



# SOLAR CELL OPTIMIZERS

*Transform your solar panels with cell-string-level MPPT and DC optimization*

Take the next step in DC optimization. Maxim's Solar Cell Optimizer solutions embed the MPPT function deeper in the photovoltaic system than ever before, so you're no longer constrained by the limits of conventional design or even panel-level optimization. Their unprecedented tolerance for crossbank shading allows the tightest row spacing, enabling you to deliver improved financials for even the largest PV projects.

No more costly boxes hanging off the back of your panel, no more network cabling or communications gateways, and no more hot-spot module stress. With Solar Cell Optimizers you can perform MPPT and DC optimization on each cell string. This granularity minimizes power degradation due to shading, soiling, and other sources of mismatch within the panel.

Unlike the diodes they replace, Solar Cell Optimizers do not bypass weak cell strings. Instead, they allow each cell string to deliver maximum power under the environmental conditions, enabling you to harvest more energy, achieve denser panel layouts, and improve system reliability.

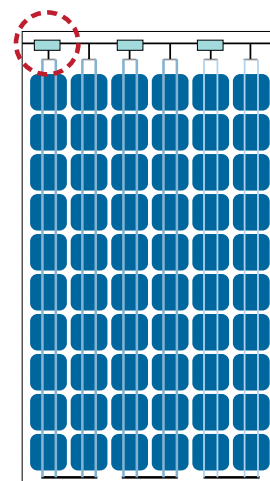
## Benefits of Cell-String-Level Optimization

**Increased Energy Harvest.** Performing MPPT separately on each cell string (from 6 to 24 cells) eliminates performance mismatch at the most granular level.

**Expanded System Size.** Improved performance with row-to-row shading allows you to increase ground coverage or roof-top energy density, so you can generate more energy from a constrained space.

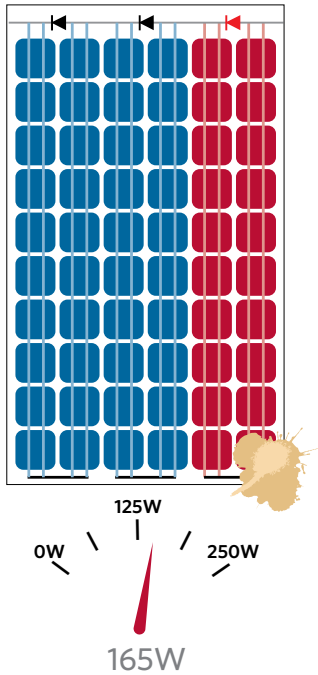
**Extended Reliability.** Optimizers replace the bypass diodes normally connected to panel strings, eliminating hot spots and associated failure mechanisms. Now the weakest cell only degrades its local cell-string, rather than the entire module.

**Lowest Solution Cost.** Fully integrated solution costs less than DC optimizer modules, and requires no additional hardware, specialized inverters, or data services.

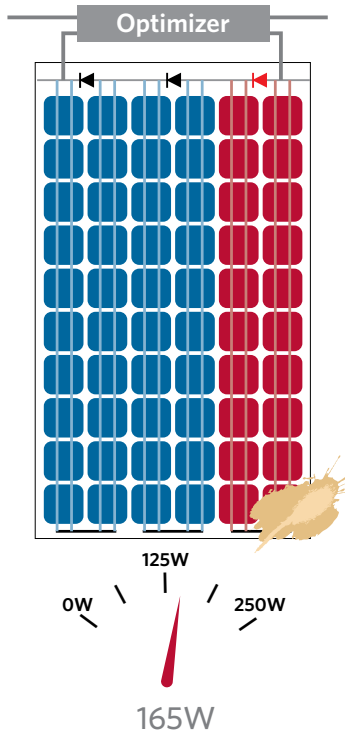


*Solar Cell Optimizers replace bypass diodes to maximize energy production and reliability.*

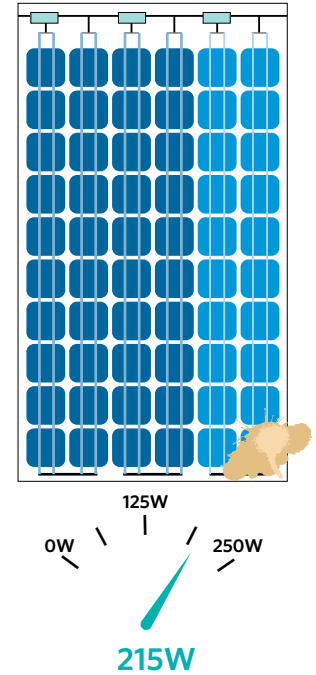
### Conventional Panel



### Panel Optimizer Module



### Solar Cell Optimizer



## The Benefits of Solar Cell Optimizers Really Add Up

Performance Benefit	Conventional Panels	Panel Optimizer	Solar Cell Optimizer
<b>Increased Energy Harvest</b>			
Panel-to-panel mismatch		✓	✓
Mismatch within the panel (shadow, soiling, etc.)			✓
Elimination of hot spots			✓
<b>Expanded System Size</b>			
Panel insertions closer to shading objects		✓	✓
High GCR arrays without performance penalty			✓
<b>Reduced Power Dissipation</b>			
Panel-to-panel mismatch		✓	✓
Mismatch within the panel (aging, PID, cracked cells)			✓
<b>High-Reliability Solution</b>			
Immune to bypass diode failure			✓
Low component count electronics	✓		✓
<b>Lowest Cost Solution</b>			
Panel Adder		10¢-20¢/W	< 5¢/W
System Adders		10¢-20¢/W	
<b>Total Cost Adder</b>		20¢-40¢/W	< 5¢/W