EPC3k Bidirectional DC/DC converter by epic power

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The EPC3K is a bidirectional DC to DC power converter that can be used in a broad number of applications. It provides ultra-high efficiency in both directions with isolation. It can operate autonomously changing power direction if neccesary to stabilize either input or output voltage. This change in power direction is achieved without stopping voltage regulation. Standalone configuration allows fast and easy installation. CAN communication can be used to implement voltage or current control. Additionally, the EPC3k measures all the main relevant operation parameters (temperatures, voltages...) that are available through different communication ports.

KEY FEATURES

- Bidirectional DC to DC power conversion
- Wide input and output voltage range
- Advanced digital voltage or current control
- High efficiency
- Galvanic isolation
- Scalable from 3.3 kW to 20 kW
- Protections (Overcurrent, overvoltage, overtemperature)
- Standalone configuration
- Communications (Digital IO's, RS485, CAN)
- Customized version available on request

TYPICAL APPLICATIONS

- Power supply
- Smart grids
- Energy storage systems
- Energy recovery

ELECTRICAL SPECIFICATIONS

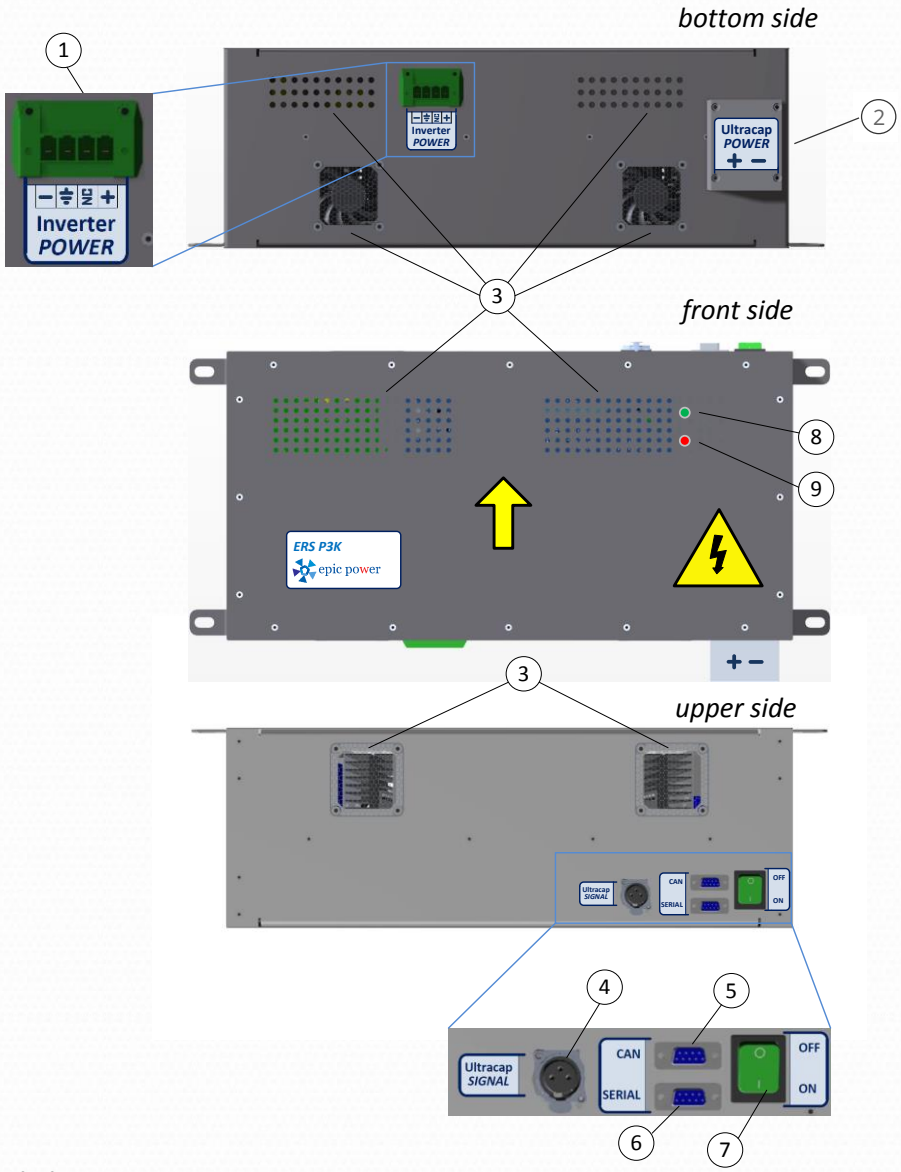
Model	**EPC3k**
Peak power	**3.7 kW**
Maximum continuous power	**2.2 kW**
High side voltage	**300 to 800 Vdc**
Maximum high side current	**6 A**
Low side voltage	**20 to 48 Vdc**
Maximum low side current	**100 A**
Max. efficiency	**98 %**

TECHNICAL INFORMATION

Dimensions (WxHxD)	**459x234x162 mm**
Weight	**10 kg**
Operating temperature	**-10 to 40 °C**
Enclosure	**IP 20**
Cooling	**Air cooled**

EXTERNAL DESCRIPTION OF THE EPC3K

Next figure shows the principal external parts of the DC/DC converter:



Part description

1 Power connection to high side voltage, P(+), GND, NC, N(-)

2 Power connection to low side voltage, P(+), N(-)

3 Cooling openings. ***DO NOT COVER***

4 Connector to ultracapacitor monitoring signals (temperature and overvoltage)

5 *CAN* communication

6 Series RS232/485 communication

7 ON/OFF switch

8 Green Led: shows the status of the ERS.

- Blinking shows that the ERS is in stand-by mode
- If the Led is on shows the ERS is transferring energy

9 Red Led: indicates an unusual situation in the operation of the ERS

- The Led may be on in a timely manner when the ERS is protected due to some previous overload situation
- If the red led is on for a long period of time, there is a failure in the ERS

APPLICATION EXAMPLES

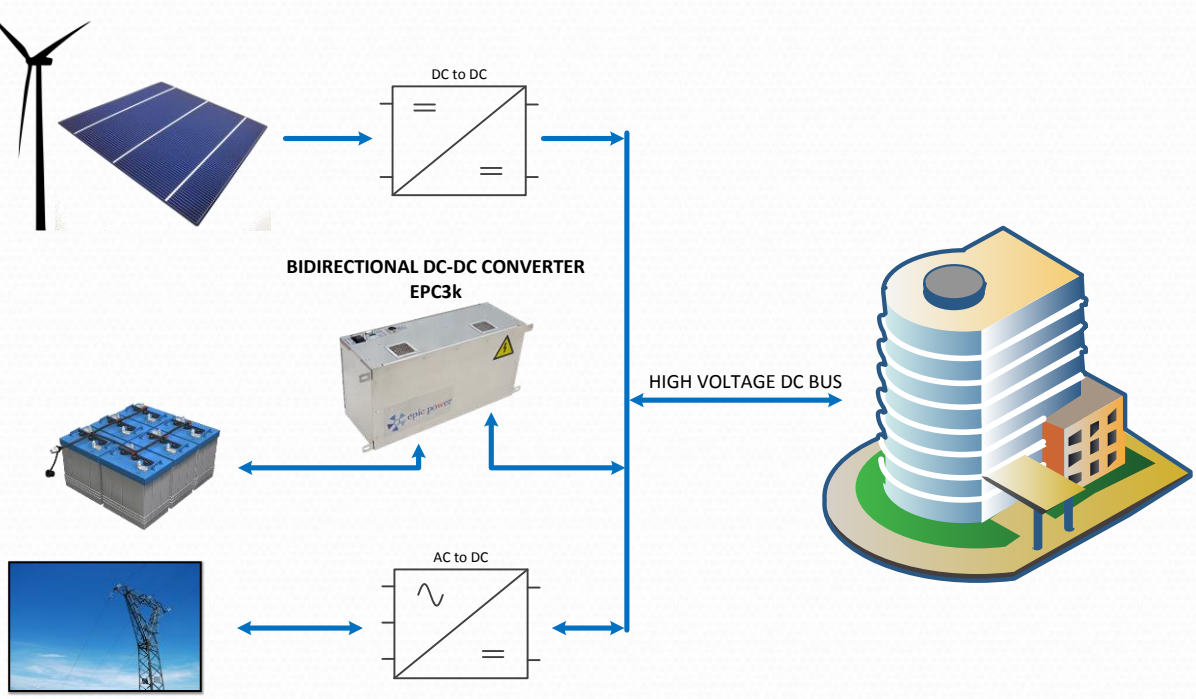


FIG. 1 SMART GRID APPLICATION EXAMPLE

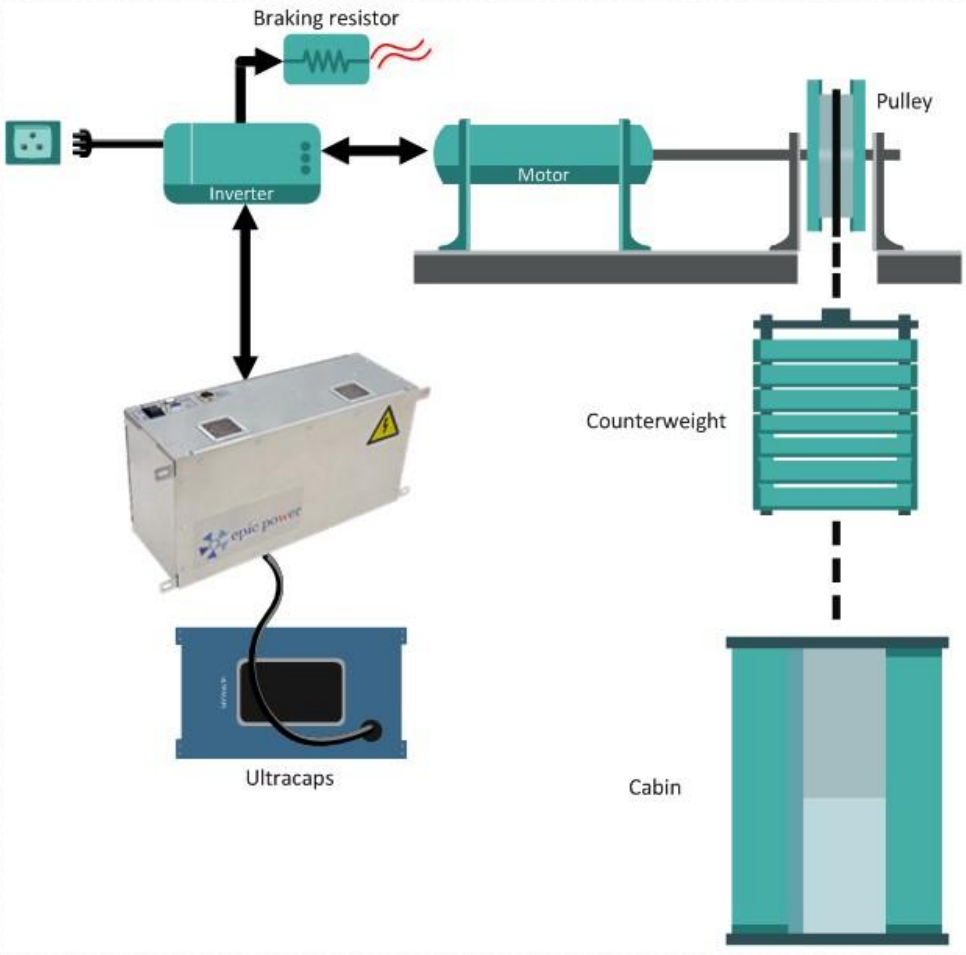


FIG. 2 ENERGY RECOVERY APPLICATION EXAMPLE

EPC3K: EXTERNAL DIMENSIONS