

Power Conversion for eMobility



DC-DC Converters

DC-DC converters allow for high 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.

DNC40 Series

1st Generation DC-DC Down Converter

- Typical efficiency 93%
- Output power up to 4 kW, parallelable up to 4 units (16 kW)
- Adjustable output voltage and over current protection
- Multiple input/output protections, full galvanic isolation
- Built in EMC filter
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- IP65 and IP67 rating *
- E-mark / ECE R10.5 compliant
- Mating connector kit available (optional)



Model	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [A]	Output Power [W]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
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
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

DNG40 Series

2nd Generation DC-DC Down Converter – wider HV DC input range, compact design & higher power density

- Typical efficiency 95%
- Parallelable up to 8 units (32 kW)
- Multiple input/output protections, full galvanic isolation
- Built in EMC filter
- Optional UDS functionality, CAN FD & cyber security
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- IP67 & IP6K9K rating*
- E-mark / ECE R10.6 compliant
- Mating connector kit available (optional)



Model	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [A]	Output Power [W]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
350DNG40-12-8 NEW	240 - 450	12	278	4000	-40° to +85°	Liquid	284 x 55 x 356 / 11.18 x 2.16 x 14.01
350DNG40-24-8	240 - 450	24	143	4000	-40° to +85°	Liquid	284 x 55 x 348 / 11.18 x 2.16 x 13.70
350DNG40-48-8 NEW	240 - 450	48	73	4000	-40° to +85°	Liquid	284 x 55 x 348 / 11.18 x 2.16 x 13.70
700DNG40-12-8 NEW	450 - 900	12	278	4000	-40° to +85°	Liquid	284 x 55 x 356 / 11.18 x 2.16 x 14.01
700DNG40-24-8	450 - 900	24	143	4000	-40° to +85°	Liquid	284 x 55 x 348 / 11.18 x 2.16 x 13.70
700DNG40-48-8 NEW	450 - 900	48	73	4000	-40° to +85°	Liquid	284 x 55 x 348 / 11.18 x 2.16 x 13.70

BDC22-700-8

Bi-Directional DC-DC Converter – high voltage to high voltage

- Typical efficiency 95%
- Output power up to 21 kW, parallelable up to 4 units
- Adjustable output voltage and over current protection
- Control and communication supply voltage 9 – 32 VDC
- Multiple input/output protections, full galvanic isolation
- Optional UDS functionality, CAN FD & cyber security
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- IP67 & IP6K9K rating*
- E-mark / ECE R10.6 compliant
- Mating connector kit available (optional)



Model	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [A]	Output Power [kW]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
BDC22-700-8	300 - 850	300 - 850	60	21	-40° to +75°	Liquid	660.6 x 378 x 103.4 / 26.01 x 14.88 x 4.07

Onboard Battery Chargers

Bel's Battery Chargers are state of the art power solutions that convert 1- or 3-phase AC voltage to DC voltage, with options up to 25 kW. These chargers, which include liquid-cooled on-board models, ensure optimal performance under demanding conditions.

BCL25-700-8

Liquid cooled, onboard AC charger with export (DC/AC) functionality and output power up to 25 kW

- Possibility to connect to EVSE Charging Station (EV Std. IEC 61851-1) or directly to public grid
- Easy parallelable in charge mode with built-in EMC filter
- Soft-start functionality included to start-up induction motors
- Active HV DC interlock monitoring
- Multiple input/output protections, full galvanic isolation
- SAE J1455, IEC 61851-21-1, SAE J1772 (type 2) compliant
- CAN bus communication interface (SAE J1939)
- IP67 & IP6K9K rating *
- E-mark / ECE R10.6 compliant
- Operating temperature -40° to +60°C (Liquid cooling)
- Dimensions: 705 x 106 x 359 mm (27.75 x 4.17 x 14.13 in)
- Mating connector kit available (optional)



Model	AC-DC CHARGE MODE					DC-AC EXPORT MODE				
	AC INPUT		DC OUTPUT			DC INPUT		AC OUTPUT (3P)		
	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 (1P) 330 - 528 (3P) (47 - 63 Hz)	32 (1P / 3P)	250 - 800 (1P / 3P)	60 (3P)	6.6 (1P) 21 / 23.5 (3P)	250 - 800	60	400/480 (50/60 Hz) CAN adjustable	32	21 / 23.5

BCF19-700-8

Onboard AC charger with single phase / split phase AC input

Samples Available

- Typical efficiency 94%
- Output power up to 18 kW
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- IEC 61851-21-1 compliant immunity requirements
- Multiple input/output protections, full galvanic isolation
- IP67 & IP6K9K 7 rating *, Type 6
- UL 2202 approved
- Mating connector kit available (optional)



Model	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [A]	Output Power [kW]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
BCF19-700-8	90 - 305	450 - 900	37	18	-40° to +60°	Liquid	594.2 x 372 x 91.5 / 23.4 x 14.6 x 3.6

BCN25-700-8

Onboard AC charger for industrial applications with 3-phase AC input

- Typical efficiency 93%
- Output power up to 25 kW (easy parallelable)
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- Multiple input/output protections, full galvanic isolation
- IP65 and IP67 rating*
- SAE J1772 type 2 compliant
- UL 2202 approved



Model	Input Voltage [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

BCN25-1000 Series

Onboard AC charger for industrial applications with 3-phase AC input

- Typical efficiency 92%
- Output power up to 25 kW (easy parallelable)
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- Multiple input/output protections, full galvanic isolation
- IP65 and IP67 rating (mating connector fitted)
- Designed according to UL 62368-1, IEC 60664-1
- Mating connector kit already included



Model	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [A]	Output Power [kW]	Operating Temperature [°C]	Cooling	Dimensions (W x H x L) [mm / in]
BCN25-1000-350-8	800 - 1100	240 - 430	60	25	-25° to +60°	Liquid	524.0 x 398.5 x 111.0
BCN25-1000-700-8	800 - 1100	480 - 860	30	25	-25° to +60°	Liquid	524.0 x 398.5 x 111.0

Combo Units

Bel's combo unit systems combine three products (bidirectional inverter/charger and two down converters), creating a convenient and compact solution that helps reduce cabling. These all-in-one solutions deliver reliable and compact power conversion while meeting the demand for higher voltage products.

Ideal for road and off-road vehicles, ground support equipment, and marine applications, the power conversion system boasts very high efficiency, high reliability, low total harmonic distortion (AC), and excellent dynamic response to load/input changes.

BCV200 Series

Combo Unit System

- Typical efficiency 92%
- Full galvanic isolation between input & output
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- SAE J1772 type 1 compliant
- Multiple input/output protections, full galvanic isolation
- Operating temperature -30° to +60°C
- Liquid cooling
- IP67 & IP6K9K rating *
- Dimensions 650 x 100 x 491 mm (25.6 x 3.9 x 19.3 in)
- Mating connector kit available (optional)



	15 kW INVERTER CHARGER			4 kW DOWN CONVERTER	1 kW DOWN CONVERTER
	CHARGE MODE		EXPORT MODE		
Model	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)

Bel's DC-AC inverters invert high voltage DC power into single phase / split phase AC power, making them ideal for powering AC accessories. With a commitment to high performance and dependability, Bel's DC-AC inverters deliver consistent and robust AC power.

INV60 Series

Auxiliary Inverter

- Typical efficiency 93%
- Output power up to 6 kW (parallelable up to 6 units: 36 kW)
- 1- and 3-phase configuration possible (2 x 208 VAC or 1 x 400 VAC)
- Exportable pure sine wave AC power (50/60 Hz)
- Output power first 10 sec 8 kW to start-up electric motors
- Multiple input/output protections, full galvanic isolation
- CAN bus communication interface (SAE J1939)
- Environmental standards (SAE J1455)
- Vibration immunity meets military level
- Isolated outputs
- IP65 and IP67 rating*
- E-mark / ECE R10.5
- Mating connector kit available (optional)



Model	Input Voltage [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]
350INV60-120-240-9G	240 - 430	34	120/240	25	6000	-40° to +85°	Liquid	374 x 163 x 384 / 14.72 x 6.42 x 15.12
700INV60-120-240-9G	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 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 products, ranging from change in connectivity, housing or performance.

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



* Note: The IP rating is valid only when all mating connectors are installed.



About Bel Power Solutions

Bel 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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