TruConvert

Optimized for renewable energy systems

Modular system technology for the grid connection of renewable energy sources and energy stores
Ecological and safe energy supply.

Electrical energy is the foundation of modern life. Integrating decentralised, green alternatives to fossil fuels and the full development of remote regions are of key importance. Battery storage systems are among the core components of this transformation. They store valuable wind and solar energy, making it available the moment it is needed. The inverter that efficiently supplies and withdraws energy to and from storage plays a significant role in this process.

TruConvert modular – the trendsetting concept for battery manufacturers, system integrators and users

TruConvert, the new generation of bidirectional and modular inverters from TRUMPF Hüttinger, was developed especially for the energy-efficient operation of redox flow and lithium-ion battery systems. Thanks to the modular structure and shared direct current link, various stores and different sources can be viewed and operated entirely independently of each other. For example, the battery is charged directly by the photovoltaic system via a DC-DC converter, avoiding a detour through the grid with at least two additional inverters and corresponding efficiency losses.

Numerous customer-specific configurations allow the battery storage system to be consistently adapted to the respective requirements. The modules in 19” standard housings are also particularly easy to integrate into existing battery storage systems, and they can be combined with photovoltaic or wind energy plants to create a trendsetting system. Nothing stands in the way of expanding the battery storage system with additional energy sources or also an e-charging station. The isolated network capability of our inverters also supports the configuration of self-sufficient grid segments with black start capability and decentralised energy systems through grid forming.
The complete solution for ecological energy storage systems

✔ Unlimited options + straightforward system design
✔ Maximum energy benefit
✔ High security of investment
✔ Long lifespan + high availability
✔ Low service costs
Modular system

01 Unlimited options and straightforward system design for battery manufacturers and system integrators

Uncomplicated commissioning of the power electronics
Your industrialization times are considerably reduced! The system is readily adaptable, distinguishes itself with fast commissioning and easily integrates into your system design.

Low power losses and optimal battery design
The modular design allows for physical connection of the DC-DC converters to the stacks. Additionally, the DC-DC converter and AC-DC converter can be positioned separately.

Output scalable as desired
Possibilities are endless due to parallel connection of the components: from small units, for instance 25 kW, to midsize batteries of 100 kW and more.

Low investment costs and higher efficiency thanks to access to the DC link
The direct current link is accessible to you, enabling the efficient integration of additional system components such as photovoltaics, charging columns, hydrogen synthesis and more. This eliminates inverters between the source and storage.

Highly dynamic for load changes in the millisecond range

The concept for your success.

DC-DC converter, AC-DC inverter and system control: everything from one source and perfectly coordinated. With outstanding characteristics:
Trendsetting technology combined with a robust industrial design guarantees a high efficiency factor across a broad power range with a long service life. Trendsetting communication combined with the integrated monitoring functions also allows control of the battery storage system from anywhere in the world.
02 Maximum energy benefits

High efficiency, also in the part-load range
Only components required to accept or deliver the output are operated. This is made possible by the modular design!

03 High security of investment for system integrators and users

Security of investment
Sell a future-proof investment to your customers: no retrofitting necessary when grid forming is required. No conversion when additional applications are to be covered with the existing installation base. In short: no retrofitting on the way to a decentralised energy supply. You set up a storage system that grows along with future requirements!

Future-proof
Your unique selling point for project tenders! The standardised 19" modules grow along with the development of your storage system. This ensures you are ready for future requirements.

04 Long service life and high availability for the user

Long service life
Your formula for greater energy efficiency: Lower cooling costs = higher efficiency = reduced power loss = reduced expenditure for cooling = longer service life since the aging of the semiconductor components is considerably reduced.

Redundant continuous operation
You have the highest system availability: Thanks to the parallel connection of multiple components, your system remains operational at all times!

05 Low service costs for battery manufacturers and users

Minimised service costs and a long lifespan
We guarantee totally reduced unplanned downtime with an industrial grade design made in Germany. Short MTTR thanks to a worldwide service network.

I 4.0-ready
Real-time data monitoring, remote diagnostics, optimal operation. You can connect all components to your cloud via a secure OPC UA. The trendsetting fast communication protocol on an Ethernet basis supports huge data flows in real time. Machine learning based on the data and optimised maintenance intervals are supported as well.
One inverter for all applications.

The possible applications are unlimited. Worldwide!

AC-DC converter
01 100% flexibility in your possible applications

One for all:
For parallel mains or isolated network operation, for a 400 volt or 480 volt network, 50 Hz or 60 Hz operation, UPS or micro-grid, grid forming, district storage or network stabilisation, replacement of diesel generators, energy supply for remote regions or increasing the own consumption of photovoltaics.

02 Low replacement part inventories and straightforward service

Fast and easy handling: just one inverter type supplies your needs worldwide. That immensely simplifies service as well.

03 Out-of-balance capability and reactive power compensation

The inverter can serve as a current and voltage source. It is out-of-balance capable (up to 100 % compensation of 1 phase), can be operated in full 4-quadrant operation (reactive power compensation) and is suitable for connection to any network (360 – 530 V, 50/60 Hz).
Developed especially for redox flow batteries.

You obtain the greatest flexibility for your battery development: Smaller stacks can also be operated thanks to the low-voltage connection of RFBs.

Since this also results in reduced shunt currents, the round-trip efficiency simultaneously improves and reduced cell corrosion increases the service life of your battery.
Your TCO is significantly reduced!

The DC-DC converter makes a higher round trip efficiency possible since the occurrence of shunt currents is reduced.

Straightforward system design

Minimisation of risks in your RFB development:
You can operate smaller stacks with low voltages.

Ability for zero-volt

Eliminate an additional battery charger for forming and depth discharge.

Larger available capacity of the battery

Thanks to the depth discharge capability, the entire battery capacity is available to you.

Safe separation of the grid and battery

Connect the system directly to the low-voltage side. A transformer for potential separation is not needed. This is enabled by high-frequency potential separation on the low-voltage side.
Key technical data.

Would you like more information? No problem!

Send an e-mail enquiry to our experts
**TruConvert DC 1008**

**Electrical data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal direct current voltage (load), voltage range</td>
<td>48 V, 0 V – 70 V</td>
</tr>
<tr>
<td>Load current rated value</td>
<td>167 A</td>
</tr>
<tr>
<td>Direct current link voltage</td>
<td>850 V ± 10 %</td>
</tr>
<tr>
<td>Charge / discharge capacity rating</td>
<td>8 kW</td>
</tr>
<tr>
<td>Charge / discharge overload for 10 min.</td>
<td>10 kW</td>
</tr>
<tr>
<td>Charge / discharge overload for 1 min.</td>
<td>12 kW</td>
</tr>
</tbody>
</table>

**TruConvert AC 3025**

**Electrical data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains voltage</td>
<td>400 / 480 V ± 10 %</td>
</tr>
<tr>
<td>Mains frequency</td>
<td>50 / 60 Hz ± 10 %</td>
</tr>
<tr>
<td>Direct current link voltage</td>
<td>850 V ± 10 %</td>
</tr>
<tr>
<td>Capacity rating*</td>
<td>25 kVA</td>
</tr>
</tbody>
</table>

**System control**

**Electrical data**

Customer interface Ethernet (Modbus TCP / UDP, web server), 2 x RJ45

**Environment**

**Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating</td>
<td>-5 °C – 65 °C</td>
</tr>
<tr>
<td>Storage and transport temperature</td>
<td>-20 °C – 80 °C</td>
</tr>
<tr>
<td>Cooling</td>
<td>Fan-cooled</td>
</tr>
</tbody>
</table>

**Standards**

**EU directives (CE)**

- Low voltage directive 2014/35/EU
- Electromagnetic compatibility directive 2014/30/EU
- REACH
- RoHs

EN 62040-2 2006 / AC : 2006 class 3
EN 62109-1 2010
EN 62109-2 2011

**Safety (CE, UL)**


**EMC**

- EN 62040-2:2006 / AC class C3

* Overload under preparation
** Pending for AC 3025