

# USL



Solar

Photovoltaic

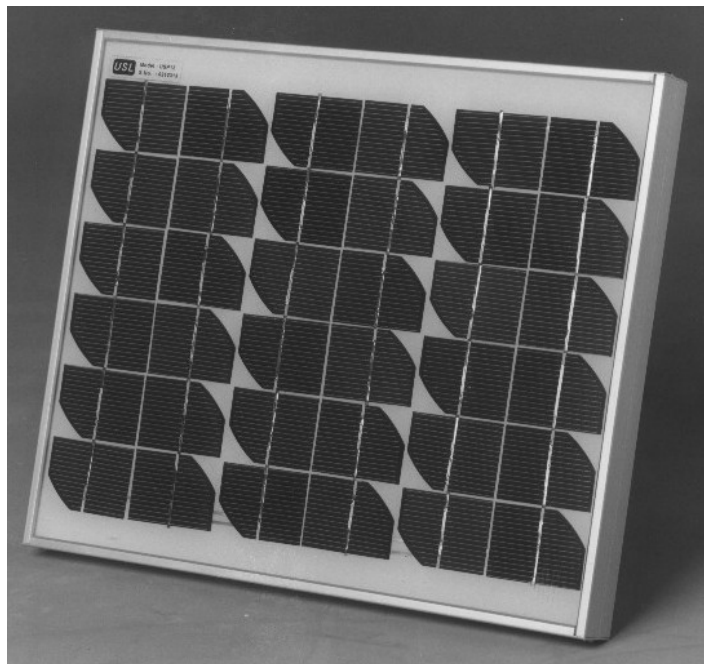
Modules

## USP10 / USP12 / USP15

*USL 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 10W, 12W & 15Watts of maximum power, it is used primarily in utility grid-supplemental systems, telecommunications, remote villages and clinics, pumping and load-based aids to navigation.*

## M5

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*M5 Series:  
Monocrystalline modules*

### 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.

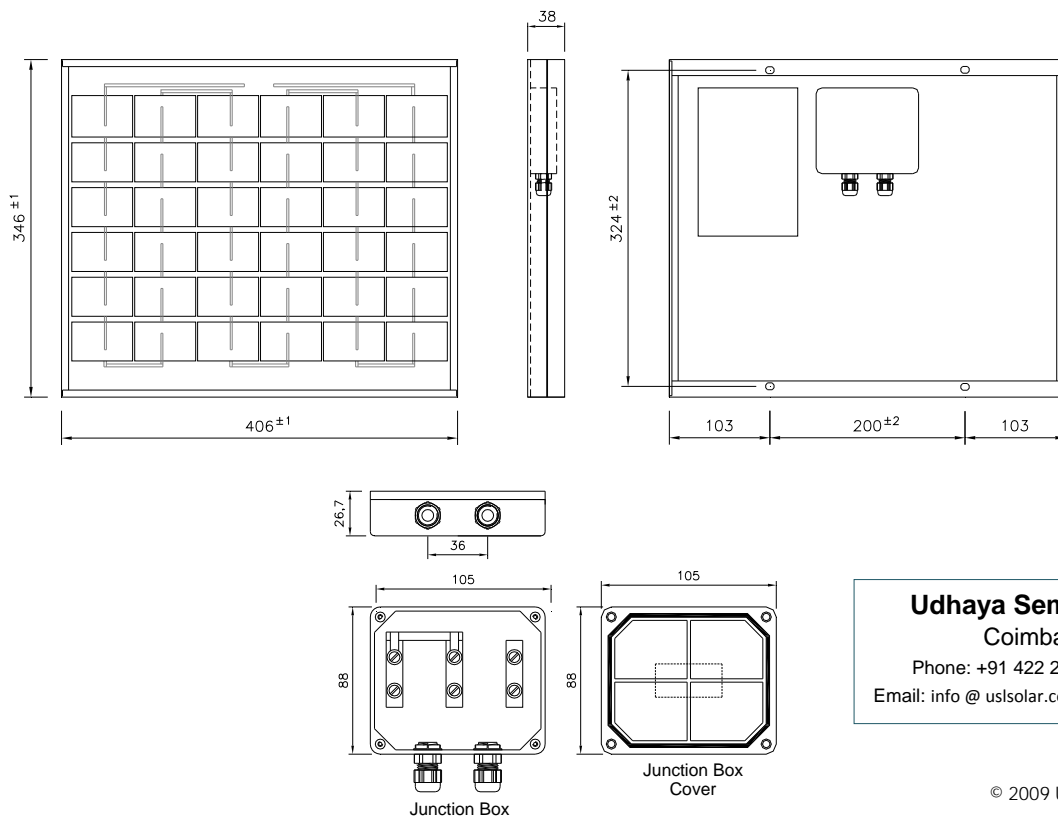
- Optimized lamination process parameters ensure a stable laminate. Junction Box with PG Cable glands are standard in all modules.

- Each module is flash tested in a Sun simulator to ensure conformity to specification.

### Electrical and Mechanical Data

Model	USP10	USP12	USP15
Maximum power (Pmax)	10 Wp	12 Wp	15 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)	0.65 A	0.79 A	0.98 A
Maximum power point current (Impp)	0.59 A	0.70 A	0.88 A
Tolerance	±10%	±10%	±10%
Cell Size (mm)	41.66 X 62.5	41.66 X 62.5	41.66 X 62.5
No. of cells	36	36	36
Dimensions (mm) ± 1	406 x 346 x 38	406 x 346 x 38	406 x 346 x 38
Maximum system voltage	600	600	600
Temperature co-efficient	NOCT (°C)45	NOCT (°C)45	NOCT (°C)45
$\frac{\partial V_{oc}}{\partial T}$ (Voc) (mV/°C)	- 105	- 105	- 105
$\frac{\partial I_{sc}}{\partial T}$ (Isc) (mA/°C)	- 0.32	- 0.32	- 0.32
$\frac{\partial P_{max}}{\partial T}$ (Pmax) (%/°C)	- 0.45	- 0.45	- 0.45
Weight (kgs)	1.9	1.9	1.9

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



**Udhaya Semiconductors Limited**  
 Coimbatore: 641 062. INDIA.  
 Phone: +91 422 2627003 Fax : +91 422 2628504  
 Email: info @ uslsolar.com; Website : www.uslsolar.com