 10 % / 480 ± 10 %		
	Power factor	> 0.99		
	Frequency [Hz]	50 / 60		
	Efficiency	95%		
GENERAL	Interface	Status LED indicator		
		Button to stop charging		
		Emergency stop (optional)		
	Protections	Isolation monitoring		
		Over-voltages / under-voltages		
		Over-currents / short-circuits		
		Over-temperatures		
	Auxiliary services power [kW]	15 / 20 / 25		
	Cable length [m] <sup>[3]</sup>	4		
	Cable length [ft] <sup>[3]</sup>	13.12		
	Degree of protection	NEMA 3R - IP54 / IK10 <sup>[3]</sup>		
	Operating temperature	From -25°C to 50°C (optionally, from -35°C to 50°C)		
	Relative humidity	4% - 95%		
	Maximum altitude (above sea level)	2000 m		
	Customization	Enclosure		
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)		
	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		

## STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	POSTS		
		NBDI060	NBDI120	NBDI175
NBSK0350	-	7	3	2
NBSK0350S	√	-	6	4
NBSK0500	-	10	5	3
NBSK0500S	√	-	10	6
NBSK0700	-	14	7	4
NBSK0700S	√	-	14	8
NBSK1000	-	20	10	6
NBSK1000S	√	-	20	12

[1] CCS-1 for US market. CCS-2 for IEC market.  
[2] Optional cable length of 7 m / 22.97 ft.

[3] IK08 for display and ventilation grilles.

## NBI STATION + PANTOGRAPHS

## NBSK

REFERENCE		NBSK0350 NBSK0350S	NBSK0500 NBSK0500S	NBSK0700 NBSK0700S	NBSK1000 NBSK1000S
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 [V]	400 ± 10 % / 480 ± 10 %			
	Power factor	> 0.99			
	Frequency [Hz]	50 / 60			
	Efficiency	95%			
GENERAL	Protections	Isolation monitoring			
		Over-voltages / under-voltages			
		Over-currents / short-circuits			
		RCD			
		Over-temperatures			
	Auxiliary services power [kW]	15 / 20 / 25 <sup>[1]</sup>			
	Degree of protection	NEMA 3R - IP54			
	Operating temperature	From -25°C to 50°C (optionally, from -35°C to 50°C)			
	Relative humidity	4% - 95%			
	Maximum altitude (above sea level)	2000 m			
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)			

## STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	PANTOGRAPHS			
		175 kW	350 kW	450 kW	600 kW
NBSK0350	-	2	1	-	-
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	-

[1] Consult with Power Electronics.



# NBi Dispenser

FLEXIBLE ARCHITECTURE

USER-FRIENDLY INTERFACE

SMART POWER BALANCE

BUS PLUS READY

BACK-OFFICE INTEGRATION OCPP 1.6

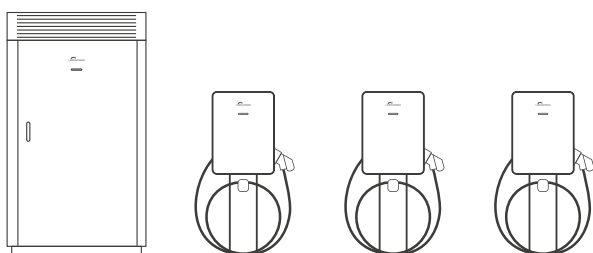
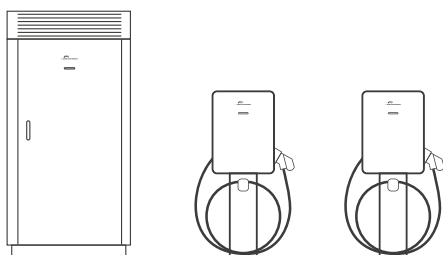
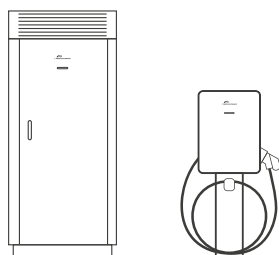
## THE COMBINATION OF MODULARITY AND HIGH PERFORMANCE

NBi Dispenser is an outdoor robust and modular charger, designed for durability, reliability and ease of maintenance. Thanks to its flexible architecture NBi Dispenser series allows the installation in any location. The charging solution consists of a power cabinet with low voltage input, which combines with industrial posts. With output power of up to 150 kW in DC (180 kW in US), NBi Dispenser allows the simultaneous charging of three vehicles thanks to the advanced functionality, Smart Power Balance. NBi Dispenser can be configured to charge either at 400 or 800 Vdc depending on the characteristics of the electric vehicle battery. Its smart design offers a simple, fast and safe charging experience, which makes it being the best solution for sites with space reduced that require maximum return on investment.

# FLEXIBLE ARCHITECTURE

**NBi Dispenser is the charging solution for locations where space is at a premium.**

The NBi Dispenser series is a DC charging solution with low voltage input consisting of a power cabinet which supplies energy to industrial charging posts. The available power cabinet configurations are from 50 kW to 150 kW (from 60 kW up to 180 kW in US) and are combined with DC post of 50, 100 and 150 kW (60, 120 and 180 kW in US).



# 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 any payment and authentication system, 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

**Power Electronics has developed the most advanced functionality for power balancing in vehicle fleet management. Designed to minimize the initial investment and the operation costs.**

Smart Power Balance functionality is able to balance the power based on the number of charging posts in use. Therefore, the total power required to supply the total energy gets substantially reduced, representing a cost reduction in the electrical facility infrastructure and a cost saving due to a minor power contracted. Besides, the hardware and the back-office communication is optimized.

## CONFIGURATION EXAMPLE

NBD150S Industrial

Three charging posts NBDI100 of 100 kW

Vehicle 3  
100 kW  
Charging

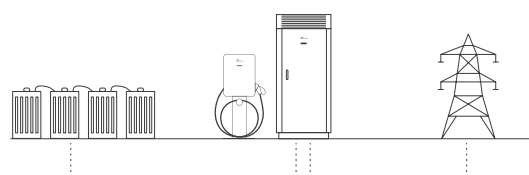
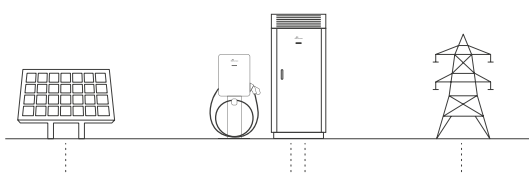
Vehicle 2  
50 kW  
Available

Vehicle 1  
0 kW  
Completed charging



# BUS PLUS READY

NBi Dispenser can connect to a DC power supply to provide electric vehicle charging power. The power source could be the photovoltaic energy, a battery system or the utility grid.





# 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 color can be modified or logos and advertising can be added.

### **Vehicle detection**

Optionally, it is possible to include the vehicle detection function, which allows starting the charging process when the car is close to the charging post.



EXAMPLES OF POST CUSTOMIZATIONS

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## NBI DISPENSER

IEC

REFERENCE	NBD050 NBD050S	NBD100 NBD100S	NBD150 NBD150S
DC OUTPUT	Power cabinet maximum output power [kW]	50	100
	Post maximum power [kW]	50	50 / 100
	Voltage range [V]	50 - 500 / 150 - 1000	
	Available connectors	CCS-2 <sup>[1]</sup> , CHAdeMO, GB/T	
AC OUTPUT	Power [kW]	53	105
	Voltage [V]	400 ± 10 %	
	Power factor	> 0.99	
	Frequency [Hz]	50 / 60	
	Efficiency	95%	
GENERAL	Interface	Post status LED indicator	
		Button to stop charging	
		Emergency stop (optional)	
	Protections	Isolation monitor	
		Over-voltages / under-voltages	
		Over-currents / short-circuits	
		RCD	
		Over-temperatures	
	Others	Smart Power Balance (optional)	
		Vehicle detection (optional)	
	Cable length [m] <sup>[2]</sup>	4	
	Degree of protection	IP54 / IK10 <sup>[3]</sup>	
	Operating temperature	From -20°C to 60°C (optionally, from -35°C to 60°C)	
	Relative humidity	4% - 95%	
	Maximum altitude (above sea level)	2000 m	
	Customization	Enclosure	
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)	
	Post dimensions (W x D x H) [mm]	600 x 300 x 800	

## STANDARD CONFIGURATION

REFERENCE	SMART POWER BALANCE	POSTS		
		NBDI050	NBDI100	NBDI150
NBD050	-	1	-	-
NBD100	-	2	1	-
NBD100S	√	-	2	-
NBD150	-	3	-	1
NBD150S	√	-	3	3

[1] CCS-1 on demand

[2] Optional cable length 7 m.

[3] IK08 for ventilation grilles.

## NBI DISPENSER

## US

REFERENCE		NBD060 NBD060S	NBD120 NBD120S	NBD180 NBD180S
DC OUTPUT	Power cabinet maximum output power [kW]	60	120	180
	Post maximum power [kW]	60	60 / 120	60 / 120 / 180
	Voltage range [V]	50 - 500 / 150 - 1000		
	Available connectors	CCS-1, CHAdeMO, GB/T		
AC OUTPUT	Power [kW]	63	126	189
	Voltage [V]	480 ± 10 %		
	Power factor	> 0.99		
	Frequency [Hz]	60		
	Efficiency	95%		
GENERAL	Interface	Post status LED indicator		
		Button to stop charging		
		Emergency stop (optional)		
	Protections	Isolation monitor		
		Over-voltages / under-voltages		
		Over-currents / short-circuits		
		RCD		
		Over-temperatures		
	Others	Smart Power Balance (optional)		
		Vehicle detection (optional)		
	Cable length [ft] <sup>[1]</sup>	13.12		
	Degree of protection	NEMA 3R		
	Operating temperature	From -20°C to 60°C (optionally, from -35°C to 60°C)		
	Relative humidity	4% - 95%		
	Maximum altitude (above sea level)	2000 m		
	Customization	Enclosure		
	Communications	OCPP 1.6, Ethernet, 3G/4G connectivity (optional), Wifi (optional)		
	Post dimensions (W x D x H) [ft]	2.0 x 1.0 x 2.6		

## STANDARD CONFIGURATION

REFERENCE	SMART POWER BALANCE	POSTS		
		NBDI060	NBDI120	NBDI180
NBD060	-	1	-	-
NBDD120	-	2	1	-
NBD120S	√	-	2	-
NBD180	-	3	-	1
NBD180S	√	-	3	3

[1] Optional cable length 22.97 ft.