

TRUMPF and Ampt Provide Flexible Power Electronics Solution for PV Solar+Storage Systems

Scalable system manages both DC and AC power solution for commercial, industrial, and EV markets

FREIBURG, GERMANY, May 12, 2022 /EINPresswire.com/ -- [TRUMPF Hüttinger](#), the leading manufacturer of process power supplies and provider of modular system technology for renewable energy sources and energy stores, and [Ampt](#), the world's #1 DC optimizer company for large-scale photovoltaic (PV) systems, today announced a suite of power electronics for PV solar plus storage systems. The flexible and scalable system manages both DC and AC power to provide system integrators and battery manufacturers with easily configurable and straightforward system designs for commercial, industrial, and electric vehicle (EV) markets.

As the renewable energy applications space grows, so does the complexity and variability between systems. Traditional PV systems used to be comprised of a PV array and a DC/AC inverter. Today's advances in energy storage technology and the increase in demand for electric vehicle (EV) charging stations now means that system integrators are responsible for incorporating diverse combinations of these mission critical subsystems into one cohesive renewable energy system. Various battery technologies have made sourcing and qualifying compatible equipment more challenging for both system integrators and battery manufacturers.

TRUMPF Hüttinger has completed projects with Ampt to solve these challenges by combining the TRUMPF TruConvert product family with Ampt String Optimizers to provide straightforward system designs that are perfectly coordinated and readily adaptable with unbeatable flexibility. The TRUMPF TruConvert product family is comprised of a bi-directional battery inverter and a bi-directional DC-DC converter. Both devices are modular to allow for system scalability from the kilowatt to megawatt ranges. Ampt String Optimizers allow the PV array to scale as well so the entire system can easily accommodate immediate and future system needs.

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The TruConvert inverters are designed to offer maximum flexibility in worldwide applications. For example, the inverters can operate in parallel with other generators or in isolated networks, in 400-volt or 480-volt networks, and in 50 Hz or 60 Hz regions. The inverter can operate as both a current and voltage source with response to load changes in the millisecond range to provide grid services and support like islanding/microgrid, black start, peak shaving, load shifting, droop control, and more.

The TruConvert DC-DC converters have a wide battery voltage range, from 0 to 950-volts, to make them suitable for use with any battery type – including lithium-ion, second life, redox-flow, and others. The modular aspect of the DC-DC converter reduces shunt currents to improve the round-trip efficiency while reducing cell corrosion to increase the battery life. The lower voltage capability of the DC-DC converter, down to zero volts, eliminates the need for an additional battery charger for forming and depth discharge while increasing the battery capacity.

Ampt String Optimizers manage power from the PV array by performing MPPT on each string of PV modules and delivering full available power at a voltage that follows the DC bus. Ampt allows the DC bus voltage to be set by either the inverter, the DC-DC converter, or the battery itself – whichever allows for optimal system design and operation for a given application. This simplifies system controls and makes complex component interoperations easier.

Using TRUMPF and Ampt products, system owners have easier access to the DC bus to efficiently integrate additional system components such as photovoltaics, batteries, charging columns, and hydrogen synthesis during system design and future upgrades. Additionally, string-level MPPT allows system owners to mix and match power levels when replacing PV modules to future proof the system and lower the total cost of ownership.

“There are obvious technical benefits of Direct DC coupling in terms of efficiency of the overall system,” said Vivek Singh, Head of Business Unit Power Conversion Systems at TRUMPF. “When, on one-side, PV panel manufacturers are fighting to increase the efficiency of the panels by even 1%, it is counter-productive to lose 3-4% at the system level due to the double conversion of AC coupled systems. We are excited, that along with Ampt, we are now able to bring an efficient solution to the market.”

“We are pleased to work with TRUMPF, who has a long history of delivering quality electronics equipment,” said Levent Gun, Ampt CEO. “By simplifying the connection of multiple devices, from PV arrays, batteries, and DC loads to industrial equipment and EVs, this innovative DC grid solution is truly unique and flexible.”

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