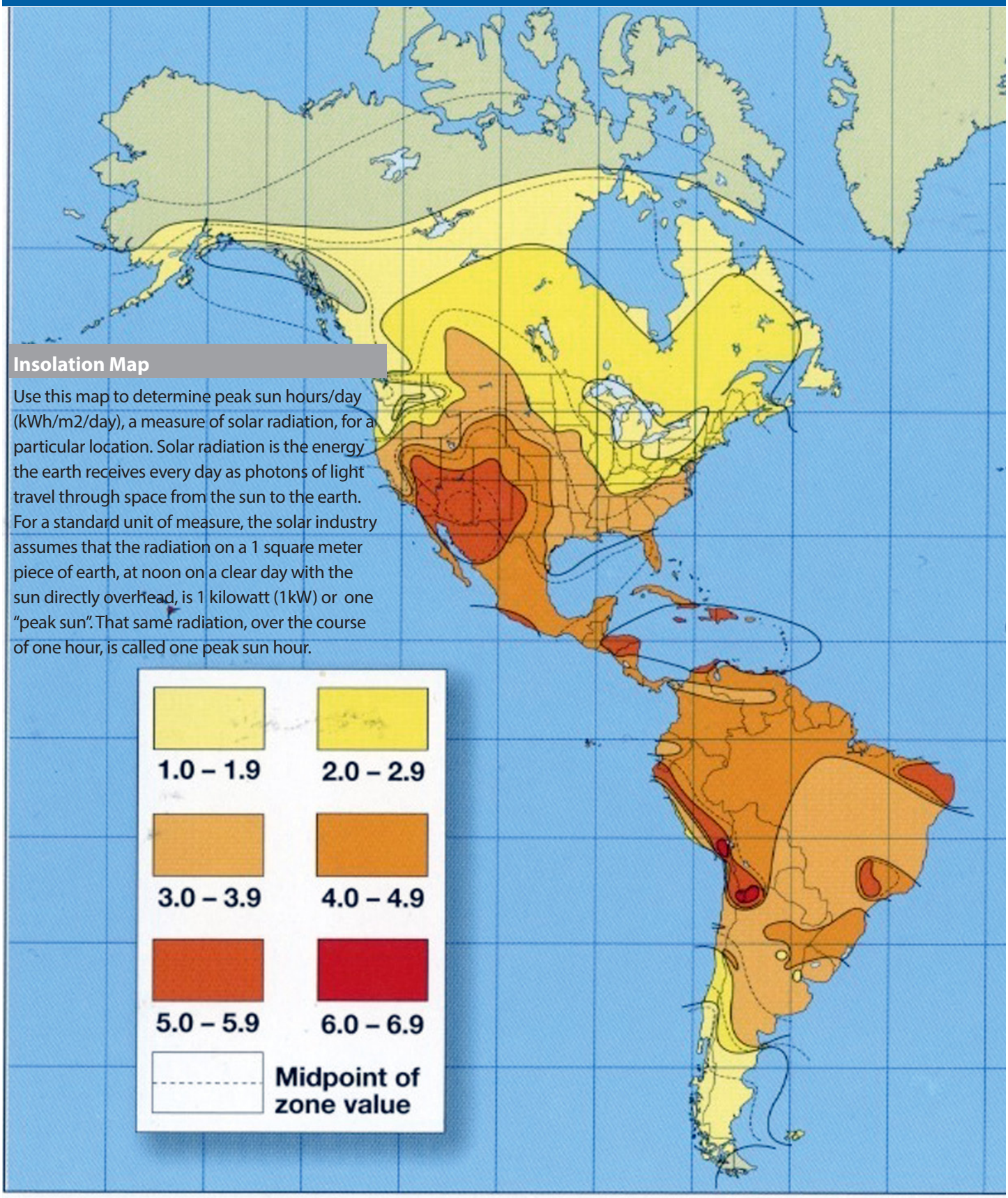
SunWize
Age of Power Autonomy

# Industrial Systems Catalog

## North and South America Insolation Map. Winter peak sun hours in worst case month.




### Insolation Map

Use this map to determine peak sun hours/day (kWh/m2/day), a measure of solar radiation, for a particular location. Solar radiation is the energy the earth receives every day as photons of light travel through space from the sun to the earth. For a standard unit of measure, the solar industry assumes that the radiation on a 1 square meter piece of earth, at noon on a clear day with the sun directly overhead, is 1 kilowatt (1kW) or one "peak sun". That same radiation, over the course of one hour, is called one peak sun hour.

# SunWize® Power Industrial System Catalog

## SunWize Power & Battery — Your Solar Engineering Department

With over 20 years of proven reliability in extreme environments, SunWize power systems have been providing industry and government with cost-effective and dependable solar power for outdoor equipment where utility power is unavailable or impractical. With installations on all seven continents, our systems continue to generate reliable power 24/7 even in the harshest environments.

### Complete System Solutions

Our expertise includes off-grid solar electric (photovoltaic) technology and solar hybrid systems that can include generators, fuel cells, or wind turbines as secondary energy sources. We also provide UPS systems for DC equipment connected to the utility grid to ensure no interruptions in operation.

- Designed by SunWize Power solar engineers to provide power 24 hours a day, 7 days a week.
- Easily integrated into your project
- Assembled and factory tested in the USA
- Robust packaging for transport to rugged locations
- Simple electrical connections in the field
- System stocking strategies available for fast turn-around shipping

### 24/7/365 Power

SunWize Power assists you in determining which standard system is suitable for your project and which of the many options meet your specific site and power requirements. Our engineers properly size systems to:

- Provide dependability during the worst winter months
- Prevent power failure
- Keep operating expenses low

### Complete Component Inventory

We also offer OEMs, controls integrators, security integrators, and telemetry integrators a broad spectrum of parts used in remote power systems such as electrical components, batteries, solar modules, enclosures, and solar module mounts for customer integration into OEM applications and custom electrical or control panels.

- High-quality solar modules and components
- Two warehouses for quick delivery– one on each coast
- Online ordering portal – SunWize Connect – for convenient online ordering 24/7, viewing product details and checking your order history or current invoices.

SunWize PR110 Power Ready System

**Mission Critical Power for All Climates and Environments**

- Deserts
- Hurricanes
- Temperature Extremes
- Tropical Rainforests
- Rocky Mountainous Areas
- Corrosive Salt Air
- Snow and Ice

SunWize 880W Power Station

# SunWize® Power Ready Systems

## For Continuous Loads of 1 to 75 Watts

SunWize Power Ready Systems are stand alone systems using solar technology to provide continuous and reliable power to remote site loads. There is no need to connect to utility power. SunWize Power Ready systems are designed for site loads requiring 12, 24 or 48 volts DC or 110V-240V 50Hz/60Hz AC.

**Proven solution:** Solar has successfully powered thousands of critical applications worldwide for more than 30 years.

**Reliability:** SunWize systems allow your equipment to operate where power quality and reliability are a concern or where utility power does not exist in the most rugged environments.

**Cost-effective:** SunWize systems are cost-effective solutions providing continuous power to critical loads. SunWize systems minimize set up and installation time for rapid deployment.

**Installation flexibility:** SunWize systems can be mounted to pole sides and tops, rooftops and the ground. They can also be adapted to towers and other structures. OEM equipment can be housed in weatherproof enclosures in remote locations.

**Shipping and handling:** SunWize Systems are designed to withstand rugged transportation to remote sites. Each subsystem is fully assembled and factory tested before shipment.

SunWize PR110 Power Ready System

SunWize PR300 Power Ready System

SunWize PR660 Power Ready System

## Key Features and Benefits:

- Meets your equipment electrical power requirements
- System load verified for voltage tolerances and duty cycle of operation
- System design verified for performance criteria, reliability and function
- Geographic location analysis provided
- Standard product line flexibility allows customization
- Cost-effective design maximizes space efficiency
- Solid state electronics
- UL, FM and CSA listed components
- 20/25-year solar module warranty
- Full system warranty for one year
- Pre-assembled for easy installation
- No environmental impact
- Low operating and maintenance costs
- Complete systems reduce specifying and buying time

# SunWize® Power Ready Systems

## SunWize Power Ready System Technical Specifications

### Environmental Specification

| | |
|---|---|
| Ambient Temperature | -30ºC to 50ºC |
| Relative humidity | 100% condensing |
| Altitude | 3000m max |
| Wind Speed | 110MPH sustained class C exposure |
| Seismic | Zone 4 |

### Electrical Specification

| | |
|---|---|
| Operating voltage range | From 6V up to 48VDC nominal |
| Array current | From 5A up to 120A |
| Load current | From 5A to 60A |
| Temperature compensation | Standard on all models |
| Array wattage | From 3 to 720 watts |
| Battery capacity | From 5 to 1060Ah |

SunWize PR120 Power Ready System

### The System

- Provides uninterrupted power to the load with a power reliability of 99.5% worst case month based on weather and insolation data specific to the site.
- Engineered for 5 days (120hrs) of autonomy based on average low temperature.

### The Modules

- Include conduit ready junction boxes.
- Comply with industry standard wind exposure of 110MPH sustained, 133MPH gust.
- Impact resistant for 25mm hail at terminal velocity.

### The Batteries

- Designed for solar applications in deep-cycle operation.
- Battery life rated for greater than 500 cycles to 80% DOD. Total battery life varies with application temperature & load characteristics.
- Maintenance free and require no watering or equalizing charge.

### The Controls

- Low voltage load disconnect, factory set for the battery type and system voltage used.
- Low voltage disconnect is set standard at 80% battery depth-of-discharge.
- Standard controls up to 20A are sealed, Class I, Div II rated.

### Protection and Safety

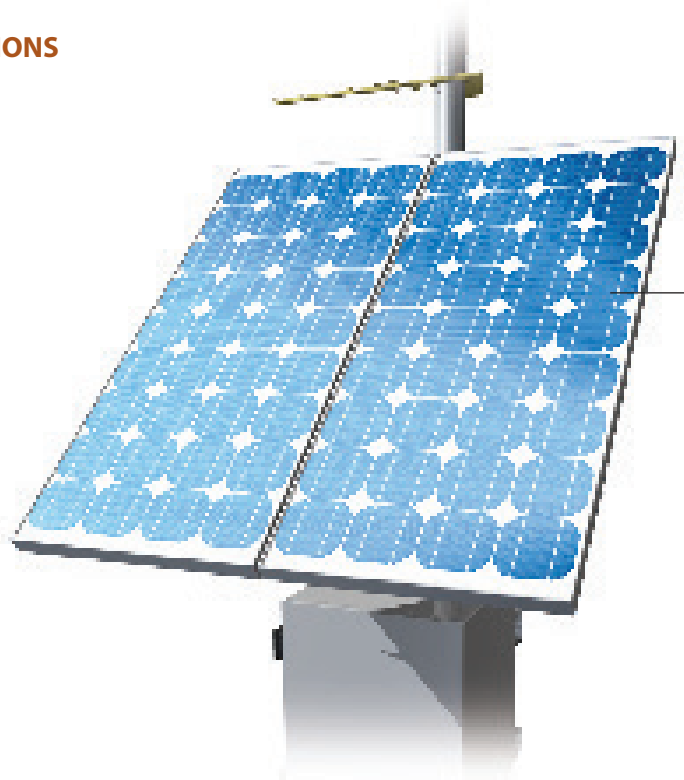
- NEC compliant circuit protection.
- Finger safe terminal blocks and covers on all switches and breakers.
- All wiring is routed in liquid tight conduit for protection from damage and the elements

# SunWize® Power Ready Systems

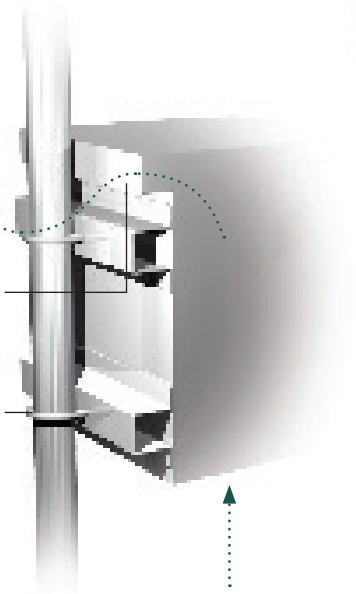
## Power Ready Model Information

## SUNWIZE POWER READY SYSTEMS FOR CONTINUOUS LOADS OF 1 TO 75 WATTS

### STANDARD CONFIGURATIONS



Solar modules are fully encapsulated to resist harsh weather conditions



# SunWize® Power Ready Systems

## Power Ready Model Information

### STANDARD CONFIGURATIONS

| PR – | ARRAY POWER | – | SYSTEM VOLTAGE | – | BATTERY CAPACITY | – | ENCLOSURE STYLE | – | STRUCTURE STYLE | – | ENCLOSURE FINISH | – | STRUCTURE FINISH | STANDARD OPTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Example:** PR240-24-108-FPWA-111

**Array Power** (Watts)

**System Voltage:** 12 Volts / 24 Volts / 48 Volts

**Battery Capacity in AmpHrs** (based on 120hr discharge rate)

**Enclosure Style**

**F** – Front opening hinged door, pole mounted
**T** – Top opening hinged door battery enclosure, ground mounted
**C** – Front opening door, captive screw cover, mil-finish aluminum, pole mounted

**Structure Style**

**P** – Side of pole mount, separate from enclosure
**G** – Ground/roof mount, separate from enclosure
**T** – Top of pole mount
**I** – Integrated mount (5 – 20W only)

**Enclosure Finish**

**W** – Powder-coated white aluminum
**A** – Mil-finish aluminum
**S** – SS-304 stainless steel
**F** – Reinforced fiberglass

**Structure Finish**

**A** – Mill-finish aluminum
**P** – Powder-coated finish
**G** – Hot dipped galvanized

**System Standard Options:**

**Wire Protection**

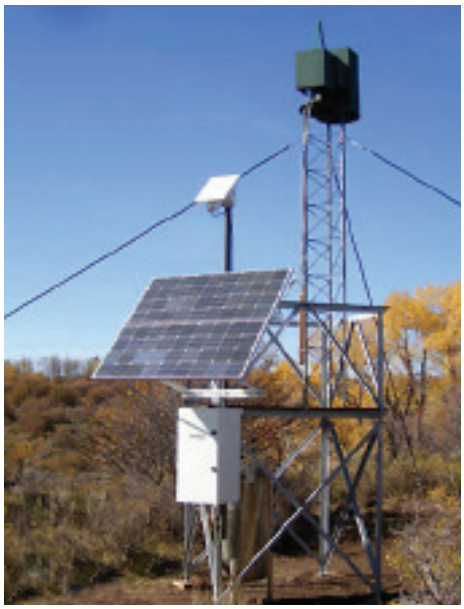
**0** – PV direct to controller w/in-line battery fuse
**1** – DC-rated circuit breakers for PV & battery

**Lightning Protection**

**1** – External surge arrestor 125VDC

**Load Distribution and Control**

**0** – Load wired directly to controller
**1** – Four terminal load distribution block
**2** – Four terminal load distribution block, w/DC-rated circuit breaker
**3** – External multi-cycle load timer, w/DC-rated circuit breaker
**4** – Integral controller, w/multi-cycle load timer w/DC-rated circuit breaker
**5** – Dusk-dawn sensor, w/DC-rated circuit breaker
**6** – Dusk-dawn sensor, w/external multi-cycle load timer, w/DC-rated circuit breaker



SunWize PR230 Power Ready System

SunWize PR110 Power Ready System

# SunWize® Power Stations

## For Continuous Loads of 75 to 3000 Watts

SunWize Power Stations are complete, integrated solar power systems designed for site loads requiring 12/24/48VDC or 110V-240V, 50Hz/60Hz AC voltage. Wired to NEC standards, each Power Station provides safe and reliable power without the expense of installing utility power. The solar array tilt is easily adjustable to maximize solar energy output. The systems are mounted on galvanized steel structures or trailers engineered to withstand harsh environments and high wind loads.

**Proven solution:** Solar has successfully powered thousands of critical applications worldwide for more than 30 years.

**Reliability:** SunWize systems allow your equipment to operate where power quality and reliability are a concern or where utility power does not exist in the most rugged environments.

**Cost-effective:** SunWize systems are cost-effective solutions providing continuous power to critical loads. Set up and installation time are minimized for rapid deployment.

**Installation flexibility:** Power Station ground mounts are designed according to site characteristics. Considerations can include surface uniformity, anchoring requirements, site area size, and wind loads to ensure longevity and durability.

**Shipping and handling:** SunWize systems are designed to withstand rugged transportation to remote sites. Each subsystem is fully assembled and factory tested before shipment.

## Key Features and Benefits:

- Meets your equipment electrical power requirements
- System load verified for voltage tolerances and duty cycle of operation
- System design verified for performance criteria, reliability and function
- Geographic location analysis provided
- Standard product line flexibility allows customization
- Cost-effective design maximizes space efficiency
- Solid state electronics
- UL, FM and CSA listed components
- 20/25-year solar module warranty
- Full system warranty for one year
- Pre-assembled for easy installation
- No environmental impact
- Low operating and maintenance costs
- Complete systems reduce specifying and buying time
- Data logging and remote control software
- Hybrid options and project services available

SunWize 880W Power Station

SunWize 1920W Power Station

SunWize PSG7680 Hybrid Power Station

# SunWize® Power Stations

## Power Station Technical Specifications

| Environmental Specification | |
|---|---|
| Ambient Temperature | -30ºC to 50ºC |
| Relative humidity | 100% condensing |
| Altitude | 3000m max |
| Wind Speed | 110MPH sustained class C exposure |
| Seismic | Zone 4 |

| Electrical Specification | |
|---|---|
| Operating voltage range | From 12V up to 48VDC nominal |
| Array load current | From 60A up to 320A |
| Temperature compensation | Standard on all models |
| Array wattage | 880 – 8200W |
| Battery capacity | 260 – 7000Ah |

### The System

- Provides uninterrupted power to the load with a power reliability of 99.5% worst case month based on weather and insolation data specific to the site.
- Battery designed for 5 days (120hrs) of autonomy based on average low temperature.
- Hybrid system: designed to work with engine genset or fuel cell to offset PV contribution and provide uninterrupted power to the load with power reliability of 100% worst case; battery designed for 3 days (72hrs) of autonomy based on average low temperature.

### The Modules

- Include conduit ready junction boxes.
- Comply with industry standard wind exposure of 110MPH sustained, 133MPH gust.
- Impact resistant for 1 inch (25mm) hail at terminal velocity.

### The Batteries

- Designed for solar applications in deep-cycle operation.
- Battery life rated for greater than 500 cycles to 80% DOD (12V cells) and 1200 cycles to 80% DOD (2V cells). Total battery life varies with application temperature and load characteristics.
- Maintenance free and require no watering or equalizing charge.

### The Controls

- Low voltage load disconnect, factory set for battery type and system voltage used. Set standard at 80% battery depth-of-discharge.
- Standard PV charge controls up to 60A each are passive cooled. Higher power configurations up to 320A are fan cooled with advanced MPPT controls to optimize energy contribution.
- Standard AC controls: AC inverter with up-to 12kW of power output, 10kW battery charging capability with integral genset controls.

### Protection and Safety

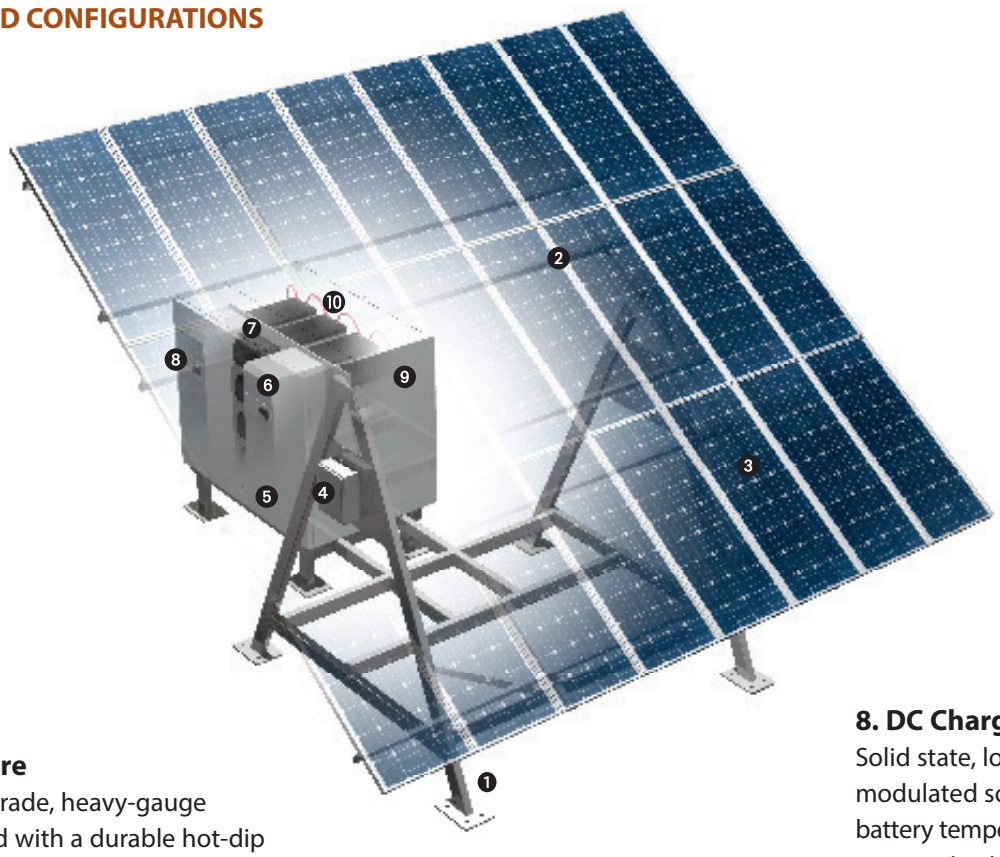
- NEC compliant circuit protection.
- Finger safe terminal blocks and covers on all switches and breakers.
- All wiring is routed in liquid tight conduit for protection from damage and the elements.
- Surge protection options protect both solar and load equipment from transients.

# SunWize® Power Stations

## Power Station Model Information

## SUNWIZE POWER STATIONS FOR CONTINUOUS LOADS OF 75 TO 3000 WATTS

### STANDARD CONFIGURATIONS




**1. Structure**
Industrial grade, heavy-gauge steel coated with a durable hot-dip galvanized finish. Available in standard platforms from 900-3600Wp (peak watts) on a single structure.

**2. Adjustable Solar Array**
Solar array tilt is easily adjustable from 15-55 degrees.

**3. Solar Modules**
Solar array, consisting of high-efficiency, crystalline silicon modules, provides reliable charging in all climates.

**4. DC Combiner Box**
Provides solar array circuit disconnects and surge protection. Simplifies assembly and testing.

**5. System Control Enclosure**
The control enclosure is a NEMA 3R powder-coated steel box housing the power distribution components, charge control and inverter/charger electronics, disconnects, system monitoring and control components. Enclosure features rainproof vents and key lockable doors.

**6. AC and DC Distribution Panels**
Customer AC and DC breaker panels conform to U.S. National Electric Code, providing overload and surge protection. Offers flexibility for multiple loads.

**7. Inverter/Battery Charger**
Microprocessor-controlled high-efficiency, sine wave inverter with three stage temperature compensated battery charger. Peak conversion efficiency of 96%, protection circuitry, LCD display with user and setup menus. Configurable from 3-12kW.

**8. DC Charge Controller**
Solid state, low frequency, pulse-width modulated solar charge control with battery temperature compensation and automatic nighttime disconnect. Configurations available from 60A to 320A. Utilizes standard and maximum power point tracking (MPPT) technologies.

**9. Battery Enclosure**
Standard battery PSF-style enclosure features white powder-coated steel construction, lockable front-opening doors, NEMA 3R louvered vented design. T-Style chest enclosures for smaller battery configurations feature white powder-coated aluminum construction and a pad-lockable, NEMA 3R vented lid. Enclosure sizes vary to accommodate batteries sized from 210AH to 3000AH.

**10. Battery Bank**
Standard system includes maintenance-free, 12V sealed, lead-acid batteries. For larger capacities, 2V industrial cells are available.

# SunWize® Power Stations

## Power Station Model Information

### STANDARD CONFIGURATIONS

| PS – | ARRAY POWER | – | SYSTEM VOLTAGE | BATTERY AH CAPACITY | – | ENCLOSURE MOUNTINGSTYLE | – | STRUCTURE TYPE | – | ENCLOSURE FINISH | STRUCTURE FINISH | – | LOCAL METERING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

### STANDARD OPTIONS

| REMOTE MONITORING OPTION | – | POWERPANEL OPTION | – | GENSET OPTION | FUEL CELL OPTION |
|---|---|---|---|---|---|

**Example:** PS-7680-48-4320-F-L01-W-G-LM01

**Array Power** (Watts)

**System Voltage:** 12 Volts / 24 Volts / 48 Volts

**Battery Capacity in AmpHrs**
(based on 120hr discharge rate)

**Enclosure Mounting Style**

**F** – Front opening hinged door
**T** – Top opening hinged

**Structure Type**

**S01** – 60" x 85" steel ground mount w/leveling feet
**S02** – 60" x 85" steel ground mount w/leveling feet and rear skid
**M01** – 80" x 102" steel ground mount
**M02** – 80" x 102" steel ground mount w/rear skid
**L01** – 80" x 120" steel ground mount
**L02** – 80" x 120" steel ground mount w/rear skid
**T01** – HD on-road trailer w 80" x 102" steel mount

**Enclosure Finish**

**W** – Powder-coated white aluminum, Nema 3R
**P** – Powder-coated white steel, Nema 3R
**S** – SS-304 stainless steel, Nema 3R

**Structure Finish**

**G** – Hot dipped galvanized
**P** – Gray Powder coat over hot dipped galvanized

**Local Metering**

**LM01** – LCD charge control display
**LM02** – LCD charge control display w/external mounting

**System Standard Options:**

**RM – Remote Monitoring Option**

**Power Panel Options**

**P3.0kW1P** – 3.0kW max 120VAC 60Hz
**P4.5kW2P** – 4.5kW max 120/240 60Hz
**P6.0kW2P** – 6.0kW max 120/240 60Hz

SunWize 1800W Power Station

**Power Panel Options:** (continued)

**P12kW2P** – 12kW max 120/240 60Hz
**P9.0kW3P** – 9.0kW max 208 3-PHASE 60Hz
**P3.0kW1PE** – 3.0kW max 230VAC 50Hz **Genset Options**
**G01** – Light duty, 3600 RPM, air-cooled LP engine 8.5–12kW
**G02** – Medium duty, 1800 RPM, liquid-cooled LP engine 10–20kW
**G03** – Heavy duty, 1800 RPM, liquid-cooled LP engine 30–60kW
**G04** – Medium duty, 1800 RPM, air-cooled diesel engine 6–15kW
**G05** – Medium duty, 1800 RPM, liquid-cooled diesel engine 10–20kW
**G06** – Heavy duty, 1800 RPM, liquid-cooled diesel engine 30–60kW

**Fuel Cell Options**

**F01** – Fuel cell, DC, 1.2kW
**F02** – Fuel cell, DC, 2.0kW

# SunWize® Power Online Systems

## For Continuous Loads of 1 to 1000 Watts

SunWize Power Online Systems provide continuous DC power with battery backup from an AC source. These fully integrated, weatherproof units convert AC primary power to charge a 12, 24 or 48 Vdc sealed battery bank while powering a DC load or an AC load with integral inverter option. Solar and generator inputs can be added when extended backup times are needed.

**Reliability:** SunWize systems allow your equipment to operate where power quality and reliability are a concern or where utility power does not exist in the most rugged environments.

**Cost-effective:** SunWize systems are cost-effective solutions providing continuous power to critical loads. SunWize systems minimize set up and installation time for rapid deployment.

**Installation flexibility:** SunWize systems can be mounted to pole sides, rooftops and the ground. They can also be adapted to towers and other structures. OEM equipment can be housed in weatherproof enclosures in remote locations.

**Shipping and handling:** SunWize Systems are designed to withstand rugged transportation to remote sites. Each subsystem is fully assembled and factory tested before shipment.

60 watt, 12V Power Online System

600 watt, 24V Power Online System

## Key Features and Benefits:

- Meets your equipment electrical power requirements
- System load verified for voltage tolerances and duty cycle of operation
- System design verified for performance criteria, reliability and function
- Geographic location analysis provided
- Standard product line flexibility allows customization
- Cost-effective design maximizes space efficiency
- Solid state electronics
- UL, FM and CSA listed components; C I, Div2 available
- Full system warranty for one year
- Pre-assembled for easy installation
- No environmental impact
- Low operating and maintenance costs
- Complete systems reduce specifying and buying time

600 watt, 48V Power Online System

# SunWize® Power Online Systems

## Power Online System Technical Specifications

| Environmental Specification | |
|---|---|
| Ambient Temperature | -30º C to 50º C |
| Relative humidity | 100% condensing |
| Altitude | 3000m max |

| Electrical Specification | |
|---|---|
| Operating voltage range | From 12V to 48VDC nominal |
| Charger current | From 5A up to 160A |
| Load current | From 5A to 100A |
| Temperature compensation | Standard on all models |
| Charger wattage | From 45 to 2000 watts |
| Battery capacity | From 5 to 1060Ah |

### The System

- System is designed to provide un-interrupted power to the load with a power reliability of 100% worst case based on weather data, specific to the design site.
- System battery is designed for 8 to 120 hours of autonomy based on average low temperature for that site. Custom back up times available.

### The Chargers

- All chargers are industrial quality with wide operating temperature range and durability.
- All systems are temperature compensated for voltage set point.
- All chargers work over wide voltage input range (either 85 – 264VAC universal input or 120/240V switch select). Other voltages available.

### The Batteries

- Batteries used are intended for deep-cycle operation.
- Battery life is rated for greater than 500 cycles to 80% DOD. Total battery life varies with application temperature and load characteristics.
- Batteries are maintenance free and require no watering or equalizing charge.

### The Low Voltage Disconnect

- Standard systems include Low voltage disconnect, with system factory set for the battery type and system voltage used.
- Standard disconnect up to 20A are sealed, Class I, Div II rated. Optional 15A 48VDC available.

### Protection and Safety

- NEC compliant circuit protection.
- Finger safe terminal blocks and covers on all switches and breakers.
- All wiring is routed in liquid tight conduit for protection from damage and the elements.

# SunWize® Power Online Systems

## Power Online Model Information

### STANDARD CONFIGURATIONS

**PO –** _____ – _____ – _____ – _____ – _____ – _____ – _____

CHARGER POWER | SYSTEM VOLTAGE | BATTERY AH CAPACITY | ENCLOSURE MOUNTING STYLE | ENCLOSURE FINISH | CHARGER FEATURE OPTIONS | SYSTEM OPTIONS

**Example:** PO600-24-108-FWY-a

**Charger Power** (Watts) 45, 60, 100, 120, 150, 240, 300, 600, 1000 and 2000

**System Voltage:** 12 Volts / 24 Volts / 48 Volts

**Battery Capacity in AmpHrs** (based on 120hr discharge rate)

**Enclosure Mounting Style**

**F** – Front opening hinged door, pole mounted
**T** – Top opening hinged door battery enclosure, ground mounted with pole mounted controls

**Enclosure Finish**

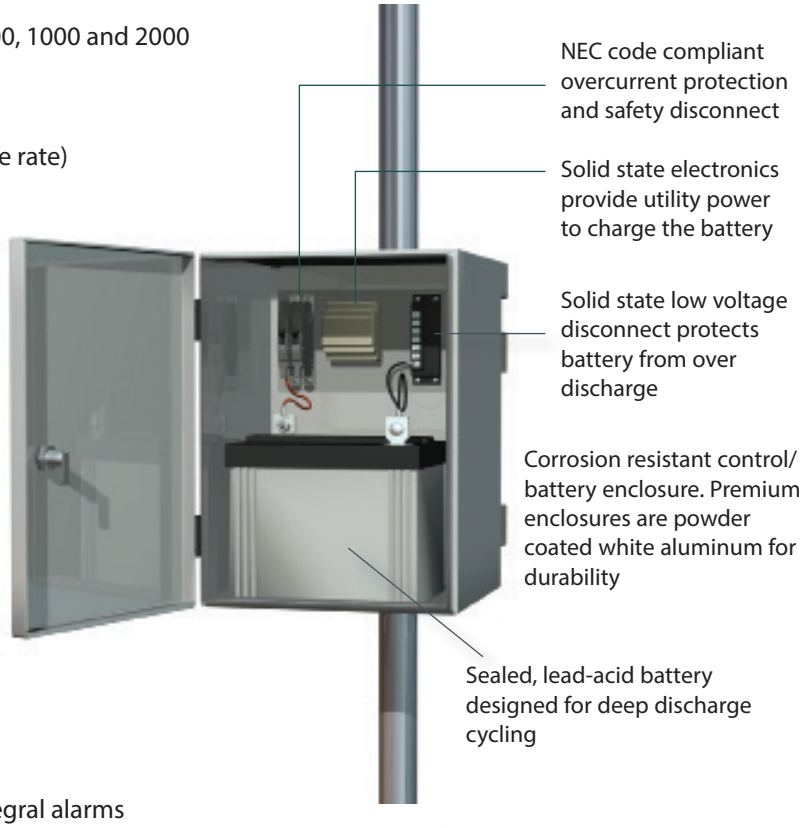
**W** – Powder-coated white aluminum
**S** – 304 stainless steel
**F** – Fiberglass reinforced polyester

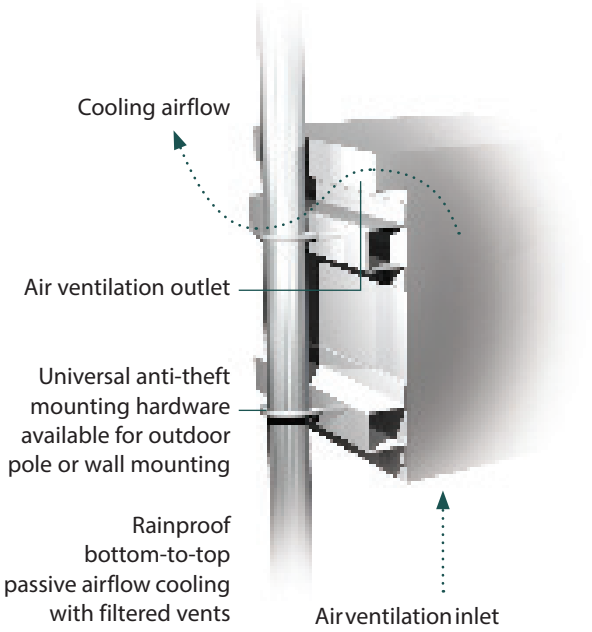
**Charger Feature Options:**

W – Class I Div II rated charger 90-264VAC 50/60Hz, w/integral alarm
X – Standard charger 90-264VAC 50/60Hz, no integral alarms
Y – Industrial charger 120/240VAC 60HZ, integral alarms and LCD Display
Z – Mil-Spec sealed charger, 90-264VAC 50/60Hz, no integral alarms

**System Custom Options**

a – DC-to-DC converter for additional 12, 24 or 48V output
b – DC-to-AC inverter for 120VAC/60HZ or 230VAC/50HZ
e – Customer equipment integration
g – LOC, load output cable
h – BD, bird deterrent spikes on top of enclosure
j – LVA, low battery voltage relay
k – M, remote monitoring via SNMP or RS-232
n – SP, surge protector for RF/coax protection
o – DIN-rail kit on side/top plate
p – PoE single port injector
q – Door alarm relay
r – AC Utility fault alarm relay
x – Custom option



# When do companies turn to SunWize?

When **Chevron Energy Solutions**, a division of Chevron U.S.A. Inc., began beta testing a stand-alone, solar powered steam isolation valve system used to shut off remote steam lines on a pre-programmed schedule dictated by specific outside temperature parameters.

When a leading **Fortune 500 telecommunications company** required mission-critical power for a base transceiver station (BTS) and microwave communications in the Mojave Desert of Southern California.

When one of the **world's largest defense contractors** needed multiple power systems to work with their specific backup generator's requirements for remote surveillance.

When an **industry-leading security installer** sought a cost-saving power solution for a wireless telemetry surveillance camera system for a chemical refining plant located at a dock.

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