

Ampt String Optimizers

DC power management for lower cost and higher performing PV systems

Ampt String Optimizers are DC/DC converters that lower the cost and improve the performance of large-scale PV systems. Ampt optimizers feature patented technology that enables PV systems to deliver more value than traditional system designs without Ampt.

Ampt optimized systems are distinguished from other solutions by uniquely delivering a true spend-less-get-more value proposition. Systems with Ampt lower the total system cost on day one and deliver more energy to increase lifetime revenues.

Optimize new and existing PV systems to increase ROI

Optimize PV Systems
Lower the total cost while increasing lifetime performance of new PV power plants

DC-Coupled Storage
Lower cost and higher efficiency PV+storage solutions

Repower PV Systems
Lower cost upgrade solutions for existing PV systems to maximize annual project returns

Monitoring and O&M
Wireless communication provides string-level data to optimize O&M

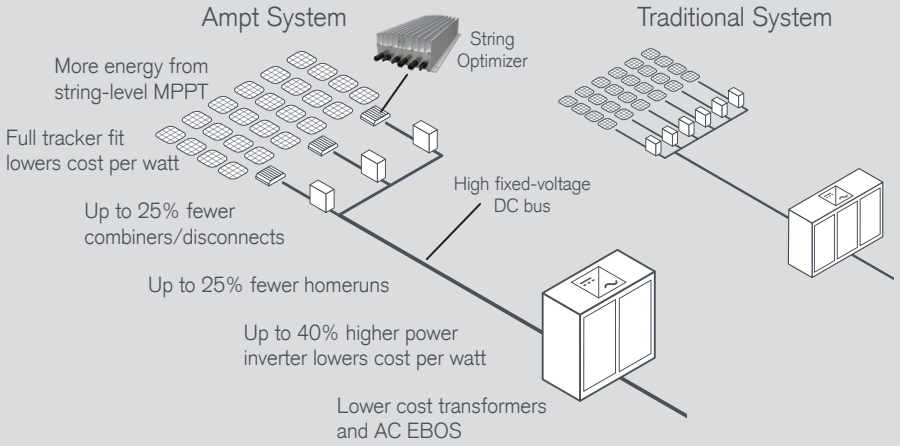
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Optimize PV Systems

Lower the total cost while increasing lifetime performance of new PV power plants

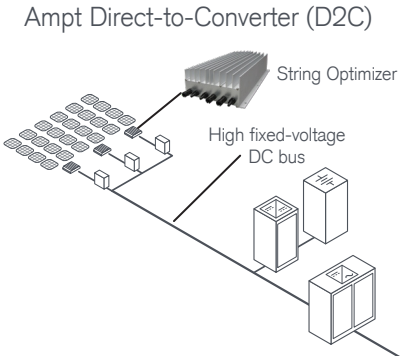
- Reduce upfront total system cost
- Increase system lifetime performance
- Realize a lower cost of energy
- Increase return on investment

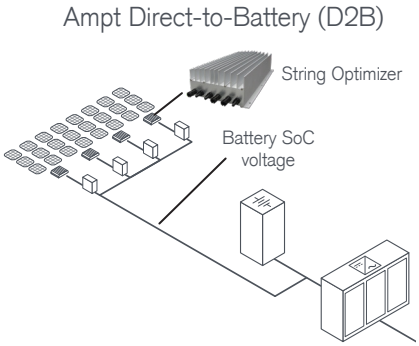


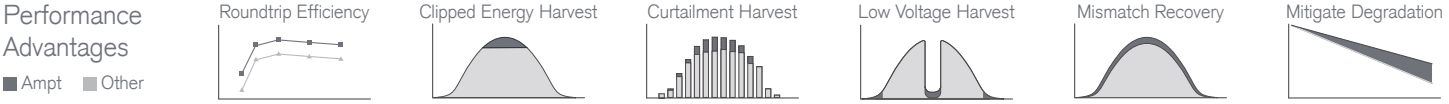
DC-Coupled Storage

Lower cost and higher efficiency PV+storage solutions

- Lower cost PV system
- Use lower-cost boost-only battery converter (D2C)
- Save by eliminating battery converter (D2B)
- Faster response to meet strict requirements in grid-forming and grid-following applications

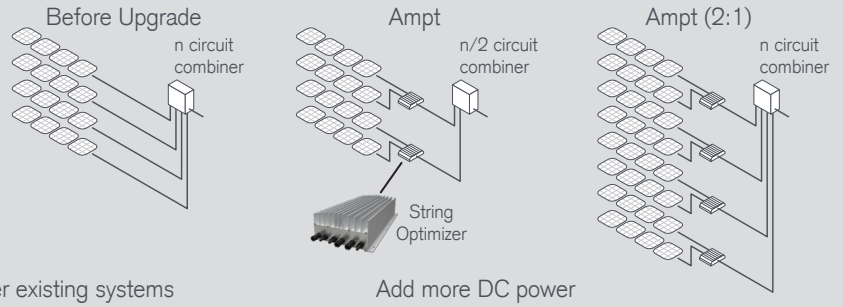






Repower PV Systems

Lower cost upgrade solutions for existing PV systems to maximize annual project returns



Upgrade inverters

Replace legacy inverters with lower cost per watt modern inverters (e.g. use 1500-volt inverters at full rated power in 1000-volt systems; or 1000-volt inverters in 600-volt systems). Deploy on existing cabling and combiners using either central or string inverters (as virtual central).

Repower existing systems

Deploy Ampt optimizers with existing wires and combiners to increase energy production by recovering degradation losses caused by mismatch.

Add more DC power

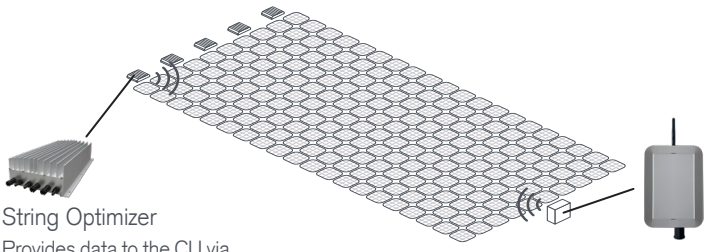
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Ampt enables DC:AC ratios of 2-to-1 or more. Use Ampt optimizers to increase the size of a PV array on existing inverters while operating within specification. Mix new and legacy modules without creating mismatch losses.

Monitoring and O&M

Wireless communication provides string-level data to optimize O&M

- Remotely track string-level performance
- Quickly identify and locate system issues
- Greater predictability to lower risk
- Reduced O&M costs



String Optimizer

Provides data to the CU via wireless communication

Communication Unit (CU)

Collects optimizer input and output data to report to your SCADA system

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Products that deliver unmatched value

Ampt String Optimizers feature industry-leading technology that enables PV systems to deliver more value than system designs without Ampt. With output currents ranging from 12 to 50 A, our diverse products are used in a variety of applications with maximum system voltages between 600 and 1500 V.



i50 String Optimizer
System voltages: 600–1500 V
Output currents: 32–50 A
Output powers: 15–70 kW



i36 String Optimizer
System voltages: 600–1500 V
Output currents: 20–36 A
Output powers: 10–52.5 kW



i32 String Optimizer
System voltages: 600–1500 V
Output currents: 20–32 A
Output powers: 9.4–45 kW



i20 String Optimizer
System voltages: 750–1500 V
Output currents: 16–20 A
Output powers: 9.3–28 kW



i13.5 String Optimizer
System voltages: 600–1000 V
Output currents: 12–13.5 A
Output powers: 5.6–12.2 kW



i12 String Optimizer
System voltage: 600 V
Output current: 12 A
Output powers: 4.8–6.8 kW

Ampt's patented features increase system ROI

Ampt String Optimizers are DC/DC converters with multiple features that lower the cost and improve the performance of new and existing PV systems.

Dual MPPT per optimizer – Ampt String Optimizers perform maximum power point tracking on each of its two input strings of PV modules. This mitigates or eliminates mismatch losses to deliver more energy under changing environmental and system conditions over the lifetime of the power plant.

V-match® – Ampt String Optimizers include V-match technology to automatically match the DC bus voltage while delivering full available power from the PV array. This increases system design flexibility, simplifies controls, and unlocks value across diverse applications.

High Fixed-Voltage Bus (HFVB) – Ampt's HFVB technology enables the DC bus to operate at a constant voltage that is higher than variable voltage systems. The fixed voltage simplifies the connection and control of system components tied to the DC bus. The higher voltage delivers power at a lower current to reduce component and system costs.

Ampt Mode® – Inverters in Ampt Mode operate in a fixed or narrow input voltage range that is closer to the maximum system voltage. This allows the inverter to deliver a higher AC output voltage at the same current which raises the inverter's rated output power up to 40% to lower the inverter's cost per watt.

String Stretch® – Ampt's patented String Stretch technology puts voltage and current limits on the output of each optimizer which doubles the number of modules per string and allows for smaller conductor sizing per kilowatt delivered to save up to 25% on electrical BOS costs.

Direct-to-Converter – For DC-coupled energy storage systems with battery converters, Ampt String Optimizers include Direct-to-Converter technology to operate the DC bus at a fixed voltage that is always higher than the battery voltage. This eliminates 50% of the battery converter's power circuitry while increasing its power density to lower the converter's cost per watt.

Direct-to-Battery® – Ampt String Optimizers include Direct-to-Battery technology which allows them to connect directly to the battery and follow its state-of-charge voltage while delivering full power from the PV array. The optimizer, battery, and battery inverter share the same DC bus without using battery converters.

High DC:AC – This Ampt feature allows PV system designers to achieve optimal DC:AC ratios; expand the DC power on existing systems without replacing inverters, combiners, or cables; optimize inverter utilization; and increase storage durations – all at a lower capex.

Full Tracker Fit – Ampt optimizers overcome string-voltage sizing constraints to fit more modules on a tracker than systems without Ampt. Increasing the number of modules per tracker allows system designers to fully use the tracker's mechanical capacity and lower tracker cost per watt.

Wireless Communication – Ampt String Optimizers incorporate wireless communication to provide string-level data that is highly accurate, synchronous, and scalable to improve O&M, as well as enhanced controls for storage applications.

ampt

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Ampt delivers innovative power conversion and communication technology that improves the way PV and energy storage systems are designed and managed. With installations and experience around the world, Ampt is lowering the cost of solar energy, improving project ROI, and broadening the market for clean and renewable energy.

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