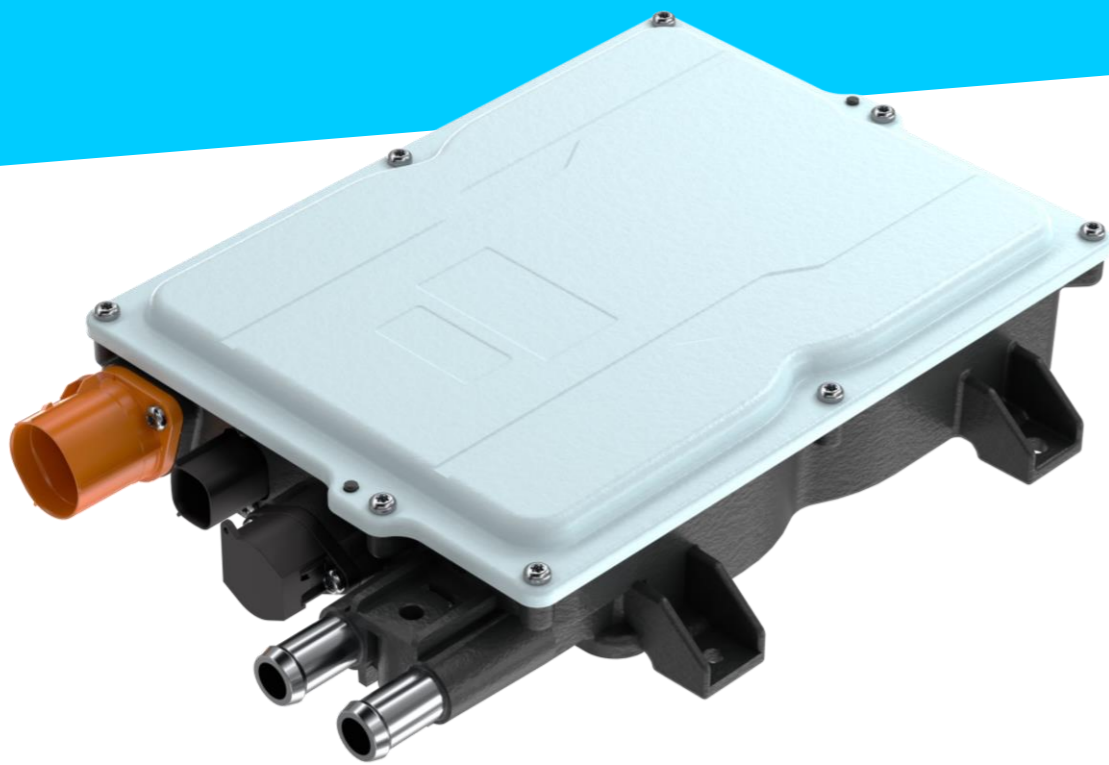


eLION DC/DC Converter EDCC1

Heavy duty design for off-highway applications



Specifically designed for the off-highway market, Bosch Rexroth has developed its eLION solution portfolio to be robust and scalable with an integrated functional safety. It fulfills demanding customer requirements for enhanced productivity and performance, as well as improved efficiency and reduced exhaust emissions. With an already strong position as an engineering partner in the hydraulic world, Bosch Rexroth has a strong position with off-highway vehicle manufacturers. The eLION portfolio provides easily integrated electric solutions for various functions in off-highway vehicles, whether they be diesel-electric, hybrid, or fully-electric.

CUSTOMER BENEFITS

- Boardnet power supply with up to 4 kW on a single device
- Robust design to endure off-highway conditions
- Safety functions according to ISO 13849 and ISO 25119
- Easy integration with single-sided connection
- CAN J1939 communication
- Bidirectional operation capability

FUNCTION AND BENEFITS

Boardnet power supply with up to 4 kW on a single device

By converting high voltage from the battery to either 12 or 24 V_{DC}, the eLION DC/DC converter supplies power to the vehicle's LV energy boardnet. It can be operated as a single device to supply 4 kW or in parallel with up to 4 devices to supply 16 kW according to varying power requirements in each vehicle.

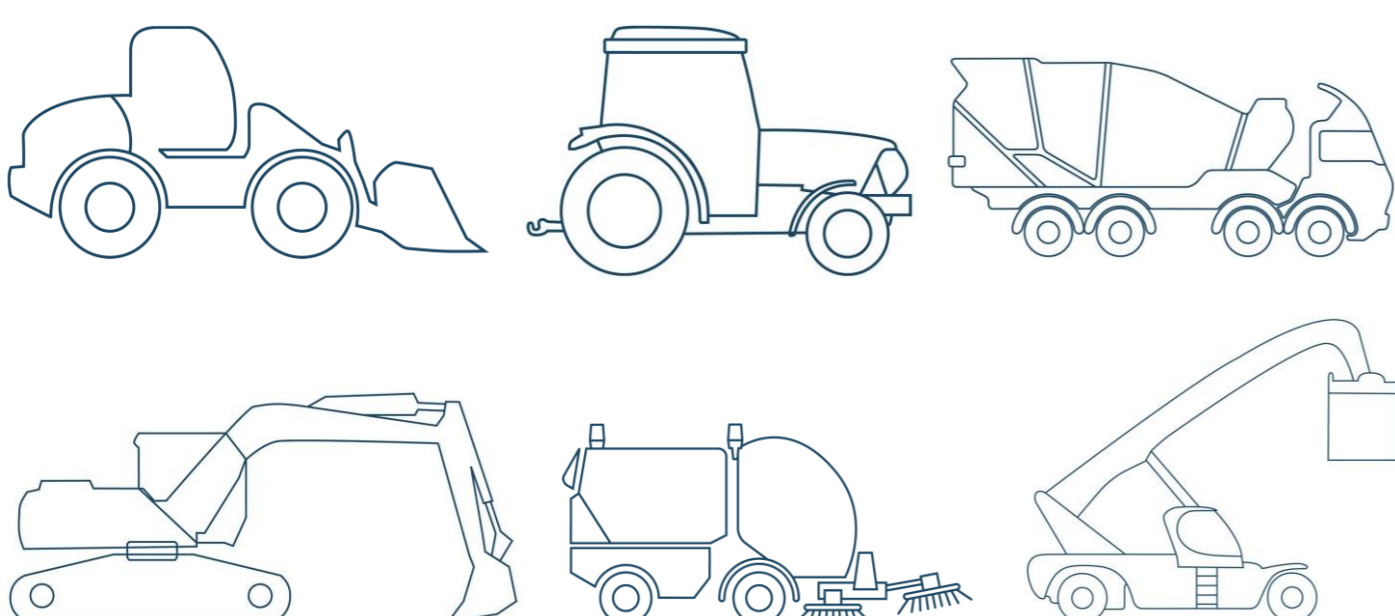
Robust design to endure off-highway conditions

In accordance with ISO 20653, the eLION DC/DC converter is rated up to IP6K7 and IP6K9K, enabling it to withstand the harsh environments, which off-highway vehicles are exposed to. Furthermore, the eLION DC/DC converter is efficiently operated between ambient temperature ranges of -40 °C to +85 °C.

Safety functions according to ISO 13849 and ISO 25119

To ensure safety on the entire vehicle, all eLION components are equipped with functional safety in accordance with ISO 13849 and ISO 25119 and are rated up to PL c on the system level. The functions provided include over and undervoltage protection, low voltage current and voltage reporting, as well as safe deactivation.

APPLICATIONS



TECHNICAL DATA

eLION DC/DC Converter EDCC1	
Nom. operating voltage range:	380 ... 870 V _{DC}
Derated operating voltage range:	350 ... 890 V _{DC}
Overvoltage protection:	920 V _{DC}
Nom. operating voltage range:	10 ... 15.5 & 20 ... 31 V _{DC}
Nom. output voltage:	14 & 28 V _{DC}
Continuous current:	250 & 143 A
Peak current:	300 & 171 A
Nominal power:	3.5 & 4.0 kW
Weighted efficiency:	up to 92%
Coolant flow rate (@ 65 °C):	> 6 L/min
Pressure drop (@ 6 L/min & 65 °C):	< 50 mbar
Data sheet:	RE96770

Easy integration with single-sided connection

To ensure easy integration, the eLION DC/DC converter is designed with a high-power density and all connectors on one side of the housing. In addition, the connectors are designed using the poka-yoke principle and with an integrated high voltage interlock (HVIL) system with passive detection.

CAN J1939 communication

As a communication bus system designed for off-highway applications, the CAN J1939 (CAN 2.0) complements the eLION DC/DC converter with its integrated UDS services. The system creates efficient communication and diagnostic channels between components.

Bidirectional operation capability

The eLION DC/DC converter supports boost and buck operation mode as well as high voltage DC link pre-charging and discharging for various battery-electric, off-highway vehicles.

- 1 = LV Connector
- 2 = B+ Connection
- 3 = HV Connector
- 4 = Cooling Channels

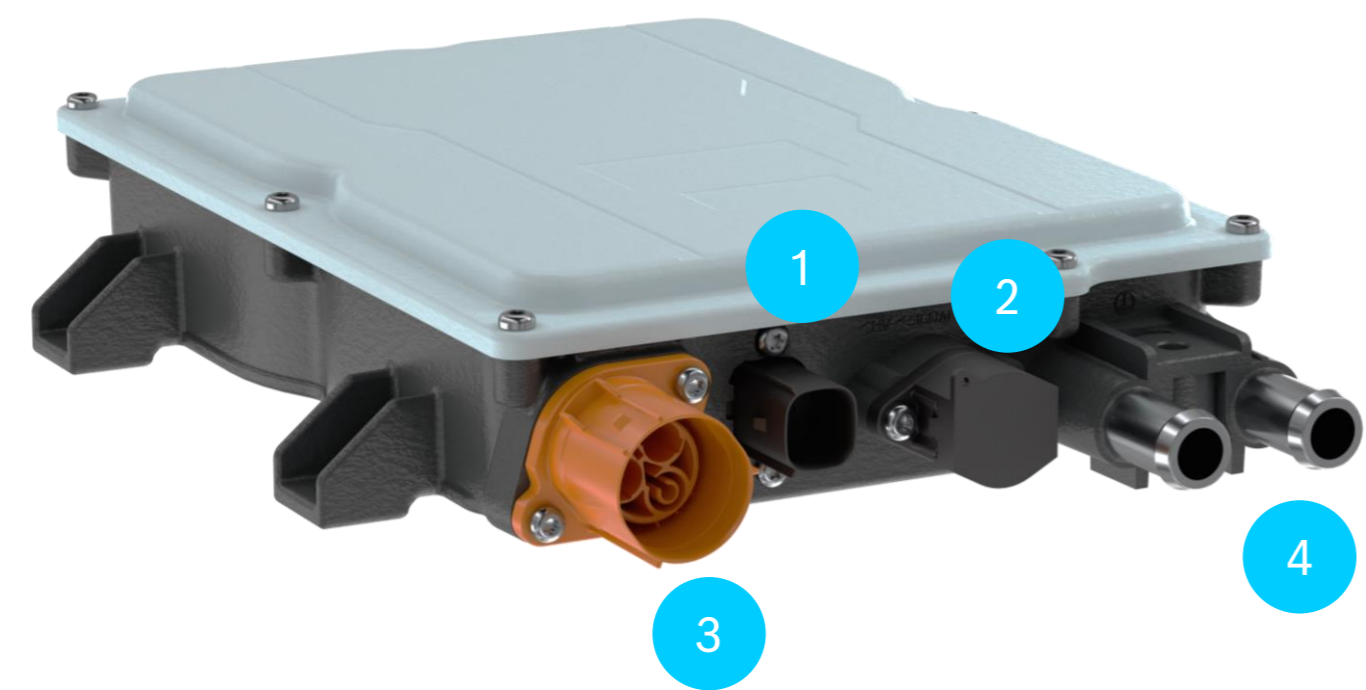


Image: EDCC1 DC/DC Converter Connections