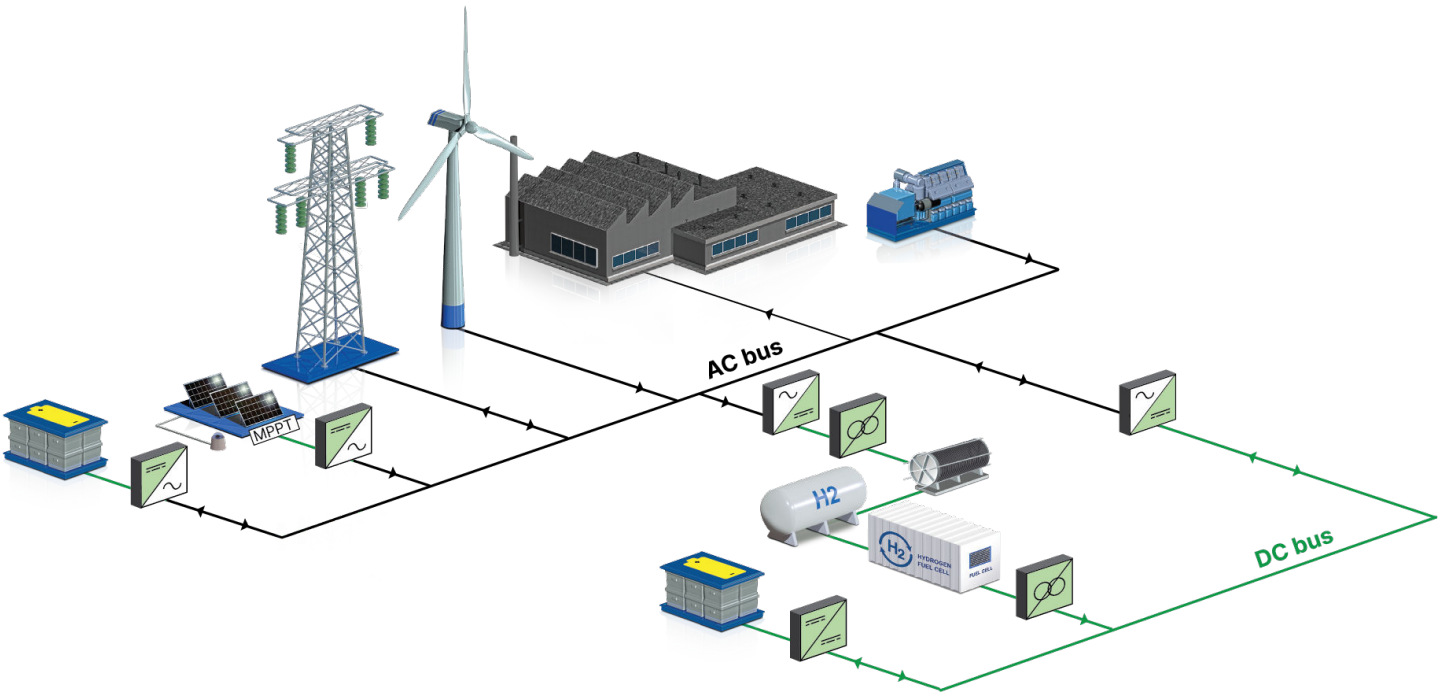
## Introducing the iE Convert




For almost 100 years, DEIF has provided reliable products to industry. DEIF's expertise includes power and energy management, advanced controllers with grid code protections, and cybersecurity. DEIF provides customer support with a global presence.

We have partnered with AVL and Wolfspeed to create power converters based on the latest silicon carbide technology. Power converters engineered by AVL have been used in demanding applications for years. Our collaboration with Wolfspeed ensures a steady supply of reliable silicon carbide MOSFETs.

## Why silicon carbide?

Silicon carbide (SiC) operates at very high switching frequency. The high switching frequency leads to smaller filters, and there is low energy loss across a wide load range. Thanks to the smaller filters, SiC power converters are smaller and lighter than similar products based on IGBTs.

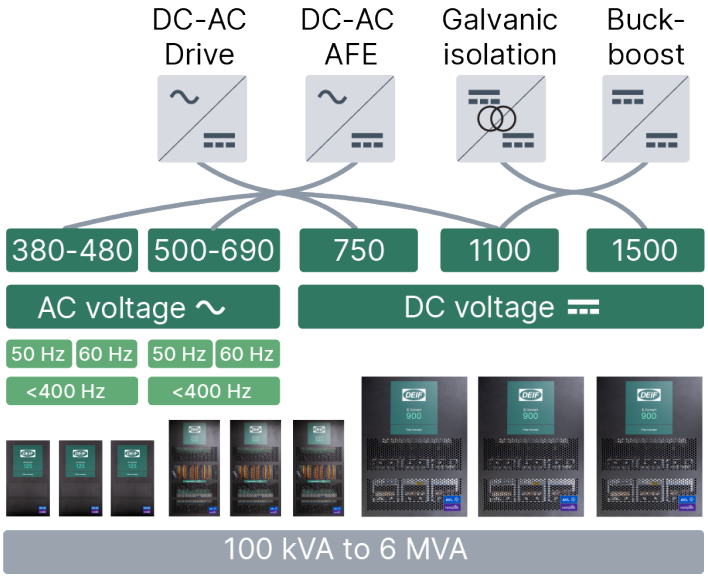
99% Lower energy losses mean a higher efficiency, which adds even more to the fuel savings. Lower losses also means less cooling demand.

SiC technology has an almost flat efficiency curve. This means energy savings at all load factors (rather than at one sweet spot).

Faster switching means more accurate energy transformation. Our converters deliver higher quality power with minimal harmonic distortion.

SiC MOSFETs can withstand a junction temperature up to 175 °C, which is much higher than IGBTs. This thermal performance enables operation at sustained higher loads and flexibility in handling peak loads.

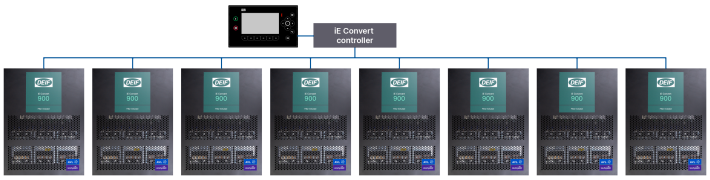
## Form factors



## How it works

iE Convert is easy to install and simple to use. The platform uses modular design, with three form factors. As a result, the iE Convert offers a wide range of power conversion capacity, from 125 kVA to 6 MVA.

You can connect the iE Convert controller to a DEIF iE controller. Up to eight power blocks can run in parallel and synchronise, with less than 5 % capacity derating. All power blocks are bi-directional.




| Power block | Power | AC current |
|---|---|---|
| iE Convert 900 | 900 kVA | 1100 A |
| iE Convert 500 | 500 kVA | 640 A |
| iE Convert 125 | 125 kVA | 175 A |

iE Convert can be used in DEIF power management solutions. For seamless power/energy management or PLC integration, you can use the CODESYS platform from DEIF. Use the MATLAB platform for simulation and verification.

## Applications

**AC-DC, AFE**
Grid-connected and/or island.

Examples: Charging/discharging a battery bank, exporting power to the grid, production of green hydrogen.

**DC-DC, Buck-boost**
To step up or step-down the DC bus voltage. This includes charging and discharging a battery.

Example: Boosting the voltage level from a solar charger.

**DC-DC, Galvanic isolation**
Isolates a power source from rest of the system, to prevent stray currents. This is available with buck-boost and battery charging-discharging.

Example: Connect a fuel cell to a DC bus.

**DC-AC, Drive**
A variable speed drive, with regenerative capability for improved overall system efficiency.

Example: Driving a crane motor.

## Specifications

**Power losses**: 1 to 3 %
**Switching speed**: 24 to 75 kHz
**AC nominal voltage**: Up to 690 V AC, at 50 or 60 Hz, and up to 400 Hz for special cases
**DC nominal voltage**: 750, 1100, or 1500 V DC
**Power/energy source**: DC, 3-phase AC
**Protections**: Voltage, current, and fault monitoring
**Supply**: 24 V DC, 5 A

**Housing**: IP22, or none (IP00)
**Ambient temperature**: -20 to 60 °C
**Coolant type**: 50:50 water:glycol mix
**Coolant temperature**: 20 to 40 °C
**Humidity**: 95 % RH, non-condensing
**Altitude**: Up to 2000 m

**Communication**: Modbus interface, EtherCAT, and/or PMS/EMS and Codesys

**Standards and approvals**: UL, Cybersecurity, CE, RoHS

## iE Convert power blocks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