



## Utility Ready Solar PV Inverters

Clean power.

# Total System Performance Optimization

## Unparalleled Performance

With 18 power ratings—ranging from 30 kW to 1 MW—Satcon offers the widest range of solar PV inverter solutions in the industry, enabling you to closely match array capacities and achieve maximum energy throughput.

### Edge MPPT

Features a proprietary maximum power point tracking (MPPT) system

Provides rapid and accurate control

Boosts overall PV plant kilowatt yield

Provides a wide range of operation across all photovoltaic cell technologies, including thin film, monocrystalline, and polycrystalline PV panels

### Power and Efficiency Ratings

Eighteen power ratings, ranging from 30 kW to 1 MW (UL and CE certified)

CEC efficiency rating:

97% to 98% (without transformer)

96% to 97% (with transformer)

CE efficiency rating:

97% to 98% (without transformer)

Ambient temperature range: -20° C (-4° F)<sup>1</sup> to 55° C (131° F)<sup>2</sup>

Full array nameplate power rating maintained throughout the entire MPPT DC voltage range

Superior dynamic performance in cloudy conditions

### DC Inputs at Full Power

265–320V DC to 600V DC (UL)

420V DC to 850V DC (CE)

### Printed Circuit Board Durability

Wide thermal operating range: -40° C (-40° F) to 85° C (185° F)

Conformal coated to withstand extreme humidity and air-pollution levels

<sup>1</sup> Cold weather option for Equinox to -40° C

<sup>2</sup> 55° C with additional option package

## Achieve superior performance, higher rates of return and a lower total cost of ownership, for the entire lifespan of your system.

The world's largest solar power installations depend on Satcon™ PV inverters to provide efficient and stable power. That's because Satcon's PV inverters are the most advanced and proven in the industry. Our inverters maximize array performance and uptime through a combination of system intelligence, advanced command and control capabilities, industrial-grade engineering, and total lifecycle performance optimization.

Satcon offers the industry's most comprehensive preventative maintenance and extended warranty plans, including our 99% Uptime Guarantee. Our Global Services organization is dedicated to ensuring that each Satcon solution performs with the highest levels of efficiency and reliability throughout its entire lifespan. All of these benefits combine to deliver the highest levels of system performance that you can depend on.

### PowerGate Plus is the world's most widely deployed large scale, utility ready solution.

PowerGate® Plus inverters maximize system uptime and power production, even in cloudy conditions, due to their advanced system intelligence, next-generation Edge™ MPPT technology, and industrial-grade engineering.

### Satcon Solstice delivers the industry's first complete power-harvesting and array management solution for utility class solar power plants.

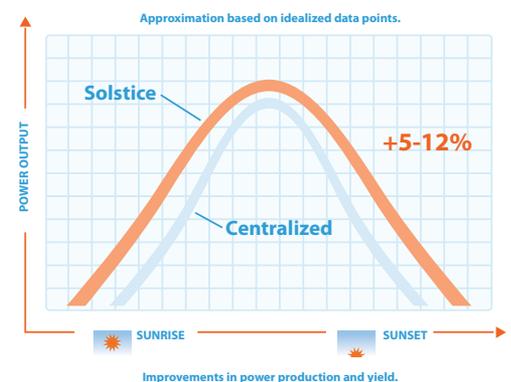
Solstice™ enables centralized, intelligent management of the entire PV system along with the flexibility of localized control over every component in the array, from the panel, to a single string, to the inverter, to the grid – thus serving as a total system solution. With Solstice, power output from each string is independently optimized, allowing each string to operate at its full potential all day. As a result, energy production from the entire array is increased by 5-12% compared to a centralized inverter system.

### Equinox delivers best in class 98.5% peak efficiency combined with the industry's widest thermal operating range.

Equinox™ comes with a standard NEMA 3R/IP54 enclosure, and is available in three separate climate packages. Equinox is built on the foundation of Satcon PowerGate Plus and Solstice, the world's most deployed large scale solar inverter solutions.

### Prism delivers a factory integrated 1 MW medium voltage (MV) solution optimized for utility scale PV installations.

Prism™ comes complete with factory integrated step up transformers, MV disconnect switches, power conversion electronics and an all-climate outdoor enclosure. Prism comes ready to connect to the PV array and utility grid, enabling fast installation through a modular prepackaged design.



## Streamlined Design

With all components encased in a single, space-saving enclosure, PowerGate Plus PV inverters are easy to install, operate, and maintain.

## Single Cabinet<sup>1</sup> with Small Footprint

No clearance required for sides and back

Convenient access to all components

Large in-floor cable glands make access to DC and AC cables easy

## Rugged Construction

Engineered for outdoor environments

Proprietary enclosure made of G-90 galvanized steel for longevity

## Output Transformer<sup>1</sup>

Provides galvanic isolation

Matches the output voltage of the PV inverter to the grid

Transformer built in; standalone transformer available as an option

## Quiet Operation

65 dB(A) standard

55 dB(A) optional

<sup>1</sup>Alternative configurations for Satcon Prism



Powergate Plus 1 MW

## PowerGate Plus Solar PV Inverters

### Commercial and Utility Scale

The world's largest solar power installations depend on Satcon PowerGate Plus PV inverters to provide efficient and stable power—even in the harshest climates.

### Broad Range of Power Ratings

With 18 power ratings—ranging from 30 kW to 1 MW (UL and CE certified)—Satcon offers the widest range of solar PV inverter solutions in the industry.

### Advanced, Rugged, and Reliable

Engineered from the ground up to meet the demands of large-scale installations, Satcon PV inverters feature an outdoor-rated enclosure, advanced monitoring and control capabilities, and Edge, Satcon's next-generation MPPT solution.

### History of Innovation

The proven leader in solar PV inverter solutions for commercial installations, Satcon sets the standards for efficient large-scale power conversion. From the introduction of the first single-cabinet PV inverter, to the first high-efficiency power conditioning system for commercial PV inverters, to the groundbreaking 1 MW PV inverter—Satcon continues to lead the way.

### Advanced, Rugged, and Reliable

Engineered from the ground up to meet the demands of large-scale installations, Satcon Solstice features NEMA4 SSB enclosure, IP54 inverter enclosure, advanced monitoring and control capabilities, and Edge™, Satcon's next-generation MPPT solution.

### Low Maintenance

Total system intelligence and modular components make service efficient

String level Maximum Power Point Tracking (MPPT)

Highly optimized DC to AC conversion

Total system monitoring, diagnostics and control

Advanced grid interconnection and utility control capabilities

Natural convection cooled SSB for simplicity and high reliability

### Rugged Construction

Hermetically sealed NEMA 4 Cabinet for Subcombiner and IP54 rating for inverter enclosure

### Output Transformer

Provides galvanic isolation

Matches the output voltage of the PV inverter to the grid

### AC Side System Value

Control of real and reactive power

Ability to stop, start and restart a solar PV power plant remotely

Controllable ride-thru

Dynamic VAR generation

Simplified Utility SCADA system integration via the Solstice PV site controller



### The industry's first complete power-harvesting and array management solution for utility class solar power plants.

Satcon Solstice enables centralized, intelligent management of the entire PV system along with the flexibility of localized control over every component in the array, from the panel, to a single string, to the inverter, to the grid – thus serving as a total system solution.

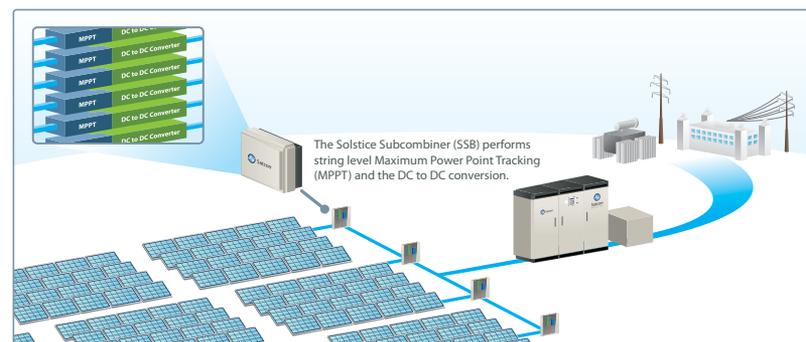
**String Level Maximum Power Point Tracking (MPPT)** ensures that the negative effects of module shading, soiling and aging mismatch are minimized and contained within the string.

### Reduce Balance of System expenses by 20-25% while gaining greater design flexibility.

String level DC to DC conversion boosts string voltages to a higher, fixed level, reducing line losses and allowing the inverter to operate more efficiently. Higher voltages result in lower current, permitting the use of smaller gauge, lower cost cable and smaller conduit sizes. Because the total design is factory integrated, your installed costs are also lower. In addition, you have greater design flexibility because you can use different panel technologies, power ratings, vintages, sizes, mounts and brands in the same array.

**Total system monitoring, diagnostics and control** provides greater visibility to poorly behaving elements in the system at the string level. Bidirectional communication allows you to stop, start and restart a solar PV power plant remotely, and receive status updates from the inverter. It also provides the ability to sense, identify and mitigate ground faults as they occur - in milliseconds.

### With Solstice, energy harvest from the entire system is improved by 5-12%



## Peak Efficiency of 98.5%\*

### Power Efficiency without Transformer

Power Level (%)	Output Power (kW)	Efficiency (%)
10	50	96.9
20	100	98.0
30	150	98.2
50	250	98.1
75	375	98.0
100	500	97.8

Note: Values shown at 425 VDC

Equinox is offered with three extreme climate packages to meet your particular application needs:

#### Equinox Desert Package:

Allows best in class operating temperatures up to 55°C<sup>1</sup> at full power

NEMA 3R/IP54 dust protected enclosure provides resistance against blowing sand particles

#### Equinox Tropical Package:

NEMA 3R/IP54 weather resistant enclosure provides protection against heavy rainfall

Corrosion resistance in harsh salt environments

#### Equinox Cold Weather Package:

NEMA3R/IP54 enclosure provides protection against sleet, snow and is undamaged by external formation of ice

Operates in cold climates down to -40°C<sup>1</sup>

<sup>1</sup> with additional option packages



Equinox 500kW

## Best in Class Peak Efficiency of 98.5%\*

### Profitable PV Power

The Satcon™ Equinox™ 500 kW PV inverter has a significant impact on the profitability dynamic of large-scale solar PV systems. With its unparalleled system intelligence, next-generation Edge™ MPPT technology, and industrial-grade engineering, the Equinox 500 kW inverter maximizes system uptime and power production, even in the harshest environments.

### Commercial and Utility Scale

The world's largest solar power installations depend on Satcon Equinox PV inverters to provide efficient and stable power—even in the harshest climates.

### Proven Performance

The proven leader in solar PV inverter solutions for commercial installations, Satcon sets the standards for efficient large-scale power conversion.

### Increased PV Plant Yield in the Widest Range of Environments

Equinox, Satcon's next generation inverter design, features best in class efficiency (98.5%) combined with three extreme climate packages to provide you with the highest levels of system performance and uptime and the utility scale solar industry's widest thermal operating range.

Equinox comes complete with a NEMA 3R/IP54 enclosure and is available in three separate climate packages in order to deliver you optimal yield in the solar industry's widest range of environments:

#### Equinox Desert Package

Designed to maximize total system power production in extreme heat and airborne contaminants, the Equinox Desert Package offers best in class operating temperatures up to 55°C<sup>1</sup> at full power, and protection against blowing sand.

#### Equinox Tropical Package

The Equinox Tropical Package delivers the same high temperature operating range along with the industry's leading ruggedized outdoor rated enclosure that protects against heavy rainfall and provides corrosion resistance in harsh salt environments.

#### Equinox Cold Weather Package

The Equinox Cold Weather package provides protection against sleet, snow and ice, with an optional operating temperature down to -40°C.

\* preliminary

**Factory integrated 1 MW system for 600VDC arrays**

2 x PVS-500 (MVT) 500kW inverters

1000 kVA oil-filled transformer (biodegradable fluid)

Integrated HV disconnect switch

Inverter and transformer on same transportable baseframe allowing for "ship and drop" installation

**Edge MPPT**

Provides rapid and accurate control that boosts PV plant kilowatt yield

Provides a wide range of operation across all photovoltaic cell technologies

**Printed Circuit Board Durability**

Wide thermal operating range: -40° C (-40° F) to 85° C (185° F)

Conformal coated to withstand extreme humidity and air-pollution levels

**Proven Reliability**

Rugged and reliable, PowerGate Plus PV inverters are engineered from the ground up to meet the demands of large-scale installations.

**Low Maintenance**

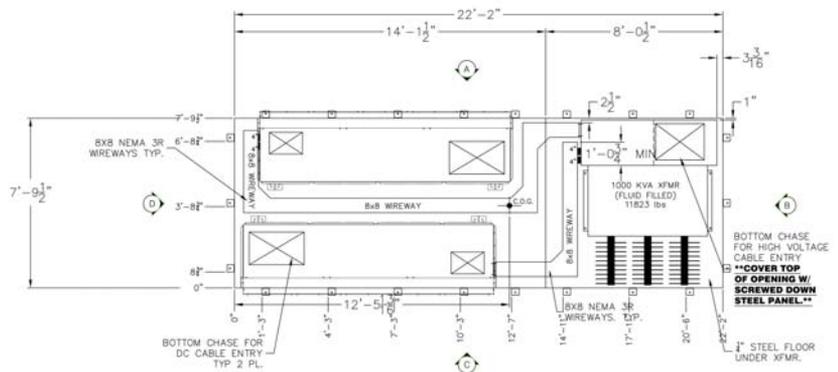
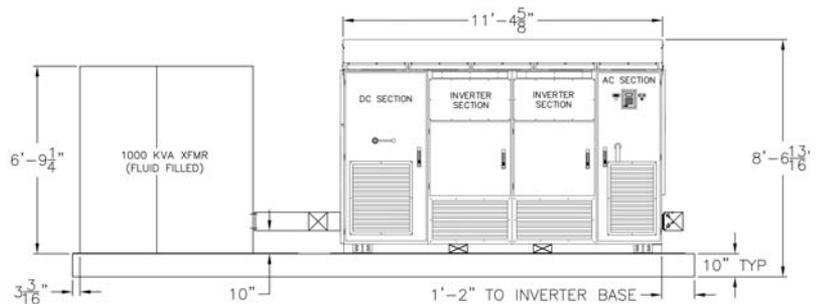
Modular components make service efficient



Prism Platform 1MW

**Satcon Prism Platform is a fully integrated 1MW medium voltage solution**

Leveraging Satcon's industry standard setting PowerGate Plus 500kW solar PV inverters, Prism Platform is a utility grade one megawatt platform, complete with factory integrated step-up transformers, MV disconnect switches, and power conversion electronics.



Note: Final dimensions will vary according to transformer size. Dimensions shown are for a 12.47 kV transformer.

# The Industry's Widest Range of Utility Ready Power Ratings

## Solstice Models



## Equinox



## PowerGate Plus Models



## Prism Platform



### Proven Reliability

Rugged and reliable, PowerGate Plus PV inverters are engineered from the ground up to meet the demands of large-scale installations.

### Low Maintenance

Proven track record of reliable performance

Modular components make service efficient

Dual cooling fans

### Safety

UBC Seismic Zone 4 compliant

Built-in DC and AC disconnect switches<sup>1</sup>

Integrated DC two-pole disconnect switch isolates the inverter (with the exception of the GFDI circuit) from the photovoltaic power system to allow inspection and maintenance

Built-in isolation transformer

Protective cover over exposed power connections

### Testing and Certification

UL1741

CSA 107.1-01

IEEE 1547

IEEE C62.41.2

IEEE C62.45

IEEE C37.90.1

IEEE C37.90.2

CE Certification

### Warranty

Five years

Extended Warranty (up to 10, 15, or 20 years)

Extended service agreement

### Satcon Smart Subcombiner

The new Satcon Smart Subcombiner accommodates up to 12 PV strings and features comprehensive diagnostic capabilities that identify string-level performance issues with remarkable speed and accuracy.



<sup>1</sup>Alternative configurations for Satcon Prism

## Total System Intelligence and Control

PV View® PLUS is a proprietary, advanced, on-demand monitoring service that allows customers to use an internet connection to retrieve information about the operation of their utility tied photovoltaic system from anywhere in the world.

Benefits of using PV View PLUS include:

- Greater visibility of PV array performance
- E-mail alerts of inverter faults and warnings
- Ability to target system maintenance to areas of greatest need
- Faster problem resolution and higher system uptime

### Daily Energy Production

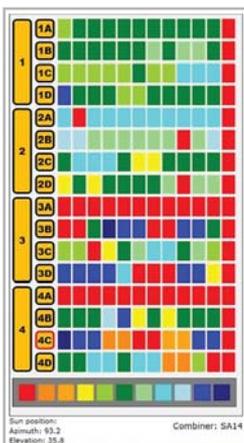


### Monthly Energy Production



PV View PLUS provides the ability to monitor the following:

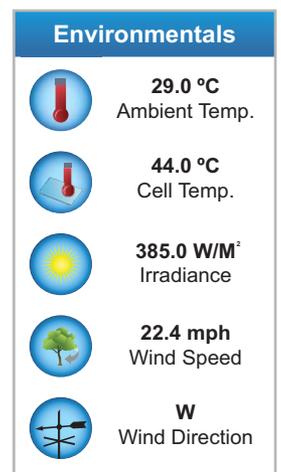
- Daily, Weekly, Monthly, and Annual Energy Production
- Inverter AC Voltage, Current and Power Output
- PV Array Input DC Voltage, Current and Power
- AC Line Power Factor
- Inverter internal temperatures
- DC current of each sub-array at the inverter (option with PV Zone®)
- DC current of each PV string (option with Satcon Smart SubCombiner)
- DC current and voltage of each PV string (option with Satcon Solstice)



With the ability to monitor individual string performance, malfunctioning or underperforming elements in the system can be quickly located and repaired\*.

With the optional weather station, users can view site specific information useful for calculating expected system performance, including:

- Irradiance
- Wind speed
- Wind direction
- Ambient temperature
- Photovoltaic cell temperature



\*View only available with Satcon Solstice or with Satcon Smart Subcombiners



Satcon's team of engineers have hands-on, proven expertise in PV systems designs and installations.

With over 100 combined years of system design experience, Satcon can help you to optimize every aspect of PV systems, from the panel to the grid.

Maximize the performance of your project through a complete understanding of the technology backbone in your system.

## Designing for Optimum System Performance

Gaining full value out of any photovoltaic system starts with optimized system design. Satcon's Design Services organization will guide you through all phases of project development using our broad experience and engineering skills. Ranging from design consulting to complete end-to-end system design, our design services team can help ensure that your system is designed to deliver optimum performance across its entire twenty plus year life span.

### Level 1: Engineering Consulting Services

Our engineering consulting services can provide you with an early assessment of your design plan and system architecture. For this Level 1 offering, we will advise you on the following aspects of your project:

- **Selection of location**
- **Selection of individual components, including panels, sub-combiners and inverters**
- **Solar array design**

### Level 2: Complete End-to-End System Design and Documentation

As follow-on to Level 1, or by itself, our design services team can provide you with a complete design solution for your system. The Level 2 package includes:

- **Drawings and Documentation**
- **Performance Forecasts**

### Additional Optional Services

In addition to the Level 1 and Level 2 packages, Satcon can also offer you the following optional services:

- **Option A: Grid Connection Services**
- **Option B: Environmental Impact Assessments**
- **Option C: Assistance/Supervision of Construction and Acceptance**
- **Option D: Quality Assurance/System Audit**
- **Option E: Pre-Commissioning System Inspection**
- **Option F: PE Stamped Drawings**



## Satcon PV Inverters

Specifications	Solstice			Equinox	PowerGate Plus													
	100kW	125kW	500kW	500kW	30 kW	50 kW	50 kW S-Type	75 kW	100 kW	110 kW S-Type	135 kW	210 kW S-type	250 kW	375 kW	500 kW	1 MW	1 MW Prism	
Full-Power MPPT DC Input Range (V DC)																		
250-575 <sup>1</sup>	●		●															
265-600							●			●		●						
305-600					●	●												
315-600								●	●		●							
320-600				●							●		●	●	●			
320-720 <sup>1</sup>	●	●																
330-600													○		○			
420-850				●					●				●		●	●	●	
Maximum Voc (V DC)																		
600 VDC	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
900 VDC		●	●	●					●				●		●	●	●	
Nominal Frequency Range (Hz)																		
59.3-60.5	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
49.3-50.5		●	●	●					●				●		●	●	●	
AC Voltage Range Set Points																		
-12%/+10%	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Power Factor = Unity																		
>0.99	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Harmonic Distortion																		
<3% THD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Efficiency w/ Transformer (CEC)																		
95%					●													
95.5%						●	●											
96%-97%	●	●	●	●				●	●	●	●	●	●	●	●	●	●	●
Efficiency w/o Transformer (CEC)																		
97%-98%			●	●									●		●	●	●	
Low Voltage Tap Line <sup>2</sup>																		
20%				●	●	●		●	●		●		●	●	●			
Forced Air Cooling																		
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Noise Level																		
<65 dB(A)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ambient Temperature Range (°C)																		
-20° C to +50° C					●	●	●	●	●	●	●	●	●	●	●	●	●	●
-20° C <sup>3</sup> to +55° C <sup>4</sup>	●	●	●	●														
Enclosure Rating (NEMA 3R, IP54)																		
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cabinet Finish																		
14-Gauge, Powder-Coated Steel					●	●	●	●	●	●	●	●	●	●	●	●	●	●
RAL 7035	●	●	●	●														
Base and Door Finish																		
16-Gauge, Powder-Coated Steel					●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hood + Base Trim Finish																		
RAL 5001	●	●	●	●														
UBC Zone 4 Seismic Rating																		
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- Standard
- Optional

<sup>1</sup> Input to SSB <sup>2</sup> The 20% boost tap on the isolation transformer increases the AC voltage output range for applications where the solar array DC operating voltage is at or near the lower end of the DC input range. This boost allows for continued inverter operation at lower DC voltage input levels. <sup>3</sup> Cold weather option for Equinox to -40°C. <sup>4</sup> 55°C with additional option package. Note: Specifications are subject to change.



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