



## Clarity™ Optimizer

The Clarity line includes intelligent DC Optimizers that can actually improve output of an array by dynamically compensating for panel-level mismatches. Each Optimizer ensures that every panel in the array stays at its maximum power point, and collectively they manage the DC bus to transfer the maximum power to the inverter. The Clarity Optimizer also provides full panel monitoring capability.



### Maximum Power Production

The optimizers ensure that every panel in an array stays at its maximum power point while dynamically compensating for mismatches within the array. The innovative buck-boost architecture enables mitigation of both current and voltage impairments within and across strings, compensating for panel degradation, shade, soiling, temperature variations and damage.

### Performance Insight

Each optimizer provides full panel monitoring capability, continually measuring real time panel performance, providing unprecedented insight into the real time operation of large scale solar arrays. This information can then be used by the Intelligent Array™ site management system to detect and identify panel, string and area impairments affecting energy production, plus recommending action to maintain peak performance.

### Cost Effective Maintenance

Site owners and maintenance teams have confidence that the array is producing the maximum energy yield at all times, plus gain direct insight into panel damage, wiring faults, fuse problems and the effects of soiling and aging on energy production. The Clarity Optimizer also provides advanced control features for system commissioning, panel isolation, string or system shut-down and detailed diagnostics at the panel and string level.

## Simple Integration

The small, easy to deploy units, organize themselves into a dynamic wireless mesh network, passing real-time array performance information to a central collection point. In addition, patent-pending bus management features provide compatibility with all large scale inverters. These unique capabilities allow easy retrofit into existing sites, as well as enabling maximum design flexibility in new sites through string stretching, string stacking, current limiting, mixing panel types, string lengths, or mixing tilt and orientation.

## Flexible Deployment

Clarity™ Optimizers can yield power harvest gains of 20% or more in severe cases of shade or panel misalignment. However, recognizing that these conditions are not widely present across large scale arrays, the Clarity Optimizer has been designed to enable partial deployment in sections of the array known to have such problems. In arrays equipped with Clarity Monitors, the Intelligent Array can be used to recommend areas where selective deployment of Clarity Optimizers will improve performance.

## Optimizer Features

- **Autonomous, dynamic MPP tracking efficiency with >99.9% accuracy across full input voltage range**
- **DC disconnect feature for emergency panel, string or array shutdown**
- **Compatible with array series wiring topology**
- **Operates with all inverter types, operating in fixed voltage or MPP tracking mode**
- **Wireless mesh network self-configuring and self-healing, with no new wires required**
- **Voltage, current and power measured to an accuracy of 0.5% or better**

Technical Specification for the Clarity Optimizer		
Input / Output Electrical Characteristics		
Input and Output DC Voltage (Voc & Vout max)		80 V
Max Power Point Range (Vmp dc)		12V to 80V
Input and Output Current (Isc & Iout max)		10 A
Power (max)		350 W
Efficiency (Typical Operation)		98.5% -99.5%
Measurement Accuracy (% error max)		0.5%
Mechanical and Other		
Dimensions		183mm x 98mm x 21mm
Weight		Approx 12 oz
Mechanical I/O		Integrated MC4 Inout and Output
Temperature – Ambient		-30 °C - +70 °C
Cooling		Natural Convection (sealed)
Compliance		UL1741, CSA22.2#107.1, IEC 62109-1 FCC Part 15.247 & Class B, EN300328/301489
Environmental Sealing		IP65