



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

Ampt optimizers enable low-cost DC-coupled storage for new and existing PV systems



Repower PV Systems

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



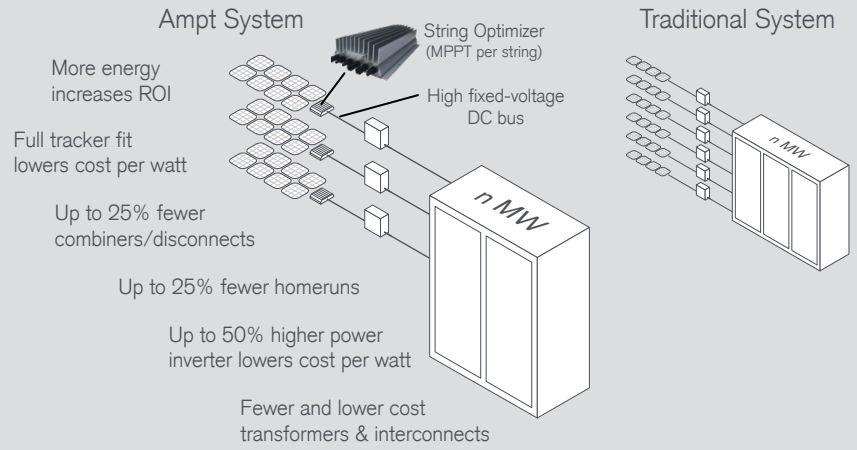
Monitoring and O&M

Optional wireless communication provides string-level data to optimize O&M

Optimize PV Systems

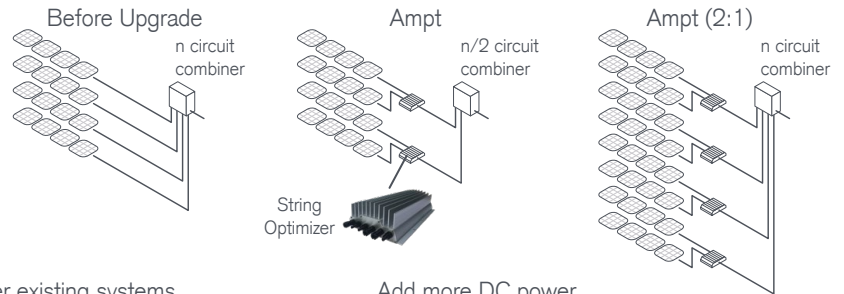
Lower the total cost while increasing lifetime performance of new PV power plants

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



Repower PV Systems

Low-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

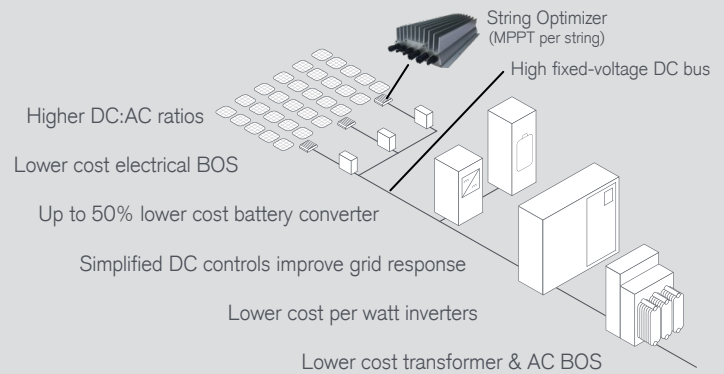


Ampt enables DC:AC ratios of 2-to-1 or more. Use Ampt optimizers to increase the size of a PV array on existing inverters while operating within specification. Mix new and legacy modules without creating mismatch losses.

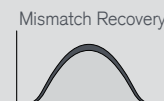
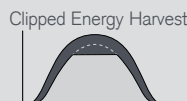
DC-Coupled Storage

Maximize ROI with innovative DC power management that delivers more energy

- Lower cost PV system
- Lower cost energy storage system (ESS)
- Optimal PV-to-inverter loading ratio (up to 3:1)
- Increase storage duration at a lower capex



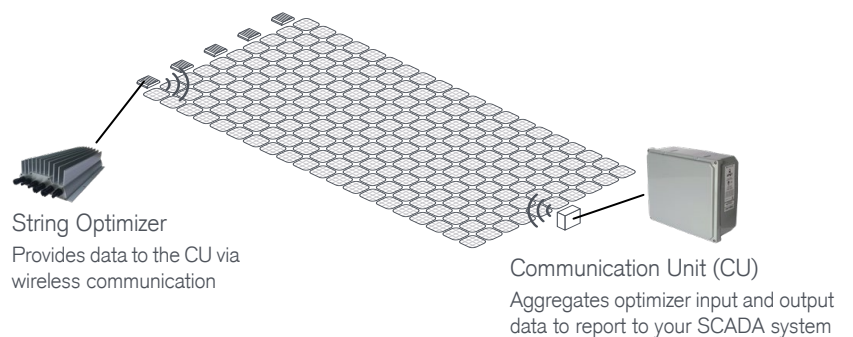
Performance Advantages



Monitoring and O&M

Optional wireless communication provides string-level data to optimize O&M

- Remotely track string-level performance
- Identify and locate problems quickly
- High accuracy, synchronous data via Modbus
- Easy mapping – match data to your site layout

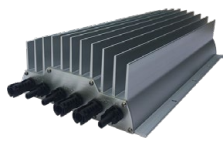


Products that deliver unmatched value

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 product series are used in a variety of applications with maximum system voltages between 600 and 1500 V.



i50 String Optimizer
Output currents: 32 – 50 A
Maximum output: 70 kW



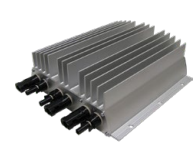
i32 String Optimizer
Output currents: 20 – 32 A
Maximum output: 45 kW



i20 String Optimizer
Output currents: 16 – 20 A
Maximum output: 27.7 kW



i13.5 String Optimizer
Output currents: 12 – 13.5 A
Maximum output: 12 kW



i12 String Optimizer
Output current: 12 A
Maximum output: 6.5 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 put 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.

High Fixed-Voltage Bus (HFVB) – Ampt's advanced DC power management technology allows for HFVB system designs which turn the variable voltage of the PV array into a fixed and predictable DC bus voltage to achieve system-level economic advantages.

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 50% 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 Ampt, the DC bus operates at a fixed voltage that is always higher than the battery voltage which eliminates 50% of the battery converters' power circuitry while increasing its power density to lower the converter's cost per watt.

High DC:AC – This Ampt feature allows PV system designers to achieve optimal DC:AC ratios (up to 3:1); 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.

V-match® – The output of our optimizers matches the DC bus voltage set by the inverter or battery converter while delivering full available power from the PV modules. This uniquely allows PV arrays with Ampt to automatically adapt to legacy or future power equipment to repower existing systems, upgrade inverters, mix new and legacy PV modules, deploy optimized DC-coupled storage systems, and other applications.

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 optional string-level data that is highly accurate, synchronous, and scalable to improve O&M.

Ampt delivers innovative power conversion technology and communications capabilities that improve the way PV systems are designed. With installations and experience serving markets around the world, Ampt is lowering the cost of solar energy, improving project ROI, and broadening the PV solar market.



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