

Solar Photovoltaic Modules

USP20 / USP37 / USP40

USL Solar modules provides cost-effective photovoltaic power for general use, operating DC directly or, in an inverter-equipped system, AC loads. The 36 cells in series provides 40 watts of maximum power, it is used primarily in utility grid-supplemental systems, telecommunications, remote villages and clinics, pumping and load-based aids to navigation.



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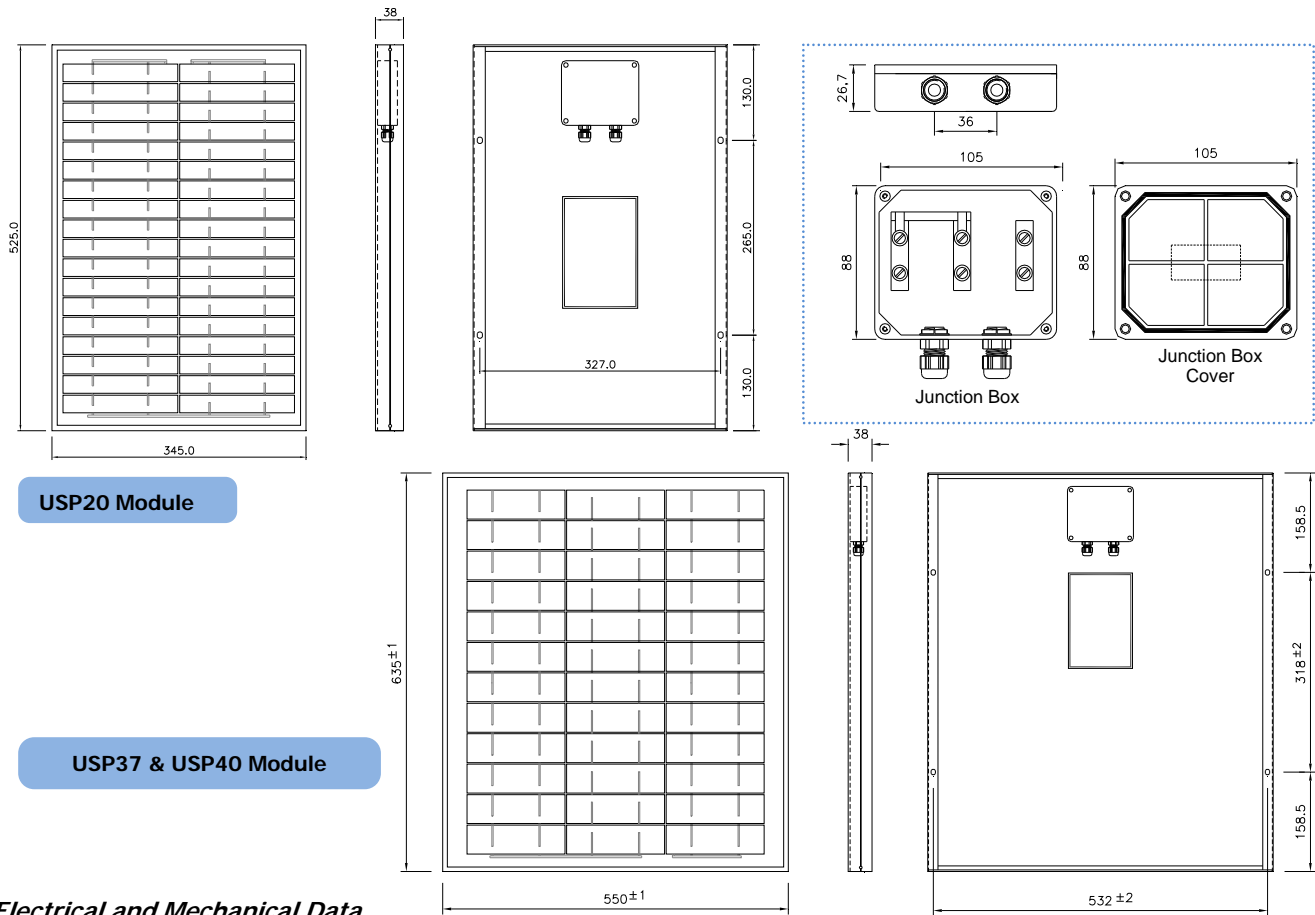
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*Polycrystalline
Modules*



USP20 Module

USP37 & USP40 Module

Electrical and Mechanical Data

Model	USP20	USP37	USP40
Maximum power (Pmax)	20 Wp	37 Wp	40 Wp
Open Circuit Voltage (Voc)	21.5 V	21.5 V	21.5 V
Maximum power point voltage (Vmpp)	17.1 V	17.1 V	17.1 V
Short circuit current (Isc)	1.30 A	2.42 A	2.62 A
Maximum power point current (Impp)	1.17 A	2.17 A	2.34 A
Tolerance	±10%	±10%	±10%
Cell Size (mm)	24 X 156	46 X 156	46 X 156
No. of cells	36	36	36
Dimensions (mm) ± 1	525 x 345 x 38	635 x 550 x 38	635 x 550 x 38
Maximum system voltage	600	600	600
Temperature co-efficient	NOCT (°C)45	NOCT (°C)45	NOCT (°C)45
$\frac{dVoc}{dT}$ (Voc) (mV/°C)	- 105	- 105	- 105
$\frac{dIsc}{dT}$ (Isc) (mA/°C)	- 0.32	- 0.32	- 0.32
$\frac{dPmax}{dT}$ (Pmax) (%/°C)	- 0.45	- 0.45	- 0.45
Weight (kgs)	2	4.2	4.2

Standard Test Condition : Irradiance 1,000 W/sq.m, Temperature 25deg C Air mass 1.5 spectrum)

Proven Materials and Construction

USL experience shows in every aspect of this module's construction and materials

- ❖ Anodized aluminum frame offers required strength and allows for quick and easy installation on standard array structures.
- ❖ 36 Crystalline silicon solar cells in series.
- ❖ Modules are laminated in toughened low iron content PV grade glass – Ethyl Vinyl Acetate films – PV module back sheet.
- ❖ Optimized lamination process parameters ensure a stable laminate. Junction Box with PG Cable glands are standard in all modules.
- ❖ Each module is flash tested in a Sun simulator to ensure conformity to specification.

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