

USL

Solar

Photovoltaic

Modules



KL170 / KL180 / KL190 / KL200 / KL210

USL provides cost-effective photovoltaic power for general use, operating DC directly or, in an inverter-equipped system, AC loads. The 50 cells in series provides 170W to 210 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.

Series

6



Proven Materials and Construction

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

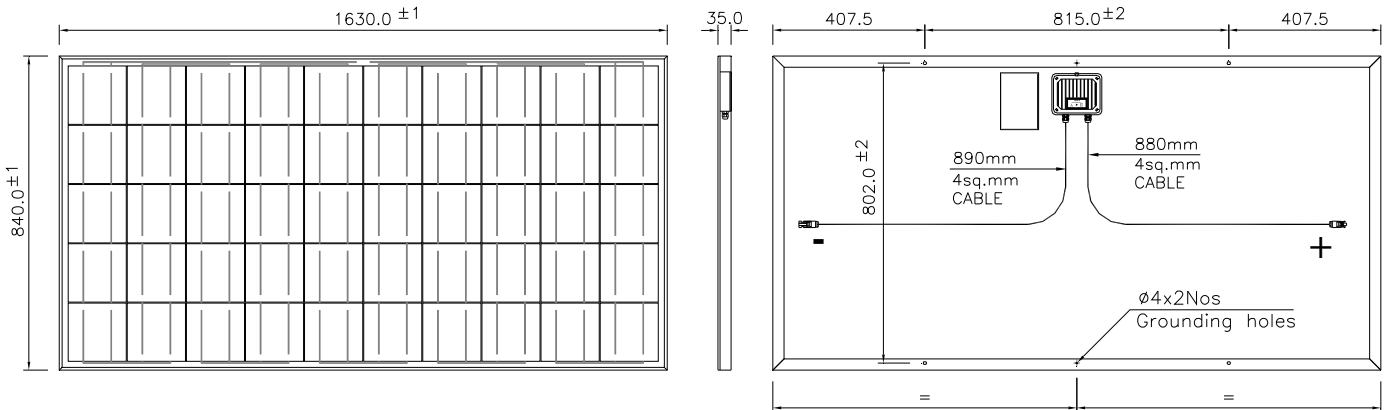
- Anodized aluminum frame offers required strength and allows for quick and easy installation on standard array structures.
- 50 Crystalline silicon solar cells in series with by pass diodes installed.
- Modules are laminated in toughened low iron content PV grade glass – Ethyl Vinyl Acetate films –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

*P6 Series:
Polycrystalline Modules*

Electrical and Mechanical Data

Model	KL170	KL180	KL190	KL200	KL210
Maximum power (Pmax)	170 Wp	180 Wp	190 Wp	200 Wp	190 Wp
Open Circuit Voltage (Voc)	30.3 V	30.3 V	30.3 V	32.3 V	32.3 V
Maximum power point voltage (Vmpp)	23.75 V	23.75 V	23.75 V	25.00 V	25.50 V
Short circuit current (Isc)	8.01 A	8.48 A	9.04 A	8.80 A	9.04 A
Maximum power point current (Impp)	7.16 A	7.58 A	8.00 A	8.00 A	8.24 A
Tolerance	±7.5%	±7.5%	±7.5%	±7.5%	±7.5%
Module Efficiency	12.41%	13.15%	13.88%	14.60%	15.34%
Cell Size (mm)	156 X 156	156 X 156	156 x 156	156 x 156	156 x 156
No. of cells	50	50	50	50	50
Dimensions (mm) ± 1	1630 x 840 x 35				
Maximum system voltage	1000	1000	1000	1000	1000
Temperature co-efficient	NOCT (°C)45	NOCT (°C)45	NOCT (°C)45	NOCT (°C)45	NOCT (°C)45
$\frac{dV}{dT}$ (Voc) (mV/°C)	- 105	- 105	- 105	- 105	- 105
$\frac{dI}{dT}$ (Isc) (mA/°C)	- 0.32	- 0.32	- 0.32	- 0.32	- 0.32
$\frac{dP}{dT}$ (Pmax) (%/°C)	- 0.45	- 0.45	- 0.45	- 0.45	- 0.45
Weight (kgs)	15.5	15.5	15.5	15.5	15.5

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



Qualification and certificates

The Photovoltaic Modules certified to
IEC61215 & EN IEC 61730 Class A, Safety Class II

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Technical Specifications Subject to change without
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