

# **EV CHARGING SOLUTIONS**



# **EV CHARGERS**

Electric vehicles are the means of transport that will lead us to a sustainable, clean and pollution-free world for our children and future generations, a world powered by renewable energy and independent from fossil fuels.





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**Since 1987,** Power Electronics has been producing high-power soft starters and variable speed drives for low and medium voltage AC motor applications, as well as solar inverters for photovoltaic power generation. Today, it also manufactures equipment for the charging of all types of electric vehicles, as a result of the company's commitment to electric mobility. All this experience has enabled Power Electronics to position itself as a leading manufacturer of power electronics thanks to the unique characteristics of its products, its design patents and the fastest delivery time in the market, as well as unique customer service and reference in the sector, Power On Support 24/7.



30 YEARS OF PRODUCT EXCELLENCE

24/7 POWER ON SUPPORT

INTERNATIONAL PRESENCE

لتحر

FINANCIAL STABILITY AND STRENGTH

INDEPENDENT REPORTS AND CERTIFICATIONS

SUSTAINABLE GROWTH





#### **Engineering & Consulting**

**Energy projects** often require customer specific solutions, for this reason our clients also have our Engineering and Consulting department at their disposal, which is comprised of a wide number of highly skilled and experienced engineers that are available to modify our standard product to suit customer demands and ensure our clients get the product they need.

TECHNICAL ADVICE ENGINEERING CUSTOMIZED SOLUTIONS PROJECT MANAGEMENT COMMISSIONING 24/7 SERVICE

#### Vertical integration

**Flexibility and specialization** play a key role in the manufacture of standard products, but even more so in personalized products. We integrate the mechanics of our equipment into our design and manufacturing. Vertical integration gives us the flexibility to adapt to customer requirements and still provide very short delivery times.

INNOVATION & DESIGN FLEXIBILITY HIGH QUALITY COMPONENTS RELIABLE ENGINEERING FACTORY TESTED VALUE CHAIN SUPERVISION IMMEDIATE DELIVERY











### **POWER ON SUPPORT**

**Power on Support is the concept** of a customer oriented strategy implemented by Power Electronics since its origins more than 30 years ago with 24/7 after sales service available for all our customers and end users without the need for a signed 0&M contract.

Customer Oriented Strategy.



#### 0&M

Remote fault diagnosis Charging sessions monitoring Charging point status Remote software updating



### Customer back-office compatibility OCPP 1.6 Modbus TCP

3G / 4G connectivity Flexible integration



#### Payment platform Credit / debit card

RFID card Mobile apps Cyber security



### IEC 60870 integration Power curtailment Low harmonics content High power factor

### **FULL 360° SERVICE**

Power Electronics offers an innovative charging solution adapted to every client's needs. With its advanced connectivity, the NB Station allows having the main services to operate, use and manage EV networks now and in the future.

#### Compatible with any back-office

OCPP is the internationally established open protocol for the communication between EV charging stations and any back-office system around the world. Power Electronics offers an easy integration to any back-office systems using standard-based APIs.

#### **O&M monitoring tools**

Optionally, Power Electronics can provide an advanced monitoring tool, a useful and intuitive platform for remote 0&M management.



### **Worldwide Presence**

From the beginning, customer service and internationalization have been key elements for the development of the company. Thanks to the global expansion in the five continents, today we have presence and provide technical service throughout the world.



HEADQUARTERS

### +28

DELEGATIONS

### +100 SALES COUNTRIES

+25 GW

INSTALLED POWER

### +18 GW

ANNUAL CAPACITY PRODUCTION





# **Commercial** product range



### **NB Station**

Total power: 420 kW - 1200 kW Posts: 60 kW / 120 kW / 175 kW / 350 kW P. 17



NB 100 / NB 120 100 kW @ 400 Vac 120 kW @ 480 Vac P. 31



NB 50 / NB 60 50 kW @ 400 Vac 60 kW @ 480 Vac P. 41



#### **NB Dispenser**

50 kW / 100 kW / 150 kW @ 400 Vac 60 kW / 120 kW / 180 kW @ 480 Vac P. 51



**NB POD** 54 kWh 54 kW P. 61



NB City 2 x 22 kW 400 Vac (IEC) 2 x 7.7 kW 240 Vac (US) P. 65



NB Wall

Up to 2 x 22 kW 400 Vac (IEC) Up to 2 x 7.7 kW 240 Vac (US) P. 75

# Industrial product range



### **NBi Station**

Total power: 420 kW - 1200 kW Posts: 60 kW / 120 kW / 175 kW Pantographs: 175 kW / 350 kW / 450 kW / 600 kW P. 87



NBi Dispenser 50 kW / 100 kW / 150 kW @ 400 Vac 60 kW / 120 kW / 180 kW @ 480 Vac P. 103





### Product range

# Commercial

Power Electronics offers unique charging solutions for electric vehicles, in the commercial, urban and domestic areas, for light fleet vehicles and carparks. The commercial product range is focused on providing innovative solutions with a distinguished design.



### **NB Station**

TURN-KEY SOLUTION

MAXIMUM FLEXIBILITY

**USER-FRIENDLY INTERFACE** 

SMART POWER BALANCE

**BUS PLUS READY** 

**BACK-OFFICE INTEGRATION OCPP 1.6** 

### THE FUTURE OF SMART E-MOBILITY

NB 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. NB Station consists of a central power station which supplies energy to DC charging posts. Specially designed with a modular concept, the central power station can reach up to 1200 kW, combining DC posts from 60 kW to 350 kW. It is the ideal solution to optimize the CAPEX and OPEX of the charging infrastructure. NB Station is the best solution for service stations and motorways, applications with high rotation of vehicles and where it is required a simple, fast and safe charging experience.

# TURN-KEY SOLUTION

### NB Station reduces the space required, simplifies installation and significantly reduces connection costs and necessary resources.

NB 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.
- $\cdot$  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.



# MAXIMUM FLEXIBILITY

NB Station is a modular solution that can reach up to 1200 kW, combining DC posts from 60 kW to 350 kW. The configuration can be with a low voltage or a medium voltage station.

#### Field replaceable power stages

Following a modular philosophy, NB 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.

#### High DC voltage retrofit

NB Station allows an easy retrofit to charge at different voltage levels depending on the electric vehicle battery configuration. Maximum charging voltage can be 500 Vdc or 1000 Vdc.

#### **Connector types**

NB Station is compatible with the most extended DC connectors (CCS and CHAdeMO).



DC CONNECTOR

dc connector

dc connector CHAdeMO



**NBS - MV station** 



**NBSK - LV station** 

# USER-FRIENDLY INTERFACE

#### Intuitive experience

With a user-friendly interface, the 10" display allows an optimal user experience and the visualization of statistics of the charging processes. 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.



## SMART POWER BALANCE

# SMART POWER BALANCE TECHNOLOGY

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

#### **CONFIGURATION EXAMPLE**

NB Station NBSK1000S Six charging posts of 350 kW



#### **Power Balance**

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

NB 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.

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



NB 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 colour can be modified or logos and advertising can be added.



NBS

**EXAMPLES OF POWER STATION CUSTOMIZATIONS** 

### **EXAMPLES OF POST CUSTOMIZATIONS**



NBSK



#### **NB STATION**

#### NBS

REFERENCE		NBS0350 NBS0350S	NBS0500 NBS0500S	NBS0700 NBS0700S	NBS1000 NBS1000S		
DC OUTPUT	Station maximum power [kW]	420	600	840	1200		
	Charging post power [kW]	60 / 120 / 175 / 350					
	Voltage range [V]	50 - 500 / 150 - 1000					
	Available connectors		CCS <sup>[1]</sup> ,	CHAdeMO			
AC INPUT	Voltage [kV]		15/2	20 / 25 [2]			
	Power factor	> 0.99					
	Frequency [Hz]	50 / 60					
	Efficiency	93 % (preliminary)					
GENERAL	Interface		10" tou	chscreen			
		Status LED indicator					
			Emergency	stop (optional)			
		Cre	edit / debit card read	er compatibility (optio	onal)		
		RFID card reader (optional)					
	Protections	Isolation monitoring					
		Over-voltages / under-voltages					
		Over-currents / short-circuits					
		RCD					
		Over-temperatures					
	User auxiliary services supply [kW]	25 (optional)					
	Cable length [m] <sup>[3]</sup>	3					
	Cable length [ft] [3]	9.84					
	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)					
	Enclosure post colour	White (RAL 9016 - microtexture painting) / Black glass					
	Customization	Enclosure / Display					
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity					
	Charging post dimensions (W x D x H) [mm]	300 x 500 x 1800					
	Charging post dimensions (W x D x H) [ft]	1.0 x 1.6 x 5.9					
	Other station options	Motorized protection switchgear (remote operation)					

#### STANDARD CONFIGURATIONS

DECEDENCE	SMART POWER BALANCE	POSTS					
REFERENCE		NBDC060	NBDC120	NBDC120C <sup>[5]</sup>	NBDC175	NBDC175C [5]	NBDC350C <sup>[5]</sup>
NBS0350	-	7	3	3	2	2	1
NBS0350S	✓	-	6	6	4	4	2
NBS0500	-	10	5	5	3	3	-
NBS0500S	✓	-	10	10	6	6	-
NBS0700	-	14	7	7	4	4	2
NBS0700S	✓	-	14	14	8	8	4
NBS1000	-	20	10	10	6	6	3
NBS1000S	✓	-	20	20	12	12	6

#### **NB STATION**

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	~	J	rs.

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 / 350						
	Voltage range [V]	50 - 500 / 150 - 1000						
	Available connectors		CCS [1], (	CHAdeMO				
AC INPUT	Voltage [V]		/ 480 ± 10 %					
	Power factor	> 0.99						
	Frequency [Hz]	50 / 60						
	Efficiency	94 % (preliminary)						
GENERAL	Interface	e 10" touchs						
			Post status	LED indicator				
			Emergency	stop (optional)				
		Cre	edit / debit card read	er compatibility (optio	onal)			
			RFID card re	ader (optional)				
	Protections		Isolation	monitoring				
		Over-voltages / under-voltages						
		Over-currents / short-circuits						
		RCD						
		Over-temperatures						
	User auxiliary services supply [kW]	25 (optional)						
	Cable length [m] [2]			3				
	Cable length [ft] [2]	9.84						
	Degree of protection		NEMA 3R - IP54 / IK10 [3]					
	Operating temperature	From	onally, from -30°C to	50°C)				
	Relative humidity		4%	- 95%				
	Maximum altitude (above sea level)	200	2000 m; > 2000 m power derating (max. 3000 m)					
	Enclosure station colour		Grey (RAL 7035)					
	Enclosure post colour	White (RAL 9016 - microtexture painting) / Black glass						
	Customization		e / Display					
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity						
	Charging post dimensions (W x D x H) [mm]	300 x 500 x 1800						
	Charging post dimensions (W x D x H) [ft]							

#### STANDARD CONFIGURATIONS

DEFEDENCE	SMART POWER BALANCE	POSTS					
REFERENCE		NBDC060	NBDC120	NBDC120C <sup>[4]</sup>	NBDC175	NBDC175C [4]	NBDC350C [4]
NBSK0350	-	7	3	3	2	2	1
NBSK0350S	√	-	6	6	4	4	2
NBSK0500	-	10	5	5	3	3	-
NBSK0500S	$\checkmark$	-	10	10	6	6	-
NBSK0700	-	14	7	7	4	4	2
NBSK0700S	$\checkmark$	-	14	14	8	8	4
NBSK1000	-	20	10	10	6	6	3
NBSK1000S	✓	-	20	20	12	12	6



### NB 100 / NB 120

UP TO 4 VEHICLES CHARGING AT THE SAME TIME USER-FRIENDLY INTERFACE SMART FLEET MANAGEMENT BUS PLUS READY BACK-OFFICE INTEGRATION OCPP 1.6

### DC STAND-ALONE CHARGER

NB 100 / NB 120 is an outdoor, robust and attractive charger, which allows the simultaneous charging of four vehicles with output power of up to 100 kW in DC (120 kW in US) and 22 kW in AC (7.7 kW in US). NB 100 / NB 120 can be set to charge at 400 or 800 Vdc depending on the battery characteristics of the electric vehicle. Its smart design offers an easy, fast and safe charging experience, which makes it the best solution for sites where it is required a combination of design, high power and innovation.

# UP TO 4 VEHICLES CHARGING AT THE SAME TIME

NB 100 / NB 120 has been designed to obtain the maximum income with a stand-alone charger.

#### **Connector types**

Each charger can install up to four connectors per post, allowing four vehicles to be charged simultaneously (2 in DC and 2 in AC). The charger is compatible with the most extended DC connectors (CCS and CHAdeMO) and AC connectors.





dc connector



DC CONNECTOR



AC CONNECTOR Type 1



AC CONNECTOR

# USER-FRIENDLY INTERFACE

#### Intuitive experience

With a user-friendly interface, the 10" display allows an optimal user experience and the visualization of statistics of the charging processes. 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.



# SMART FLEET MANAGEMENT

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 Fleet Management** 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 backoffice communication is optimized.

#### **Total power available 100%**


# BUS PLUS READY

NB 100 / NB 120 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. Customize your charging post with branded labels that feature clients logos, texts and advertisement.

#### **Graphic advertising**

NB 100 / NB 120 offers the option of installing an advertising panel on the back of the equipment.

#### **AC charging**

It is possible to include an AC Type 1 or 2 charging connector, which allows a charging power up to 22 kW or 7.7 kW in US.



### EXAMPLES OF POST CUSTOMIZATIONS





### NB 100

DC OUTPUT (default)	Power [kW]	100
	Voltage range [V]	50 - 500 / 150 - 1000
	Current [A]	250
	Available connectors	CCS- 2 <sup>[1]</sup> , CHAdeMO
AC OUTPUT (option)	Power [kW]	22
	Voltage range [V]	400 ± 10 %
	Current [A]	32
	Available connectors	AC Type 2 <sup>[1]</sup>
AC INPUT FOR DC OUTPUT	Power [kW]	106
	Voltage [V]	400 ± 10 %
	Current [A]	152
	Power factor	> 0.99
	Frequency [Hz]	50 / 60
	Efficiency	94 % (preliminary)
GENERAL	Interface	10" touchscreen
	_	Emergency-stop (optional)
	_	Status LED indicator
	—	Credit / debit card reader compatibility (optional)
	_	RFID card reader (optional)
	Protections	Isolation monitor
		RCD Type A <sup>[2]</sup>
	_	MCB
		Surge arrester (optional): Type 2 / Type 1+2
	Others	Smart Fleet Management
		MID meter (optional) [3]
	Cable length (m) [4]	4
	Number of connectors	Up to 4
	Enclosure colour	White (RAL 9016 - microtexture painting) / Black glass
	Customization	Enclosure / Foot / Glass / Logo / Display
	Advertising	Back side
	Degree of protection	IP54   IK10 <sup>[5]</sup>
	Operating temperature	From -25°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 (optional)
		Wifi + 3G / 4G connectivity (optional)
		Ethernet switch (optional)
	Dimensions (W x D x H) [mm]	870 x 790 x 1800
	Regulation	IEC 61851-1, IEC 61851-23, IEC 61851-24, IEC 61000-6-2, IEC 61000-6-3

#### **AVAILABLE DC CONNECTORS**







CHAdeMO

#### **AVAILABLE AC CONNECTORS**



AC Type 2

### NB 120

DC OUTPUT (default)	Power [kW]	120
	Voltage range [V]	50 - 500 / 150 - 1000
	Current [A]	250
	Available connectors	CCS-1, CHAdeMO
AC OUTPUT (option)	Power [kW]	6.7 - 7.7
	Voltage range [V]	208 / 240 ± 10 %
	Current [A]	32
	Available connectors	АС Туре 1
AC INPUT FOR DC OUTPUT	Power [kW]	128
	Voltage [V]	480 ± 10 %
	Current [A]	152
	Power factor	> 0.99
	Frequency [Hz]	60
	Efficiency	94 % (preliminary)
GENERAL	Interface	10" touchscreen
		Emergency-stop (optional)
		Post status LED indicator
		Credit / debit card reader compatibility (optional)
		RFID card reader (optional)
	Protections	Isolation monitor
		RCD Type A <sup>[1]</sup>
		MCB
		Surge arrester (optional): Type 2 / Type 1+2
	Others	Smart Fleet Management
		Revenue meter (optional) <sup>[2]</sup>
	Cable length [ft] [3]	13.12
	Enclosure colour	White (RAL 9016 - microtexture painting) / Black glass
	Customization	Enclosure / Foot / Glass / Logo / Display
	Advertising	Back side
	Degree of protection	NEMA 3R
	Operating temperature	From -25°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 (optional)
		Wifi + 3G / 4G connectivity (optional)
		Ethernet switch (optional)
	Dimensions [ft]	2.85 x 2.60 x 5.90
	Regulation	UL 2202, UL 2594, NEC 625, FCC Part 15 Class A
	-	

#### **AVAILABLE DC CONNECTORS**

### 



CCS-1

CHAdeMO

#### AVAILABLE AC CONNECTORS



AC Type 1



## NB 50 / NB 60

SIMULTANEOUS DC + AC CHARGING USER-FRIENDLY INTERFACE SMART FLEET MANAGEMENT BUS PLUS READY BACK-OFFICE INTEGRATION OCPP 1.6

# THE COMBINATION OF AESTHETICS AND ADVANCED FUNCTIONALITIES

NB 50 / NB 60 is an outdoor, robust and attractive charger, designed for durability, reliability and ease of maintenance. With output power up to 50 kW in DC (60 kW in US) and 22 kW in AC (7.7 kW in US), NB 50 / NB 60 allows the simultaneous charging of two vehicles in DC and AC. NB 50 / NB 60 can be set to charge at 400 or 800 Vdc depending on battery characteristics of the electric vehicle. Its smart design offers a simple, fast and safe charging experience, which makes it being the best solution for sites that require the combination of design, high power and innovation.

# SIMULTANEOUS DC + AC CHARGING

NB 50 / NB 60 has been designed to obtain the maximum income with a stand-alone charger.

#### **Connector types**

Each charger can install up to three connectors per post, allowing the simultaneous charging of two vehicles 1 in DC and 1 in AC. The charger is compatible with the most extended connectors for DC charging (CCS and CHAdeMO) and AC.

#### High DC voltage retrofit

NB 50 / NB 60 allows an easy retrofit to charge at different voltage levels depending on the electric vehicle battery configuration. The maximum charging voltage can be 500 Vdc or 1000 Vdc.





dc connector

DC CONNECTOR

dc connector CHAdeMO

> ac connector **AC Type 1**



AC CONNECTOR

# USER-FRIENDLY INTERFACE

#### Intuitive experience

With a user-friendly interface, the 10" display allows an optimal user experience and the visualization of statistics of the charging processes. 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.





# SMART FLEET MANAGEMENT

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 Fleet Management** 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 backoffice communication is optimized.

#### **Total power available 100%**



# BUS PLUS READY

NB 50 / NB 60 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. Customize your charging post with branded labels that feature clients logos, texts and advertisement.

#### **AC charging**

It is possible to include an AC Type 1 or 2 charging connector, which allows a charging power up to 22 kW or 7.7 kW in US.



### **EXAMPLES OF POST CUSTOMIZATIONS**

Consult with Power Electronics for other options and colours.



### NB 50

DC OUTPUT (default)	Power [kW]	50		
	Voltage range [V]	50 - 500 / 150 - 1000		
	Current [A]	125		
	Available connectors [1]	CCS-2, CHAdeMO		
AC OUTPUT (option)	Power [kW]	22		
	Voltage range [V]	400 ± 10 %		
	Current [A]	32		
	Available connectors [1]	AC Type 2		
AC INPUT FOR DC OUTPUT	Power [kW]	53		
	Voltage [V]	400 ± 10 %		
	Current [A]	76		
	Power factor	> 0.99		
	Frequency [Hz]	50 / 60		
	Efficiency	94 %		
GENERAL	Interface	10" touchscreen		
		Emergency stop		
		Status LED indicator		
		RFID card reader		
	Protections	Isolation monitor		
	_	DC charge: RCD Type A + MCB + Surge arrester Type 2		
		AC charge: RCD Type A + MCB + RCM		
	Others _	Smart Fleet Management		
		MID meter [2]		
	Cable length [m] 🛛	3		
	Enclosure colour	White (RAL 9016 - microtexture painting) / Black glass		
	Customization [4]	Enclosure / Foot / Glass / Logo / Display		
	Degree of protection	IP54   IK10 <sup>[5]</sup>		
	Operating temperature	From -25°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		
	Dimensions (W x D x H) [mm]	600 x 700 x 1800		
	Regulation	IEC 61851-1, IEC 61851-23, IEC 61851-24, IEC 61000-6-2, IEC 61000-6-3		

### **AVAILABLE DC CONNECTORS**





CCS-2

CHAdeMO

### **AVAILABLE AC CONNECTORS**



AC Type 2

[3] Optional cable length of 5 m.[4] Under request.

### NB 60

	ι	JS

DC OUTPUT (default)	Power [kW]	60		
	Voltage range [V]	50 - 500 / 150 - 1000		
	Current [A]	150		
	Available connectors [1]	CCS-1, CHAdeMO		
AC OUTPUT (option)	Power [kW]	6.7 - 7.7		
	Voltage range [V]	208 / 240 ± 10 %		
	Current [A]	32		
	Available connectors [1]	Туре 1		
AC INPUT FOR DC OUTPUT	Power [kW]	64		
	Voltage [V]	480 ± 10 %		
	Current [A]	76		
	Power factor	> 0.99		
	Frequency [Hz]	60		
	Efficiency	94 %		
GENERAL	Interface	10" touchscreen		
		Emergency stop		
		Status LED indicator		
		RFID card reader		
	Protections	Isolation monitor		
		DC charge: RCD Type A + MCB + Surge arrester Type 2		
		AC charge: CCID + MCB		
	Others	Smart Fleet Management		
		Revenue meter <sup>[2]</sup>		
	Cable length [ft] [3]	9.8		
	Enclosure colour	White (RAL 9016 - microtexture painting) / Black glass		
	Customization <sup>[4]</sup>	Enclosure / Foot / Glass / Logo / Display		
	Degree of protection	NEMA 3R		
	Operating temperature	From -25°C to 50°C		
	Relative humidity	4% - 95%		
	Maximum altitude (above sea level)			
	Communications	Ethernet + OCPP 1.6 + Wifi + 3G / 4G connectivity		
	Dimensions (W x D x H) [ft]	2 x 2.3 x 5.9		
	Regulation	UL 2202, UL 2594, NEC 625, FCC Part 15 Class A		

### **AVAILABLE DC CONNECTORS**





CCS-1

CHAdeMO

### AVAILABLE AC CONNECTORS



AC Type 1

Combinations available: CCS-1 / CCS-1 + CHAdeMO / CCS-1 + CHAdeMO + AC-1.
Included for DC and AC charge.

[3] Optional cable length of 18 ft.[4] Under request.



### **NB 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

NB Dispenser is an outdoor robust and modular charger, designed for durability, reliability and ease of maintenance. Thanks to its flexible architecture NB Dispenser series allows the installation in any location. The charging solution consists of a power cabinet with low voltage input, which combines with commercial posts. With output power up to 150 kW in DC (180 kW in US), NB Dispenser allows the simultaneous charging of three vehicles thanks to the advanced functionality, Smart Power Balance. NB 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 that require the combination of design, high power and innovation.

# FLEXIBLE ARCHITECTURE

## NB Dispenser is the charging solution for locations where space is at a premium.

The NB Dispenser series is a DC charging solution with low voltage input consisting of a power cabinet which supplies energy to commercial charging posts. The posts offer a user interface simple and attractive, meeting current safety standards. 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

With a user-friendly interface, the 10" display allows an optimal user experience and the visualization of statistics of the charging processes. 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.



# 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 Three NBDC100 posts of 100 kW



# BUS PLUS READY

NB 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. Customize your charging post with branded labels that feature clients logos, texts and advertisement.

#### **AC charging**

It is possible to include an AC Type 1 or 2 charging connector, which allows a charging power up to 22 kW or 7.7 kW in US.



### **EXAMPLES OF CUSTOMIZATIONS**



### **NB DISPENSER**

REFERENCE		NBD050	NBD100 NBD100S	NBD150 NBD150S	
DC OUTPUT (default)	Power cabinet maximum output power [kW]	50	100	150	
	Post maximum power [kW]	50	50 / 100	50 / 100 / 150	
	Voltage range [V]		50 - 500 / 150 - 1000		
	Available connectors		CCS-2 <sup>[1]</sup> , CHAdeMO		
C OUTPUT (option)	Power [kW]	22			
	Current [A]	32			
	Voltage [V]	400 ± 10 % (3ph + N + PE)			
	Available connectors		AC Type 2 <sup>[1]</sup>		
C INPUT FOR	Power [kW]	53	106	159	
DC OUTPUT	Voltage [V]		400 ± 10 % (3ph + N + PE)	)	
	Power factor		> 0.99		
	Frequency [Hz]	50 / 60			
	Efficiency	94 % (preliminary)			
GENERAL	Interface	10" touchscreen			
		Post status LED indicator Emergency stop Credit / debit card reader compatibility (optional)			
		RFID card reader (optional)			
	Protections	Isolation monitor			
		RCD Type A <sup>[2]</sup>			
		Fuses Surge arrester Type 2			
	Others	MID meter (optional)			
	Cable length [m] [3]	3			
	Degree of protection	IP54   IK10 <sup>[4]</sup>			
	Operating temperature	From -25°C	to 50°C (optionally, from -3	30°C to 50°C)	
	Relative humidity	4% - 95%			
	Maximum altitude (above sea level)	2000 m; > 2000 m power derating (max. 3000 m)			
	Enclosure power cabinet colour	Grey (RAL 7035 - microtexture painting)			
	Enclosure post colour	White (RAL 9016 - microtexture painting) / Black glass			
	Customization	Enclosure / Foot / Glass / Logo / Display			
	Communications	Ethernet + OCPP 1.6 + Wifi + 3G / 4G connectivity			
	Post dimensions with pedestal (W x D x H) [mm]	300 x 500 x 1800			

#### STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE				
		NBDC050	NBDC100	NBDC150	NBDC150C <sup>[5]</sup>
NBD050	-	1	-	-	-
NBD100	-	2	1	-	-
NBD100S	√	-	2	-	-
NBD150	-	3	-	1	1
NBD150S	√	-	3	3	3

### **NB DISPENSER**

REFERENCE		NBD060	NBD120 NBD120S	NBD180 NBD180S		
DC OUTPUT (default)	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			
AC OUTPUT (option)	Power [kW]	6.7 / 7.7				
	Current [A]	32				
	Voltage [V]	208 / 240 ± 10 % (L1, L2, PE)				
	Available connectors		AC Type 1			
C INPUT FOR	Power [kW]	64	128	191		
C OUTPUT	Voltage [V]		480 ± 10 % (3ph + N + PE	)		
	Power factor		> 0.99			
	Frequency [Hz]	60				
	Efficiency	94 % (preliminary)				
GENERAL	Interface	10" touchscreen				
		Post status LED indicator				
		Emergency stop (optional) Credit / debit card reader compatibility (optional)				
		RFID card reader (optional)				
	Protections	Isolation monitor				
		RCD Type A <sup>[1]</sup>				
		Fuses				
		Surge arrester (optional): Type 2 / Type 1+2				
	Others	Revenue meter (optional)				
	Cable length [ft] [2]	9.84				
	Degree of protection	NEMA 3R				
	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 power cabinet colour	Grey (RAL 7035 - microtexture painting)				
	Enclosure post colour	White (RAL 9016 - microtexture painting) / Black glass				
	Customization	Enclosure / Foot / Glass / Logo / Display				
	Communications	Ethernet				
		OCPP 1.6				
		Wifi (optional)				
		Wifi + 3G / 4G connectivity (optional)				
	Post dimensions (W x D x H) [ft]	1.0 x 1.6 x 5.9				

#### STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	POSTS				
		NBDC060	NBDC120	NBDC120C [3]	NBDC180	NBDC180C [3]
NBD060	-	1	-	-	-	-
NBD120	-	2	1	1	-	-
NBD120S	√	-	2	2	-	-
NBD180	-	3	-	-	1	1
NBD180S	√		3	3	3	3



### **NB POD**

FULLY INTEGRATED BMS 54 KWH LITHIUM-ION BATTERY INTEGRATED PROTECTIONS LOAD LEVELING PEAK POWER SHAVING

> THE COMBINATION OF DESIGN AND STORAGE

NB POD is an outdoor storage system, robust and attractive, designed with durability, reliability and ease of maintenance. NB POD integrates a 54 kWh and 54 kW lithium-ion, and allows easy connection with any DC charger in the Power Electronics product range. It is a completely autonomous system, which integrates protections and the control of the battery system. NB POD allows reducing the contracted power of the recharging infrastructure and to store energy in periods of low demand to pour it out in periods of high demand.

# OPERATION MODES



**MODE 1** NB POD charging from the grid



MODE 2 Vehicle charging from NB POD



**MODE 3** Vehicle charging from NB POD + Grid

### Load leveling

NB POD is able to store energy during periods of low demand from the grid, in order to later use this energy to charge vehicles when the price per kWh is high. This has the benefit of using the battery stored energy at a higher market price during peak periods.

#### Peak power shaving

By delivering stored energy to the charger during periods of high demand, it reduces the burden on the distribution network and increases significantly its efficiency. Energy is stored during periods of low demand increasing the load on the grid. During peak periods this stored energy is used to charge electric vehicles. In addition the use of NB POD allows the charger's owner to reduce the total power contracted required and therefore a cost reduction.



Company load --- Maximum power contracted by the customer



#### **NB POD**

DATED V	man and a second s	
BATTERY	Battery technology	Lithium-ion
	Battery capacity	54 kWh
	Battery power	54 kW
RACK MANAGEMENT UNIT	BMS communication protocol	Modbus TCP, Modbus RTU
	Protections	Fully integrated
		Over-voltages / Under-voltages
		Over-currents / Short-circuits
		Over-temperatures
GENERAL DATA	Dimensions [mm]	870 x 790 x 1800
	Dimensions [ft]	2.85 x 2.60 x 5.90
	Degree of protection	NEMA 3R - IP54
	Enclosure colour [1]	White (RAL 9016 - microtexture painting) / Front colour black
	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
	Cooling system	Heating, ventilation and air conditioning
	Communications	Ethernet, RS485
	Interface	Status LED indicator
		Emergency stop (optional)



## **NB City**

USER-FRIENDLY INTERFACE SMART FLEET MANAGEMENT DYNAMIC POWER CONTROL BACK-OFFICE INTEGRATION OCPP 1.6

# THE BEST SOLUTION FOR SMART CITIES

NB City is a robust and attractive outdoor AC charging system, making it ideal for "smart" cities. It has been designed with durability, reliability and ease of maintenance in mind. With output power of 2 x 22 kW (2 x 7.7 kW in US), NB City is compatible with AC Type 1 and 2 connectors. Its smart design offers a simple, fast and easy charging experience, which makes NB City the best AC charging solution for applications that require maximum urban integration with the most advanced functionalities.

# MULTIPLE CONNECTION OPTIONS

## NB City has been designed to offer the most flexible charging solution to be installed in smart cities.

NB City is compatible with Type 1 and 2 AC connectors with outlet socket options or versions with straight and spiral cables.





AC Type 1

AC Type 2

### **OUTLET SOCKET VERSION**



#### HARD-WIRED VERSION

2 x Type 1 or 2 x Type 2



# USER-FRIENDLY INTERFACE

#### Intuitive experience

NB City has a smartphone app to facilitate the interaction with the user. Optionally, it can install a display that allows the visualization of the charging process. Power Electronics chargers integrate a state indicator so that the drivers can easily identify its availability.

#### 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.



### \*

#### Bluetooth

Presence recognition through bluetooth connectivity.



### 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

Power Electronics' NB Charger smartphone application allows monitoring and the scheduling charging sessions, consult statistics and historical, update the software version, define users' roles and manage the charging energy.

# ENERGY MANAGEMENT

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

#### **Smart Fleet Management**

This 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.

#### **Dual Power Sharing**

It allows to share the available power between the two charging points of the equipment so as not to exceed a fixed or dynamic limitation. This represents significant savings due to a lower contracted power.



#### **Dynamic Power Control**

This optional device ensures dynamic adaptation of the power being used to charge the vehicle in accordance with the energy being consumed by other electrical loads in the facitlity, without having to increase contractual power capacity.



# SMART AND CUSTOMIZABLE DESIGN

### **Customizable external enclosures**

Power Electronics offers customizable external enclosures. The colour can be changed or logos and advertising can be added . Optionally, a panel for advertising can be included on the back of the charger.



### **NB CITY**

Model	BASIC	ADVANCED	PROFESSIONAL		
AC input [V]	400 (3ph + N +PE)				
Maximum output power per connector [kW] 22.2					
Energy measurement		Internal energy measurement			
	-	-	MID meter		
Energy management		Smart Fleet Management			
Communications		Wifi			
	-	-	3G/4G connectivity		
		Ethernet			
		OCPP 1.6			
Authentication	Bluetooth				
	RFID card reader				
Protections	-	RCD Type A	RCD Type A		
	-	MCB	MCB		
	-	RCM	RCM		
	-	Surge arrester Type 2	Surge arrester Type 2		
External enclosure	IP54 / IK10 (IK08 for display and ventilation grilles)				
	White colour (RAL 9016 - microtexture painting)				
	C4 anti-corrosion protection [1]				
Glass colour		Black			
Operating temperature		From -25°C to 50°C			
Relative humidity		4% - 95%			
Interface	NB Charger App - Status indicator				
Dimensions (W x D x H) [mm]		350 x 200 x 1300			
Regulation		IEC 61851-1, IEC 61000-6-2, IEC 61000-6	-3		
#### STANDARD MODELS

MODEL	REFERENCE	TYPE OF CONNECTOR
BASIC	NBCHB46	2 x AC Type 2 (Plug - 4 m spiral)
	NBCHB47	2 x AC Type 2 (Socket)
ADVANCED	NBCHA46	2 x AC Type 2 (Plug - 4 m spiral)
	NBCHA47	2 x AC Type 2 (Socket)
PROFESSIONAL	NBCHP46	2 x AC Type 2 (Plug - 4 m spiral)
	NBCHP47	2 x AC Type 2 (Socket)

### AVAILABLE OPTIONS

CABLE LENGTH	5 m cable (straight)	
ENERGY MANAGEMENT	Dynamic Power Control (< 65 A)	
	Dynamic Power Control (< 300 A)	

### IEC

### **NB CITY**

Model	BASIC	ADVANCED	PROFESSIONAL	
AC input [V]	208 (L1, L2, PE) / 240 (L1, L2, PE) / 277 (L1, N, PE)			
Maximum output power per connector [kW]	6.7 / 7.7 / 7.7			
Energy measurement Internal energy measure		Internal energy measurement		
	-	-	Revenue meter [1]	
Energy management		Smart Fleet Management		
Communications		Wifi		
	-	-	3G/4G connectivity	
		Ethernet		
		OCPP 1.6		
Authentication	Bluetooth			
	RFID card reader			
Protections	-	CCID	CCID	
	-	MCB	MCB	
	-	Surge arrester Type 2 [1]	Surge arrester Type 2 [1]	
External enclosure	NEMA 3R			
	White colour (RAL 9016 - microtexture painting)			
	C4 anti-corrosion protection [2]			
Glass colour		Black		
Operating temperature	From -13°F to 122°F			
Relative humidity	4% - 95%			
Interface	NB Charger App - Status indicator			
Dimensions (W x D x H) [ft]	1.15 x 0.65 x 4.27			
Regulation	UL 2594, FCC Part 15 Class B, NEC 625			

#### STANDARD MODELS

AC INPUT [V]	MODEL	REFERENCE	TYPE OF CONNECTOR
208 / 240 (L1, L2, PE)	BASIC	NBCUB28	2 x AC Type 2 (Plug - 13.1 ft spiral)
	ADVANCED	NBCUA28	2 x AC Type 2 (Plug - 13.1 ft spiral)
	PROFESSIONAL	NBCUP28	2 x AC Type 2 (Plug - 13.1 ft spiral)
277 (L1, N, PE)	PROFESSIONAL	NBCUP38	2 x AC Type 2 (Plug - 13.1 ft spiral)

### AVAILABLE OPTIONS

CABLE LENGTH	18 ft cable (straight)
ENERGY MANAGEMENT	Dynamic Power Control (< 3 00 A)

### US



### **NB Wall**

USER-FRIENDLY INTERFACE SMART FLEET MANAGEMENT DYNAMIC POWER CONTROL BACK-OFFICE INTEGRATION OCPP 1.6

### THE BEST SOLUTION FOR HOME AND CAR PARKS

NB Wall is a robust and attractive outdoor AC charging system, making it ideal for car parks and smart homes. It has been designed with durability, reliability and ease of use in mind. With output power of 2 x 22 kW (2 x 7.7 kW in US), NB Wall is compatible with AC Type 1 and 2 connectors. Its smart design offers a simple, fast and easy charging experience, which makes NB Wall the best AC charging solution for applications that require maximum integration with the most advanced functionalities.

## **MULTIPLE CONNECTION OPTIONS**

### NB Wall has been designed to offer the most flexible charging solution to be installed in car parks and smart homes.

With up to 2 x 22 kW (2 x 7.7 kW in US) NB Wall is compatible with Type 1 and 2 AC connectors with outlet socket options or versions with straight and spiral cables.





AC Type 1



### **OUTLET SOCKET VERSION**

Type 1 or Type 2







### **HARD-WIRED VERSION**

Type 2 Decom ۲.



# USER-FRIENDLY INTERFACE

### Intuitive experience

NB Wall has a smartphone app to facilitate the interaction with the user. Power Electronics chargers integrate a state indicator so that the drivers can easily identify its availability.

### Payment and authentication system

Every charger 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.



### \*

#### Bluetooth

Presence recognition through bluetooth connectivity.



### 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

Power Electronics' NB Charger smartphone application allows monitoring and the scheduling charging sessions, consult statistics and historical, update the software version, define users' roles and manage the charging energy.

## ENERGY MANAGEMENT

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

#### **Smart Fleet Management**

This 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.

#### **Dual Power Sharing**

It allows to share the available power between the two charging points of the equipment so as not to exceed a fixed or dynamic limitation. This represents significant savings due to a lower contracted power.



### **Dynamic Power Control**

This optional device ensures dynamic adaptation of the power being used to charge the vehicle in accordance with the energy being consumed by other electrical loads in the facitlity, without having to increase contractual power capacity.



# SMART AND CUSTOMIZABLE DESIGN

### **Customizable external enclosures**

Power Electronics offers customizable external enclosures. The colour can be changed or logos and advertising can be added.



### **NB WALL**

Model	BASIC	ADVANCED	PROFESSIONAL	
AC input [V]	400 (3ph + N +PE)			
Maximum output power per connector [kW]	W] 22.2			
Energy measurement	Internal energy measurement			
	-	-	MID meter	
Energy management		Smart Fleet Management		
Communications		Wifi		
	-	-	3G / 4G connectivity	
		Ethernet		
	OCPP 1.6			
Authentication		Bluetooth		
	RFID card reader			
Protections	-	RCD Type A	RCD Type A	
	-	MCB	MCB	
	-	RCM	RCM	
External enclosure	IP54 / IK10 (IK08 for display and ventilation grilles)			
	White colour (RAL 9016 - microtexture painting)			
	C4 anti-corrosion protection [1]			
Glass colour	Black			
Operating temperature	From -25°C to 50°C			
Relative humidity		4% - 95%		
Interface	NB Charger App - Status indicator			
Dimensions (W x D x H) [mm]	Frame 1: 310 x 200 x 310 Frame 2: 310 x 200 x 750			
Cable input	Frame 1: Bottom input Frame 2: Bottom and rear input			
Regulation	IEC 61851-1, IEC 61000-6-2, IEC 61000-6-3			

#### STANDARD MODELS

MODEL	MODEL	REFERENCE	TYPE OF CONNECTOR
FRAME 1	BASIC	NBWHB41	1 x AC Type 2 (Plug - 4 m spiral)
		NBWHB42	1 x AC Type 2 (Socket)
	ADVANCED	NBWHA41	1 x AC Type 2 (Plug - 4 m spiral)
		NBWHA42	1 x AC Type 2 (Socket)
	PROFESSIONAL	NBWHP41	1 x AC Type 2 (Plug - 4 m spiral)
		NBWHP42	1 x AC Type 2 (Socket)
FRAME 2	BASIC	NBWHB46	2 x AC Type 2 (Plug - 4 m spiral)
		NBWHB47	2 x AC Type 2 (Socket)
	ADVANCED	NBWHA46	2 x AC Type 2 (Plug - 4 m spiral)
		NBWHA47	2 x AC Type 2 (Socket)
	PROFESSIONAL	NBWHP46	2 x AC Type 2 (Plug - 4 m spiral)
		NBWHP47	2 x AC Type 2 (Socket)

#### AVAILABLE OPTIONS

CABLE LENGTH	5 m cable (straight)	
ENERGY MANAGEMENT	Dynamic Power Control (< 65 A)	
	Dynamic Power Control (< 300 A)	

### **NB WALL**

BASIC	ADVANCED	PROFESSIONAL		
208 / 240 (L1, L2, PE)				
nnector [kW] 6.7 / 7.7				
	Internal energy measurement			
-	-	Revenue meter		
	Smart Fleet Management			
	Wifi			
-	-	3G / 4G connectivity		
	Ethernet			
	OCPP 1.6			
	Bluetooth			
RFID card reader				
-	CCID	CCID		
-	MCB	MCB		
NEMA 3R				
White colour (RAL 9016 - microtexture painting)				
	C4 anti-corrosion protection [1]			
Black				
From -13°F to 122°F				
4% - 95%				
NB Charger App - Status indicator				
Frame 1: 1.01 x 0.65 x 1.01 Frame 2: 1.01 x 0.65 x 2.46				
Frame 1: Bottom input				
UL 2594, FCC Part 15 Class B, NEC 625				
	BASIC	BASIC ADVANCED   208 / 240 (L1, L2, PE) 6.7 / 7.7   Internal energy measurement -   - -   Smart Fleet Management Wifi   - -   Smart Fleet Management Wifi   - -   Ethernet OCPP 1.6   Bluetooth RFID card reader   - CCID   - MCB   NEMA 3R White colour (RAL 9016 - microtexture paint   C4 anti-corrosion protection <sup>[1]</sup> Black   From -13°F to 122°F 4% - 95%   NB Charger App - Status indicator Frame 1: 1.01 x 0.65 x 1.01   Frame 2: 1.01 x 0.65 x 2.46 Frame 2: Bottom and rear input   UL 2594, FCC Part 15 Class B, NEC 625 101		

### STANDARD MODELS

FRAME	MODEL	REFERENCE	TYPE OF CONNECTOR
Frame 1	BASIC	NBWUB23	1 x AC Type 1 (Plug - 13.1 ft spiral)
	ADVANCED	NBWUA23	1 x AC Type 1 (Plug - 13.1 ft spiral)
	PROFESSIONAL	NBWUP23	1 x AC Type 1 (Plug - 13.1 ft spiral)
Frame 2	BASIC	NBWUB28	2 x AC Type 1 (Plug - 13.1 ft spiral)
	ADVANCED	NBWUA28	2 x AC Type 1 (Plug - 13.1 ft spiral)
	PROFESSIONAL	NBWUP28	2 x AC Type 1 (Plug - 13.1 ft spiral)

### AVAILABLE OPTIONS

CABLE LENGTH	18 ft cable (straight)
ENERGY MANAGEMENT	Dynamic Power Control (< 300 A)





### 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.
- $\cdot$  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 Electronis 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, "bottomup" 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.



## 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.

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 colour can be modified or logos and advertising can be added.



#### Consult with Power Electronics for other options and colours.

**EXAMPLES OF POWER STATION CUSTOMIZATIONS** NBS NBSK





### **EXAMPLES OF POST CUSTOMIZATIONS**

### **NBi STATION + POSTS**

Ν	BS
	50

REFERENCE		NBS0350 NBS0350S	NBS0500 NBS0500S	NBS0700 NBS0700S	NBS1000 NBS1000S		
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 <sup>[1]</sup> , C	HAdeMO			
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 s	top (optional)			
			RFID card rea	ider (optional)			
	Protections		Isolation r	nonitoring			
		Over-voltages / under-voltages					
		Over-currents / short-circuits					
		Over-temperatures					
	User auxiliary services supply [kW]	25 (optional)					
	Cable length [m] <sup>[3]</sup>	4					
	Cable length [ft] [3]		13	.12			
	Degree of protection		NEMA 3R - I	P54 / IK10 <sup>[4]</sup>			
	Operating temperature	Fro	m -25°C to 50°C (optic	onally, from -30°C to 5	0°C)		
	Relative humidity		4% -	95%			
	Maximum altitude (above sea level)	20	000 m; > 2000 m powe	r derating (max. 3000	m)		
	Enclosure station colour		Grey (RA	AL 7035)			
	Post colour (enclosure / foot)	White (RAL 9016 - microtexture painting) / Grey (RAL 7016 - microtexture painting)					
	Customization		Encle	osure			
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity					
	Charging post dimensions (W x D x H) [mm]		600 x 30	00 x 800			
	Charging post dimensions (W x D x H) [ft]	2.0 x 1.0 x 2.6					
	Other station options	Mot	torized protection swit	chgear (remote opera	tion)		

DEFEDENCE		POSTS				
REFERENCE	SMART POWER BALANCE	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		

### **NBi STATION + PANTOGRAPHS**

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 <sup>[1]</sup>		
	Power factor	> 0.99				
	Frequency [Hz]	50 / 60				
	Efficiency		93 % (pre	eliminary)		
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	Ef	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity			
	Other station options	Motorized protection switchgear (remote operation)				

REFERENCE		PANTOGRAPHS				
	SMART POWER BALANCE	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	-	

### **NBi STATION + POSTS**

REFERENCE		NBSK0350 NBSK0350S	NBSK0500 NBSK0500S	NBSK0700 NBSK0700S	NBSK1000 NBSK1000S		
DC OUTPUT	Station maximum power [kW]	420	600	840	1200		
	Charging post power [kW]		60 / 12	20 / 175			
	Voltage range [V]	50 - 500 / 150 - 1000					
	Available connectors		CCS <sup>[1]</sup> , C	CHAdeMO			
AC INPUT	Voltage [V]		400 ± 10 %	/ 480 ± 10 %			
	Power factor		> 0.99				
	Frequency [Hz]		50	/ 60			
	Efficiency	·	94 % (pr	94 % (preliminary)			
GENERAL	Interface	·	Status LE	Status LED indicator			
		Button to stop charging					
			Emergency s	top (optional)			
			RFID card rea	ader (optional)			
	Protections		Isolation I	monitoring			
		Over-voltages / under-voltages					
		Over-currents / short-circuits					
	User auxiliary services supply [kW]		25 (op	otional)			
	Cable length [m] [2]	4					
	Cable length [ft] [2]		13.12				
	Degree of protection		NEMA 3R -	IP54 / IK10 [3]			
	Operating temperature	Fro	m -25°C to 50°C (optio	onally, from -30°C to 5	0°C)		
	Relative humidity		4% -	95%			
	Maximum altitude (above sea level)	20	000 m; > 2000 m powe	r derating (max. 3000	m)		
	Enclosure station colour	Grey (RAL 7035)					
	Post colour (enclosure / foot)	White (RAL 9016 -	microtexture painting)	/ Grey (RAL 7016 - mi	crotexture painting)		
	Customization	Enclosure					
	Communications		Ethernet, OCPP 1.6, W	ifi, 3G / 4G connectivit	У		
	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					

DEEEDENGE				
REFERENCE	SMART POWER BALANCE	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

### **NBi STATION + PANTOGRAPHS**

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		94 % (pre	eliminary)			
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)	200	2000 m; > 2000 m power derating (max. 3000 m)				
	Communications	Ethernet, OCPP 1.6, Wifi, 3G / 4G connectivity					

REFERENCE		PANTOGRAPHS				
	SMART POWER BALANCE	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	-	



### **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 the most extended payment and authentication systems, offering the most useful solutions in the market for an easy interaction with the customer.



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

# 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 backoffice communication is optimized.

### **CONFIGURATION EXAMPLE**

NBD150S Industrial Three charging posts NBDI100 of 100 kW


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



# **EXAMPLES OF POST CUSTOMIZATIONS**



## **NBi DISPENSER**

REFERENCE		NBD050	NBD100 NBD100S	NBD150 NBD150S
DC OUTPUT (default)	Power cabinet maximum output power [kW]	50	100	150
	Post maximum power [kW]	50	50 / 100	50 / 100 / 150 [1]
	Voltage range [V]		50 - 500 / 150 - 1000	
	Available connectors	CCS-2 <sup>[1]</sup> , CHAdeMO		
AC OUTPUT (option)	Power [kW]	22		
	Current [A]	32		
	Voltage [V]	400 ± 10 % (3ph + N + PE)		
	Available connectors	AC Type 2 <sup>[1]</sup>		
AC INPUT FOR	Power [kW]	53	106	159
DC OUTPUT	Voltage [V]		400 ± 10 % (3ph + N + PE)	
	Power factor	> 0,99		
	Frequency [Hz]	50 / 60		
	Efficiency		94 % (preliminary)	
GENERAL	Interface	Post status LED indicator		
		Button to stop charging		
		Emergency stop		
		RFID card reader (optional)		
	Protections	Isolation monitor		
		RCD Type A <sup>[2]</sup> Fuses Surge arrester Type 2		
	Others	MID meter (optional)		
	Cable length [m] [3]	4		
	Degree of protection	IP54   IK10 <sup>[5]</sup>		
	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 power cabinet 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 connectivit		
	Post dimensions with pedestal (W x D x H) [mm]	600 x 300 x 800 (1445 with pedestal)		

#### STANDARD CONFIGURATIONS

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

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### **NBi DISPENSER**

REFERENCE		NBD060	NBD120 NBD120S	NBD180 NBD180S	
DC OUTPUT (default)	Power cabinet maximum output power [kW]	60	120	180	
	Post maximum power [kW]	60	60 / 120 [1]	60 / 120 [1] / 180 [1]	
	Voltage range [V]		50 - 500 / 150 - 1000		
	Available connectors		CCS-1, CHAdeMO		
AC OUTPUT (option)	Power [kW]	6.7 / 7.7			
	Current [A]	·	32		
	Voltage [V]		208 / 240 ± 10 % (L1, L2, PE)		
	Available connectors		AC Type 1		
AC INPUT FOR	Power [kW]	64	128	191	
DC OUTPUT	Voltage [V]		480 ± 10 % (3ph + N + PE)		
	Power factor		> 0.99		
	Frequency [Hz]		60		
	Efficiency		94 % (preliminary)		
GENERAL	Interface		Post status LED indicator		
			Button to stop charging		
		Emergency stop			
			RFID card reader (optional)		
	Protections	Isolation monitor			
			RCD Type A [1]		
		Fuses			
		Surge arrester Type 2			
	Others	Revenue meter (optional)			
	Cable length [ft] [2]	13.12			
	Degree of protection	NEMA 3R			
	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 power cabinet 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			
	Post dimensions (W x D x H) [ft]	2.0 x 1.0 x 2.6 (3.8 with pedestal)			

#### STANDARD CONFIGURATIONS

REFERENCE	SMART POWER BALANCE	POSTS		
		NBDI060	NBDI120	NBDI180
NBD060	-	1	-	-
NBD120	-	2	1	-
NBD120S	√	-	2	-
NBD180	-	3	-	1
NBD180S	√	-	3	3

# WARRANTY

Power Electronics (the Seller) warrants that their Products are free of faults and defects for a period of 3 years, valid from the date of delivery to the Buyer. It shall be understood that a product is free of faults and defects when its condition and performance is in compliance with its specification.

The warranty shall not extend to any Products whose defects are due to (i) careless or improper use, (ii) failure to observe the Seller's instructions regarding the transport, installation, functioning, maintenance and the storage of the Products, (iii) repairs or modifications made by the Buyer or third party without prior written authorization of the Seller, (iv) negligence during the implementation of authorized repairs or modifications, (v) if serial numbers are modified or illegible, (vi) anomalies caused by, or connected to, the elements coupled directly by the Buyer or by the final customer, (vii) accidents or events that place the Product outside its storage and operational specification, viii) continued use of the Products after identification of a fault or defect.

The warranty excludes components that must be replaced periodically such as fuses, lamps & air filters or consumable materials subject to normal wear and tear.

The warranty excludes external parts that are not manufactured by the Seller under the brand of Power Electronics.

The Seller undertakes to replace or to repair, himself, at their discretion, any Product or its part that demonstrates a fault or defect, which is in conformance with the aforementioned terms of the warranty. Reasonable costs associated with the disassembly/ assembly, transport and customs of equipment will also be

undertaken by the Seller except in cases of approved intervention by the Buyer and/or their representative where cost allocation has been previously agreed. In case of fault or defect, the Buyer shall notify the Seller in writing by using the following contact email: quality@power-electronics. com, of the presence of any fault or defect within 15 days of the fault or defect event. The serial number of the defective product plus a brief description of the fault must be included in the email.

Failure to notify the Seller of fault or defect within this time period may result in the warranty becoming invalid. In the event of replacement of defective Product or part thereof, the property of the Product or part shall be transferred to the Seller.

The Seller shall bear no liability for damages to property or third persons, even as manufacturer of the Products, other than that expressly provided by virtue of applicable mandatory law provisions.

In any case, the Seller shall not be liable for indirect or consequential damages of whatsoever nature as, by way of example, production losses or unearned profits.

The Seller shall, at their discretion, forfeit all warranty rights of the Buyer if the total sum of the contract and payment has not been reached in accordance with the agreed conditions of the contract.

No other warranties, express or implied, are made with respect to the Products including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. In any case, the Buyer's right to damages shall be limited to a maximum amount equal to no more than the price obtained by the Seller of the faulty or defective Products.

These conditions shall apply to any repaired or replacement products. Not withstanding the above, the replacement of a Product does not imply an extension of the term of warranty outside that of the original term.

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