



# NATIONWIDE BATTERY



## SOLAR PREMIUM LINE FLOODED SPRE 12 225

1900 CYCLES @ 50 % DOD

### • TRULY DEEP CYCLE – 8 YEARS LIFE BASED ON IEC 61427

- BCI Group 921, 12V
- Reserve Capacity [Ah@20hr rate]: 204
- Reserve Capacity [Ah@100hr rate]: 225
- Energy [kWh]: 2.70
- Weight: 132 lbs.
- Length: 14.97 in (380 mm)
- Width: 6.91 in (176 mm)
- Height: 14.71 in (374 mm)
- LT
- BAYONET / SINGLE POINT



### Premium Line Flooded

Renewable energy applications operate under challenging conditions such as fluctuating or extreme temperatures, remote locations and the intermittent nature of solar and wind power generation. Designed to deliver long battery life, Trojan Battery's Solar Premium Line of flooded deep-cycle batteries is specifically engineered to withstand the rigorous conditions of renewable energy applications. The Solar Premium Line incorporates advanced battery features such as Trojan's DuraGrid™, MaxGuard® XL separator and Alpha Plus® Paste technologies that provide superior performance, rugged durability and exceptional long life. In addition, Trojan has addressed the issue of partial state of charge (PSOC) by introducing our proprietary new technology, Smart Carbon™, to our Solar Premium Line of deep-cycle batteries. Trojan's product strategy is focused on one simple objective – manufacture the highest quality battery available in the industry, which is why Trojan's Solar Premium Line is tested to IEC standards.



# DATA SHEET

MODEL SPRE 12 225  
 VOLTAGE 12V  
 CAPACITY 225Ah @ 100Hr  
 MATERIAL Polypropylene  
 BATTERY TYPE Deep Cycle Flooded / Wet Lead Acid Battery

**6V**



\*Polyon™ Case

## PRODUCT + PHYSICAL SPECIFICATIONS

BCI Group Size	Type	Voltage	Cell(s)	Terminal Type <sup>6</sup>	Dimensions <sup>c</sup> Inches (mm)			Weight Lbs. (kg)
					Length	Width	Height <sup>f</sup>	
921	SPRE 12 225	12	6	6	14.97 (380)	6.91 (176)	14.71 (374)	132 (60)

## ELECTRICAL SPECIFICATIONS

Cranking Performance		Capacity <sup>A</sup> Minutes		Capacity <sup>B</sup> Amp-Hours (AH)							Energy (kWh)	Internal Resistance (mΩ)	Short Circuit Current (amps)
C.C.A. <sup>D</sup> @ 0°F (-18°C)	C.A. <sup>F</sup> @ 32°F (0°C)	@ 25 Amps	@ 75 Amps	2-Hr	5-Hr	10-Hr	20-Hr	48-Hr	72-Hr	100-Hr	100-Hr		
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## CHARGING INSTRUCTIONS

Charger Voltage Settings (at 77°F/25°C)				
System Voltage	6V	12V	24V	48V
Maximum Charge Current (% of C <sub>20</sub> Rate)*	13 %			
Maximum Absorption Phase Time (hours)	4			
Absorption Voltage**	---	14.70	29.40	58.80
Float Charge	---	13.50	27.00	54.00
Equalize Charge	---	16.20	32.40	64.80

Do not install or charge batteries in a sealed or non-ventilated compartment. Constant under or overcharging will damage the battery and shorten its life as with any battery.

\* If Charging time is limited contact Trojan Technical Support for Assistance

\*\* In cases where controller has a bulk voltage setting, use absorption voltage setting above



Designed in compliance with applicable BCI, DIN, BS and IEC standards. Tested in compliance to BCI and IEC standards.



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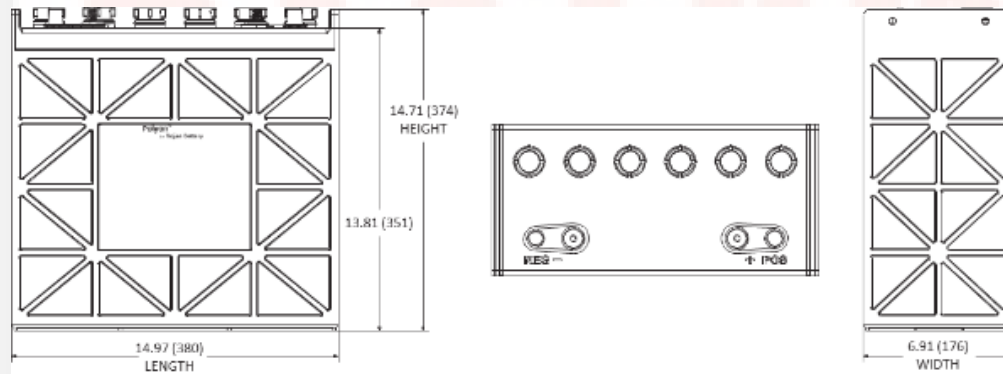
## CHARGING TEMPERATURE COMPENSATION

Add	Subtract
0.005 volt per cell for every 1°C below 25°C	0.005 volt per cell for every 1°C above 25°C
0.0028 volt per cell for every 1°F below 77°F	0.0028 volt per cell for every 1°F above 77°F

## OPERATIONAL DATA

Operating Temperature	Self Discharge
-4°F to 122°F (-20°C to 50°C) At temperatures below 32°F (0°C) maintain a state of charge greater than 60%	Less than 3% per month depending on storage temperature conditions

## BATTERY DIMENSIONS



## EXPECTED LIFE VS. TEMPERATURE

Chemical reactions internal to the battery are driven by voltage and temperature. The higher the battery temperature, the faster chemical reactions will occur. While higher temperatures can provide improved discharge performance the increased rate of chemical reactions will result in a corresponding loss of battery life. As a rule of thumb, for every 10°C increase in temperature the reaction rate doubles. Thus, a month of operation at 35°C is equivalent in battery life to two months at 25°C. Heat is an enemy of all lead acid batteries, FLA, AGM and gel alike and even small increases in temperature will have a major influence on battery life.

- A. The amount of amp-hours (Ah) a battery can deliver when discharged at a constant rate at 86°F (30°C) for all rates and maintain a voltage above 1.75 V/cell. Capacities are based on peak performance.  
 B. Dimensions may vary depending on type of handle or terminal. Batteries should be mounted with 0.5 inches (12.7 mm) spacing minimum.



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## STATE OF CHARGE MEASURE OF OPEN-CIRCUIT VOLTAGE

Percentage Charge	Specific Gravity	Cell	12Volt
100	1.277	2.122	12.73
90	1.258	2.103	12.62
80	1.238	2.083	12.50
70	1.217	2.062	12.37
60	1.195	2.040	12.24
50	1.172	2.017	12.10
40	1.148	1.993	11.96
30	1.124	1.969	11.81
20	1.098	1.943	11.66
10	1.073	1.918	11.51

## TERMINAL CONFIGURATION

6	DT	Automotive Post & Stud Terminal
		<b>Terminal Height Inches (mm)</b> 1.10 (28)
		<b>Torque Values: in-lb (Nm)</b> Stud: 95 – 105 (11 – 12) / AP: 50 – 70 (6 – 8)
		<b>Bolt Size</b> 5/16"-18

## SMART CARBON™

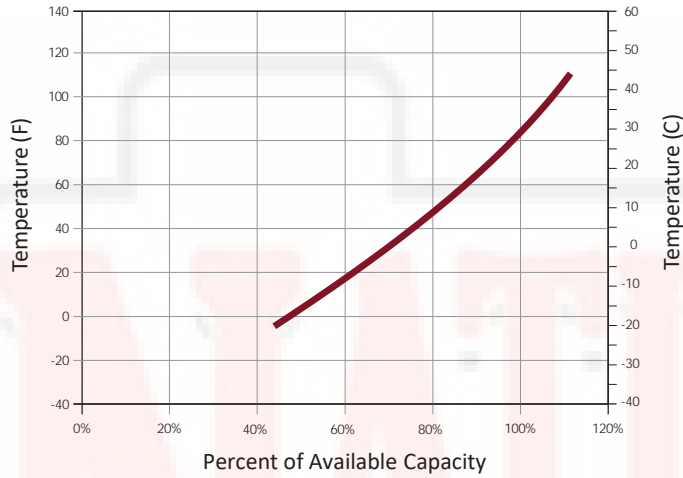
Deep-cycle batteries used in off-grid and unstable grid applications are heavily cycled at partial state of charge (PSOC). Operating at PSOC on a regular basis can quickly diminish the overall life of a battery, which results in frequent and costly battery replacements.

To address the impact of PSOC on deep-cycle batteries in renewable energy (RE), inverter backup and telecom applications, Trojan Battery has now included Smart Carbon™ as a standard feature in its Industrial and Premium flooded battery lines.

- C. Height taken from bottom of the battery to the highest point on the battery. Heights may vary depending on type of terminal.  
 D. Terminal images are representative only.  
 E. A boost charge should be performed every 6 months when batteries are in storage.  
 F. Weight may vary.



### PERCENT CAPACITY VS. TEMPERATURE

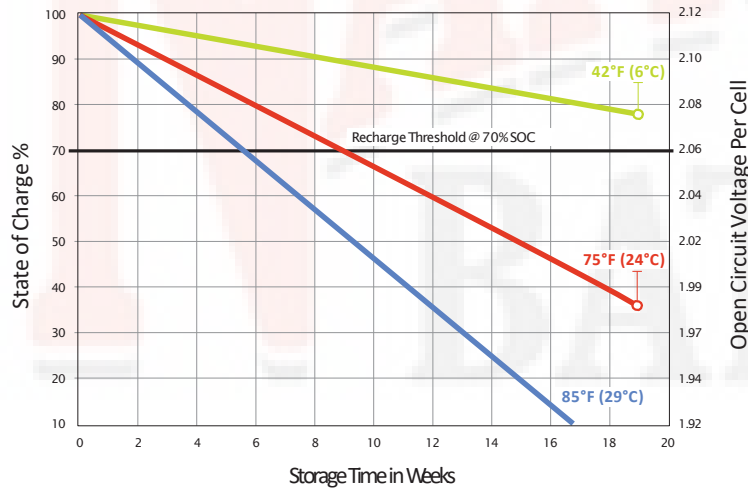


### \*PERIODIC CHARGE

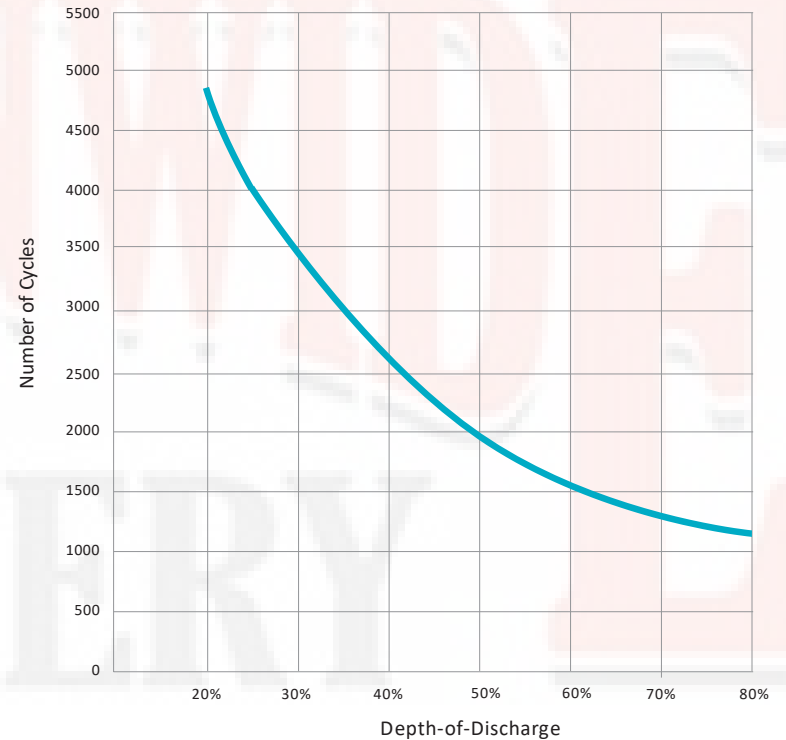
#### FREQUENCY

Provide a periodic freshening charge to maintain a SOC greater than the threshold of 70%.

### SELF DISCHARGE VS. TIME\*



### DOD VS CYCLE LIFE IN A STATIONARY APPLICATION



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