



# POWER CONVERSION FOR eMOBILITY



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## DNC/DNG Down Converter Series

The DNC series DC/DC converters are the first generation DC/DC converters. This series is available in both liquid cooling and convection cooling. With this series, you can parallel up to 4 units (so in total up to 16 kW of output power).

The DNG series DC/DC converter are the second generation DC/DC converters. The first model that will be available is the **700DNG40-24-8** and is only available in liquid cooling. Currently we are developing this series with **350DNG40-12-8**, **350DNG40-24-8**, **700DNG40-12-8**, **350DNG40-48-8** and **700DNG40-48-8**. With this series, you can parallel up to 8 units (so in total up to 32 kW of output power).

The Bel Power Solutions DC-DC converters allow for high voltage DC bus voltages to be utilized to drive low voltage automotive accessories. They replace traditional alternator in hybrid electric and pure electric vehicles. The high power output is ideally matched to medium through heavy duty, on and off highway vehicles.

### Features & Benefits

- High Efficiency  
(92% for the 1<sup>st</sup> generation and 95% for the 2<sup>nd</sup> generation)
- Input voltage
  - 1<sup>st</sup> generation: 240 - 450 VDC or 450 - 850 VDC
  - 2<sup>nd</sup> generation: 240 - 450 VDC or 450 - 900 VDC
- Output power up to 4 kW (liquid cooling) and 3.3 kW (convection cooling)
- Parallelable up to 4 units (1<sup>st</sup> generation) or 8 units (2<sup>nd</sup> generation)
- Compliant to ECE R10.5 (1<sup>st</sup> generation) and ECE R10.6 (2<sup>nd</sup> generation)
- Optional UDS functionality, CAN FD and cybersecurity (2<sup>nd</sup> generation ONLY)
- Both generations include:
  - Full galvanic isolation between input and output
  - EMC filter built inside
  - CAN bus serial interface according to SAE J1939
  - Adjustable output voltage and over current protection via CAN bus
  - Over temperature, output over voltage and over current protection
  - Input and output reverse polarity protection
  - IP rating IP67 & IP6K9K



DNC Series



DNG Series

Model	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Output Power [W]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
<b>350DNC40 Series</b>							
350DNC40-12-8G	240 - 430	12	278	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
350DNC40-12-CG	240 - 430	12	229	3300	-40° to +45°	Convection	270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink
350DNC40-12-8S103G	300 - 450	12	278	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
350DNC40-24-8G	240 - 430	24	143	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
350DNC40-24-CG	240 - 430	24	120	3300	-40° to +45°	Convection	270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink
350DNC40-24-8S419	300 - 450	24	143	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
<b>700DNC40 Series</b>							
700DNC40-12-8G	400 - 800	12	278	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
700DNC40-12-CG	400 - 800	12	229	3300	-40° to +45°	Convection	270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink
700DNC40-24-8G	400 - 850	24	143	4000	-40° to +70°	Liquid	270 x 113 x 342 / 10.63 x 4.45 x 13.46
700DNC40-24-CG	400 - 850	24	120	3300	-40° to +45°	Convection	270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink
<b>700DNG40 Series</b>							
700DNG40-24-8	450 - 900	4	28	4000	-40° to +85°	Liquid	264 x 55 x 355 / 10.34 x 2.16 x 13.98



## BCN25 Series Charger

The **BCN25-700-8** is a 25 kW liquid cooled on-board battery charger that converts 3-phase AC voltage to DC voltage in hybrid or full electric vehicles, operating in mining, automotive and industrial environment. Features include very high efficiency, high reliability, low output voltage noise (DC), and excellent dynamic response to load/input changes.

### Features & Benefits

- Typical efficiency 93%
- Output power 25 kW (1 unit) up to 100 kW (4 units)
- SAE J1939 compliant CAN bus communication interface
- SAE J1455 compliant environmental standards
- IP65 and IP67 protection rating
- UL2202 approved (standard for electric vehicle charging system equipment)
- Over-temperature, output over-voltage and over-current protections
- Stackable chassis



Model	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [A]	Output Power [kW]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
BCN25-700-8	460 - 575	250 - 800	37.5	25	-40° to +65°	Liquid	524 x 340 x 84 / 20.63 x 13.38 x 3.31



## BCL25 Series Inverter Charger

The **BCL25-700-8** is a 22-25 kW on-board charger with export functionality for hybrid and electric light commercial, medium to heavy duty vehicles & non-vehicle applications.

### Features & Benefits

- Liquid cooled on-board charger with export functionality up to 25 kW
- Single-phase (190 - 264 VAC) or three-phase (330 - 528 VAC) input voltage
- Possibility to connect to EVSE Charging Station (EV Std. IEC 61851-1) or directly to public grid
- DC output voltage from 250-800 VDC with constant current of 60 A
- Parallelable up to 4 units with EMC filter built inside
- Soft-start functionality included to start-up induction motors
- IEC 61851-21-1 & ECE R10.6 certifications
- SAE J1772 & CAN interface SAE J1939 compliant
- IP67 & IP6K9K compliant
- Active HVDC interlock monitoring
- Over-temperature, output over-voltage and over-current protections
- Operating temperature -40°C to 60°C at full load
- Dimensions: 705 x 106 x 359 mm (27.75 x 4.17 x 14.13 in)
- Mating connector kit BCL25-700-CON-KIT available



Model	AC-DC CHARGE MODE					DC-AC EXPORT MODE				
	AC INPUT		DC OUTPUT			DC INPUT		AC OUTPUT (three-phase)		
	Voltage Range [Vrms]	Max. Input Current [Arms]	DC Output Voltage [VDC]	Max. Charging Current [ADC]	Max. Charging Power [kW]	Voltage Range [VDC]	Max. Input Current [ADC]	Output Voltage [VAC]	Max. Output Current [Arms]	Max. Output Power [kVA]
BCL25-700-8	190 - 264 (single phase)	32 (single/three phase)	250 - 800 (single/three phase)	60 (three phase)	6.6 (single phase)	250 - 800	60	400/480	32	21 / 23.5
	330 - 528 (three phase)				21 / 23.5 (three phase)			(50/60 Hz)		
	(47 - 63 Hz)							CAN adjustable		





## BCV200 Series Power Conversion System

The **BCV200-XXX-8** is a 20 kW power conversion solution consisting of three subsystems: 15 kW bidirectional inverter charger, 4 kW 12 V down converter, 1 kW 24 V down converter. This all-in-one solution delivers reliable and compact power conversion while meeting the demand for higher voltage products. Ideal for road, off-road, and marine vehicle applications, the power conversion system boasts very high efficiency, high reliability, low total harmonic distortion (AC), low output voltage noise (DC), and excellent dynamic response to load/input changes.

### Features & Benefits

- Typical efficiency 92%
- SAE J1939 compliant CAN bus communication interface
- SAE J1455 compliant environmental standards
- IP65 and IP67 protection rating
- Liquid cooled
- Coolant operating temperature range -30°C to +60°C
- Over-temperature, output over-voltage and over-current protections
- Dimensions 650 x 100 x 491 mm (25.6 x 3.9 x 19.3 in)
- Mating connector kit BCV200-CON-KIT available



Model	15 kW INVERTER CHARGER			4 kW DOWN CONVERTER	1 kW DOWN CONVERTER
	CHARGE MODE		EXPORT MODE		
	AC Input Voltage [VAC]	HV Output Voltage [VDC]	AC Output Voltage [VAC]	Output Voltage [V]	Output Voltage [V]
BCV200-350-8	90 - 264 (47 - 63 Hz)	250 - 435	120/240 (Split phase)	12 (CAN adjustable)	24 (CAN adjustable)
BCV200-700-8	90 - 264 (47 - 63 Hz)	450 - 850	120/240 (Split phase)	12 (CAN adjustable)	24 (CAN adjustable)



INV Auxiliary Inverter Series

The **INV60 Series** are a high-efficient DC-AC inverters that convert high-voltage DC power into split phase AC power (120/240 VAC) required to drive AC accessory loads directly from the High Voltage DC drive or battery bus. Liquid cooled DC-AC inverter operates at input of high voltage DC bus and power range up to 6000 W. The DC-AC inverter utilizes CAN communication to the vehicle controller which allows operational modes and frequency selection.

Features & Benefits

- Typical efficiency 93%
- Single and three phase configuration possible (3 x 400 VAC)
- Output power up to 6 kW (1 unit) to max. 36 kW (6 units)
- Output power first 10 sec 8 kW to start-up electric motors
- Flexible output connectivity
- Exportable pure sine wave AC power (50/60 Hz)
- Full galvanic isolation between input and output
- Wide ambient operational temperature range
- SAE J1939 compliant CAN bus communication interface
- SAE J1455 compliant environmental standards
- IP65 and IP67 protection rating
- Over-temperature, output over-voltage and over-current protection
- Vibration immunity meets military level
- Mating connector kits available:  
350INV60-CON-KIT-xG and 700INV60-CON-KIT-xG



Model	Input Voltage Range [VDC]	Max.Input Current [ADC]	Output Voltage [VAC]	Nom.Output Current [A]	Output Power [W]	Ambient Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
350INV60 Series								
350INV60-120-240-9G	240 - 430	34	120/240	25	6000	-40° to +85°	Liquid	374 x 163 x 384 / 14.72 x 6.42 x 15.12
700INV60 Series								
700INV60-120-240-9G	400 - 850	22	120/240	25	6000	-40° to +85°	Liquid	374 x 163 x 384 / 14.72 x 6.42 x 15.12





## Custom Solutions

Bel Power Solutions designs and manufactures a wide range of standard products, but is ready to meet customers unique requirements and demands providing modified standard, value-add, or even full custom solutions. Modifications can include modified or full custom performance, change in packaging.

- Motor controllers for bow thrusters
- Inverters for marine applications
- Battery chargers
- Combo systems





## About Bel Power Solutions

Bel Power Solutions & Protection offers world-class AC-DC and DC-DC power conversion products, value-add solutions, complete box-build solutions and contract manufacturing services, along with a complete portfolio of electronic circuit protection devices. Bel is a market leader in railway with Melcher™ brand products and technology leaders in the development of high efficiency and high power density front-end products. We support global customers and local markets with strategically located manufacturing and R&D facilities around the world.

Applications of our power conversion devices range from board-mount power to system-level architectures for servers, storage, networking, industrial and telecommunications industries.



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