POWER CONVERSION
FOR eMOBILITY

belfuse.com/power-solutions
DC-DC CONVERTERS

DNC Down Converter Series

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

- Typical efficiency 93%
- Output power up to 4 kW (1 unit) to up to 16 kW (4 units)
- Full galvanic isolation between input and output
- CAN Bus serial interface SAE J1939
- Adaptable to various HVIL input connectors
- Flexible output connectivity
- IP65 and IP67 protection rating
- E-mark compliant / ISO26262 ASIL level B
- Over temperature, output overvoltage and overcurrent protection, input and output reverse polarity protection
- Mating connector kits available: 350DNC40-CON-KIT-xG and 700DNC40-CON-KIT-xG

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<tbody>
<tr>
<td>350DNC40 Series</td>
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<tr>
<td>350DNC40-12-8G</td>
<td>240 - 430</td>
<td>12</td>
<td>278</td>
<td>4000</td>
<td>-40 to +70</td>
<td>Liquid</td>
<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46</td>
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<tr>
<td>350DNC40-12-CG</td>
<td>240 - 430</td>
<td>12</td>
<td>229</td>
<td>3300</td>
<td>-40 to +45</td>
<td>Convection</td>
<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink</td>
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<tr>
<td>350DNC40-12-8S103G</td>
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<td>278</td>
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<td>-40 to +70</td>
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<td>350DNC40-24-8G</td>
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<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46</td>
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<td>700DNC40 Series</td>
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<tr>
<td>700DNC40-12-8G</td>
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<td>12</td>
<td>278</td>
<td>4000</td>
<td>-40 to +70</td>
<td>Liquid</td>
<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46</td>
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<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink</td>
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<tr>
<td>700DNC40-24-8G</td>
<td>400 - 850</td>
<td>24</td>
<td>143</td>
<td>4000</td>
<td>-40 to +70</td>
<td>Liquid</td>
<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46</td>
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<td>400 - 850</td>
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<td>Convection</td>
<td>270 x 113 x 342 / 10.63 x 4.45 x 13.46 + heat sink</td>
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BDC Bi-Directional Converter Series

The Bel Power BDC Series is a modular 7.5 kW Bi-Directional DC/DC converter series, scalable up to 22.5 kW in a single unit, that creates DC voltages for hybrid electric and pure electric vehicles to power low voltage (48 VDC) accessories while also being able to supplement the high voltage bus from the low voltage side.

Features & Benefits

- Typical efficiency 96.5%
- Output power up to 22.5 kW (1 unit) to max 90 kW (4 units)
- Full galvanic isolation between input and output
- Output voltage adjustable via CAN Bus
- Over temperature, output overvoltage and over-current protection, input and output reverse polarity protection
- SAE J1939 compliant CAN bus communication interface
- SAE J1455 compliant environmental standards
- IP67 protection rating
- Mating connector kit 700BDC150-CON-KIT-8G available

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<tbody>
<tr>
<td>700BDC150-56-8*</td>
<td>500 - 800</td>
<td>48 - 57</td>
<td>268</td>
<td>22.5</td>
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<td>Liquid</td>
<td>626 x 447 x 101 / 24.65 x 17.60 x 3.98</td>
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<td>700BDC75-56-8*</td>
<td>500 - 800</td>
<td>48 - 57</td>
<td>156</td>
<td>7.5</td>
<td>-40 to +70</td>
<td>Liquid</td>
<td>626 x 447 x 101 / 24.65 x 17.60 x 3.98</td>
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* Contact Bel Power Solutions for availability (A-Sample Stage)
BCL25 Series Inverter Charger

The **BCL25-700-8** is a 22-25 kW On-Board Charger with Export Functionality for (Hybrid) 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

<table>
<thead>
<tr>
<th>Model</th>
<th><strong>AC-DC CHARGE MODE</strong></th>
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<th><strong>DC-AC EXPORT MODE</strong></th>
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<tbody>
<tr>
<td></td>
<td><strong>AC Input</strong></td>
<td><strong>DC Output</strong></td>
<td><strong>Max. Input Current [Arms]</strong></td>
<td><strong>DC Output Voltage [VDC]</strong></td>
<td><strong>Max. Charging Current [ADC]</strong></td>
<td><strong>Max. Charging Power [kW]</strong></td>
<td><strong>DC Input</strong></td>
<td><strong>AC Output (three-phase)</strong></td>
</tr>
<tr>
<td>BCL25-700-8</td>
<td>190 - 264 (single phase)</td>
<td>32 (single/three phase)</td>
<td>250 - 800 (single/three phase)</td>
<td>60 (three phase)</td>
<td>6.6 (single phase)</td>
<td>21 / 23.5 (three phase)</td>
<td>250 - 800</td>
<td>60</td>
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</tbody>
</table>
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

BCV200 Series Inverter Charger System

The BCV200-350-8 is a 20 kW inverter charger system consisting of three subsystems: 15 kW Bi-Directional Inverter Charger, 4 kW 12 V Down Converter, 1 kW 24 V Down Converter.

Features & Benefits

- Typical efficiency 93%
- SAE J1939 compliant CAN bus communication interface
- SAE J1455 compliant environmental standards
- IP65 and IP67 protection rating
- Coolant operating temperature range -30 to +60 °C
- Liquid cooled
- 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

<table>
<thead>
<tr>
<th>Model</th>
<th>15 kW INVERTER CHARGER</th>
<th>4 kW DOWN CONVERTER</th>
<th>1 kW DOWN CONVERTER</th>
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<tr>
<td></td>
<td>CHARGE MODE</td>
<td>EXPORT MODE</td>
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<tr>
<td>BCV200-350-8</td>
<td>90 - 264 (47 – 63 Hz)</td>
<td>250 - 435</td>
<td>120/240 (Split phase)</td>
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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 overvoltage and over-current protection
- Vibration immunity meets military level
- Mating connector kits available: 350INV60-CON-KIT-xG and 700INV60-CON-KIT-xG

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<tbody>
<tr>
<td>350INV60 Series</td>
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<tr>
<td>350INV60-120-240-9G</td>
<td>240 - 430</td>
<td>34</td>
<td>120/240</td>
<td>25</td>
<td>6000</td>
<td>-40 to +85</td>
<td>Liquid</td>
<td>374 x 163 x 384 / 14.72 x 6.42 x 15.12</td>
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<td>700INV60 Series</td>
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<td>700INV60-120-240-9G</td>
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Custom Solutions

Bel Power Solutions designs and manufactures a wide range of standard products, but is ready to meet customer’s 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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