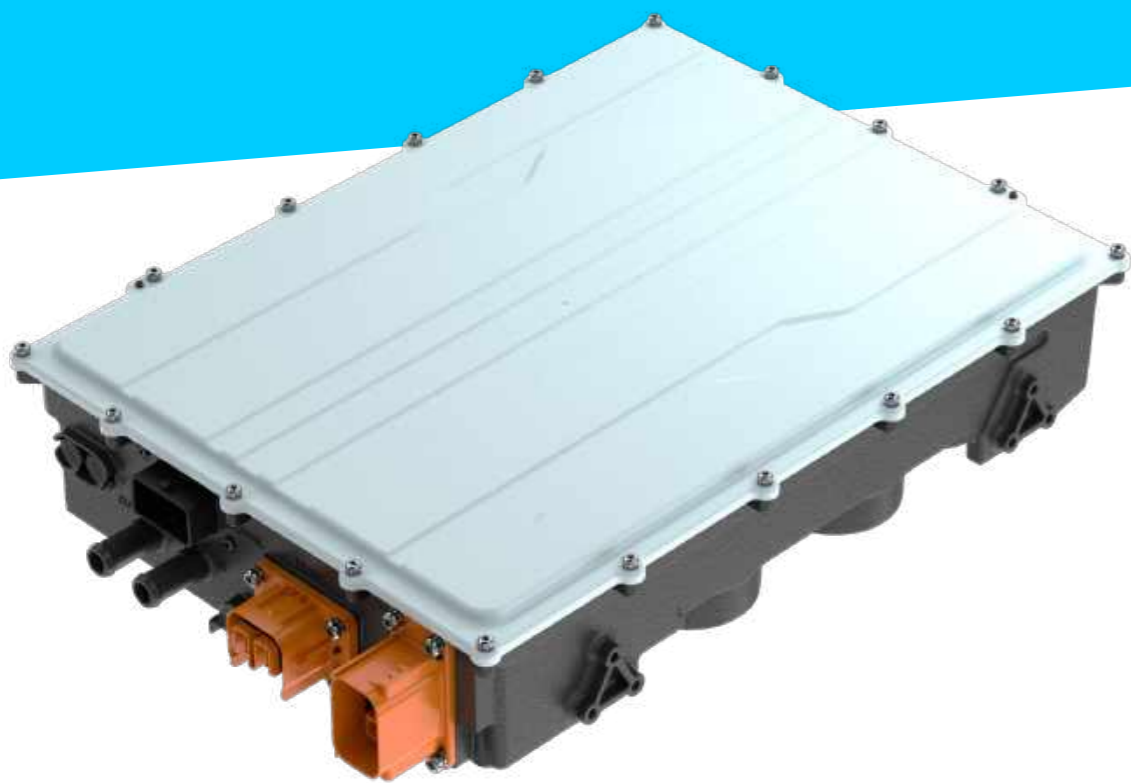


eLION Onboard Charger EOBC1

Heavy duty design for off-highway applications



Bosch Rexroth has designed its new eLION high voltage portfolio for the off-highway market with environmental sustainability as its core focus. The portfolio offers solutions for improved efficiency or even local zero emissions, as well as improved machine performance and productivity. Combined with its already existing application expertise, Bosch Rexroth is a strong engineering partner for off-highway vehicle manufacturers. Whether the application be diesel-electric, hybrid, or battery-electric, Bosch Rexroth provides the perfect solution with the eLION portfolio.

CUSTOMER BENEFITS

- Integrated AC and DC charging communication
- Robust design to endure off-highway conditions
- Safety functions according to ISO 13849 and 25119
- Easy integration with single-sided connection
- CAN J1939 communication
- 1-phase or 3-phase grid operation

FUNCTION AND BENEFITS

Integrated AC and DC charging communication

To allow operation with various charging infrastructures, the eLION onboard charger provides interfaces for AC and DC charging. The AC communication is according to standards: IEC-61851, SAE-J1772, GB/T 18487.1 and the DC communication is according to ISO 15118 and DIN Spec 70121. In addition, the onboard charger is capable of inlet management (e.g., temperature monitoring, locking actuator, and LED control).

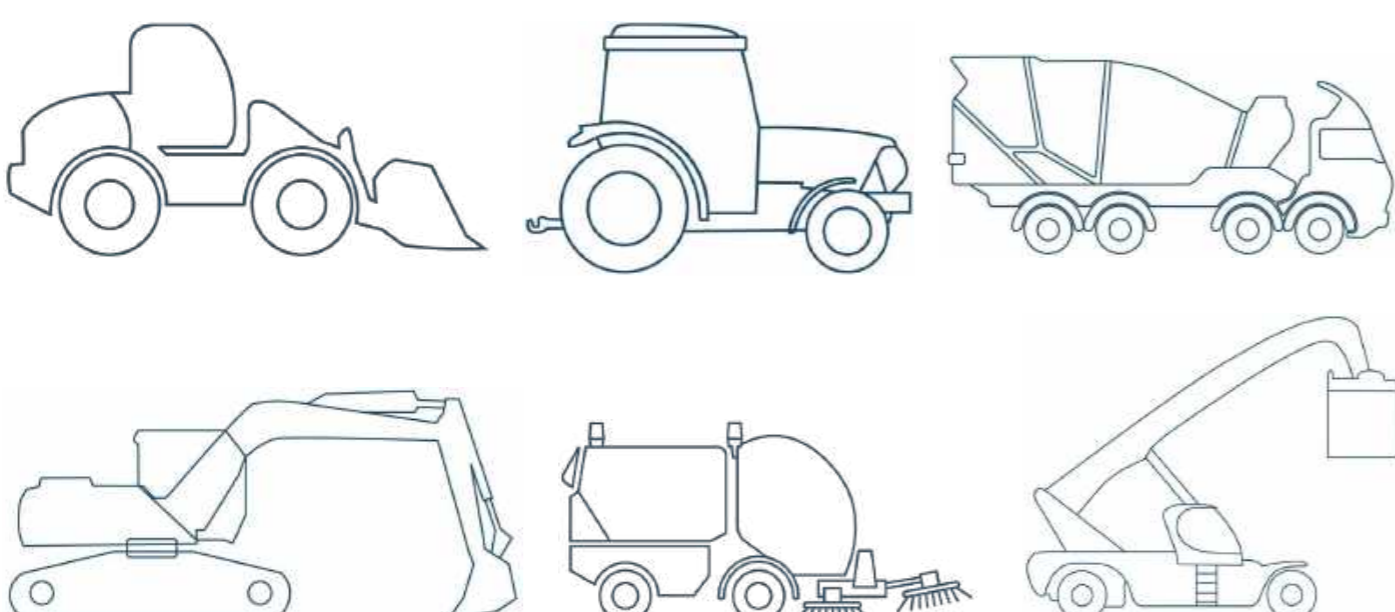
Robust design to endure off-highway conditions

With a protection rating of up to IP6K7 and IP6K9K according to ISO 20653, the eLION onboard charger can withstand harsh environments, which off-highway vehicles are exposed to. In addition, the onboard charger operates reliably between ambient temperature ranges of -40 °C to +85 °C.

Safety functions according to ISO 13849 and 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 charging plug monitoring, emergency shutdown, input and output overcurrent, output overvoltage, and overtemperature protection.

APPLICATIONS



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TECHNICAL DATA

eLION Onboard Charger EOBC1	
Maximum input power:	19.2 & 22.1 kW
Input voltage range:	80 ... 285 V _{RMS}
Maximum input current:	80 & 32(per phase) A _{RMS}
LV Supply voltage:	9 ... 32 V _{DC}
Output current:	36 A _{DC}
Output voltage range:	450 ... 860 V _{DC}
Efficiency:	up to 95%
Coolant flow rate (@65 °C):	10 L/min
Pressure drop (@ 10 L/min & 65 °C):	< 100 mbar
Data sheet:	RE96780

Easy integration with single-sided connection

To ensure easy integration, the eLION onboard charger 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 onboard charger with its integrated UDS services. The system creates efficient communication and diagnostic channels between components.

1-phase or 3-phase grid operation

The onboard chargers have been designed to operate on grids with 1-phase (e.g., USA) and 3-phases (e.g., EU). Available in stand-alone (communication to EVSE) or slave configuration (no EVSE communication). Both variants can operate in parallel with up to four devices in battery charging or voltage control mode. DC contactor actuation control is integrated as a standard feature.

1 = LV Connector

2 = AC Connector

3 = Cooling Channels

4 = HV DC Connector

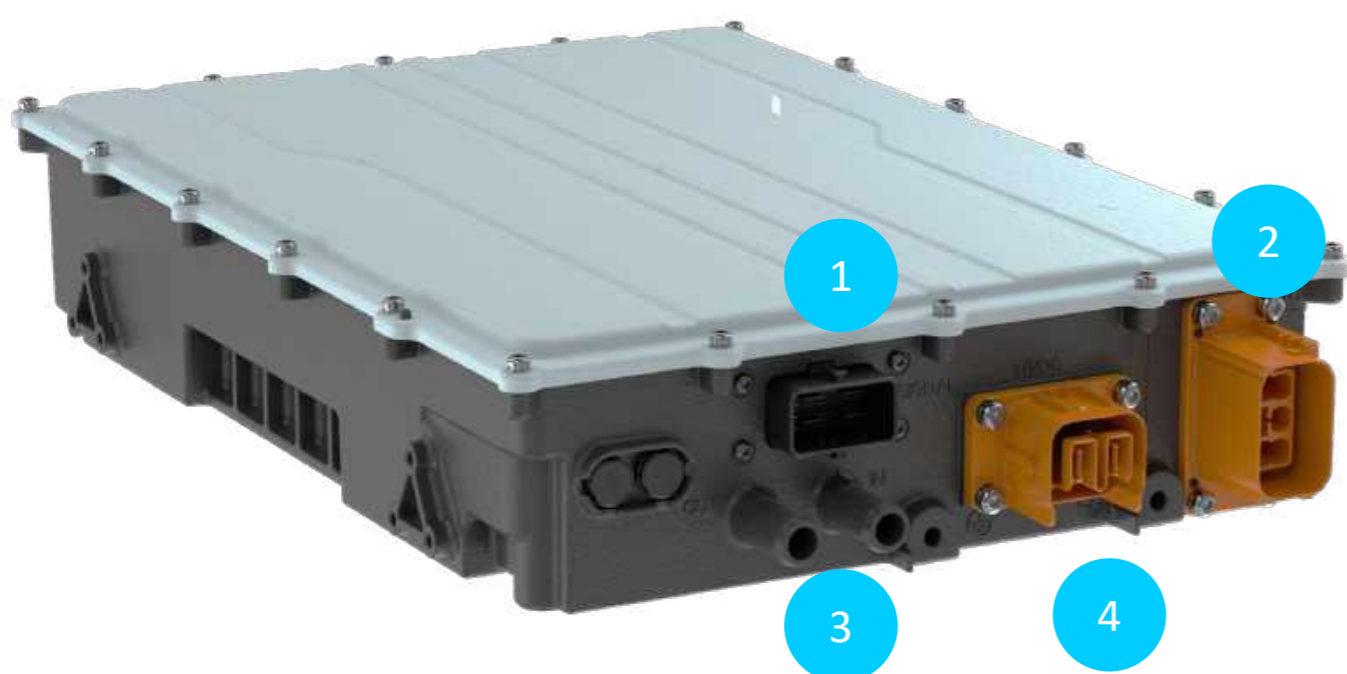


Image: EOBC1 Onboard Charger Connection Interfaces