



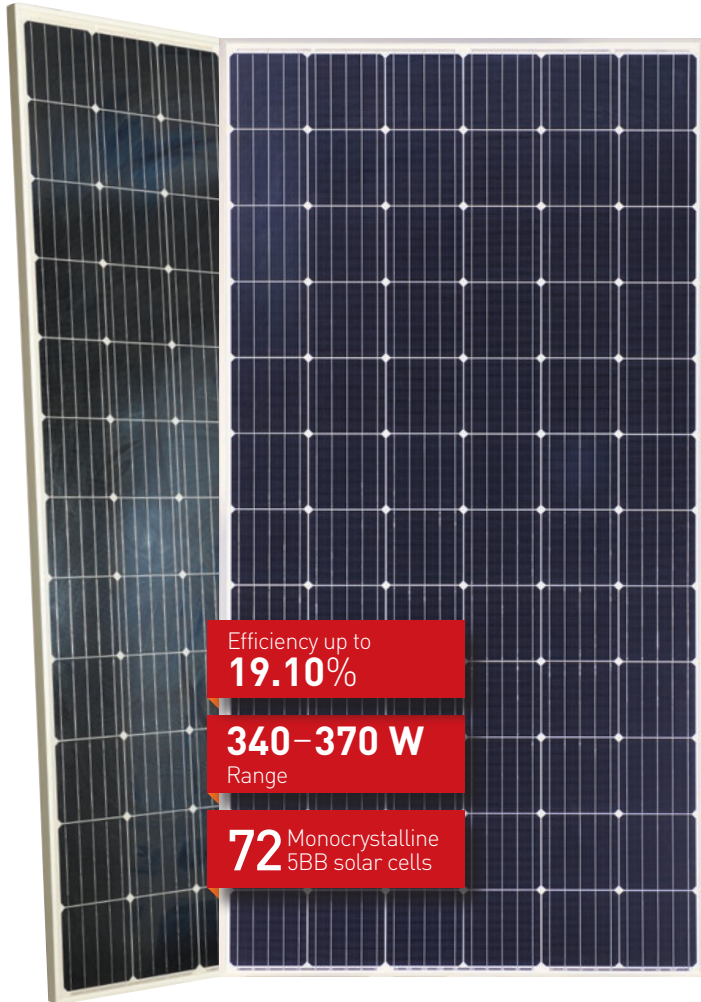
vikramsolar

CREATING CLIMATE FOR CHANGE

SOLIVO

HIGH EFFICIENCY SMART PV MODULES

SMART MODULE SMART CHOICE



Efficiency up to
19.10%

340-370 W
Range

72 Monocrystalline
5BB solar cells



Tigo TS4 Platform
& Junction Box



Tigo Access
Point



Cloud Connect
Advanced



UP TO 30% HIGHER
POWER OUTPUT



MODULE-LEVEL
POWER TRACKING



SMART
READY



LOWER
O&M-COSTS



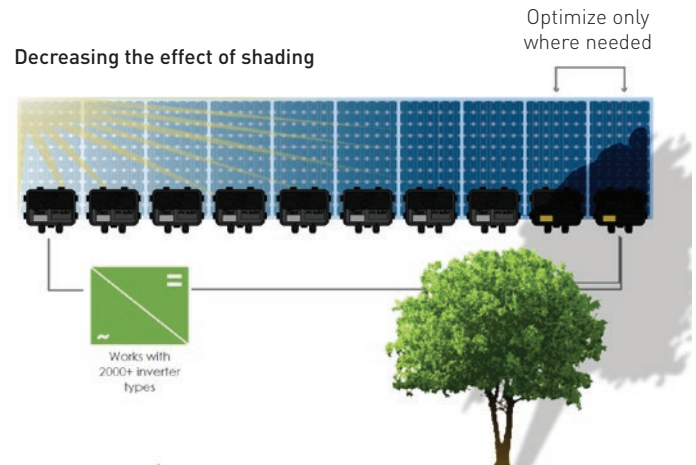
MAXIMIZE
SYSTEM UPTIME

WHAT IS A SMART MODULE

Vikram Solar's newest addition, Solivo - high efficiency smart PV module Series, can harvest more power through Module-Level Power Tracking technology, where each module can be optimized to decrease the effect of shading, soiling or mismatch loss.

The **'Rapid Shutdown'** option makes Solivo the safest & smartest PV module Series choice for projects. With its app-based monitoring and controlling system, the system can be shutdown selectively to protect your investment in case of any fire or safety hazard.

The intelligent **'Smart Ready'** integrated junction box allows the choice of the exact options needed for any project. The integrated junction box contains high reliability electronics for module-level power optimization.



KEY FEATURES



UP TO 30% MORE YIELD

The Solivo modules run independently of each other, thus decreasing the effect of shading, soiling or mismatch and increasing the total energy yield



INCREASED RELIABILITY

The optimizers monitor each module until any mismatch occurs that requires its intervention, thus increasing the efficiency and reliability of the module



LONGER STRING LENGTHS

Solivo modules enable up to 30% longer string lengths by using Tigo's UHD-Core TS4 Platform technology and reduces the BOS costs



LOWER O&M COSTS

Performance issues can be remotely detected and diagnosed by module-level monitoring; problems can be fixed with a single truck roll by deploying the right resource at the site



INCREASED SAFETY

Features like over-temperature protection, automatic or manual shutdown, and module-level deactivation ensure extra safety against unsafe conditions



REMOTE MONITORING

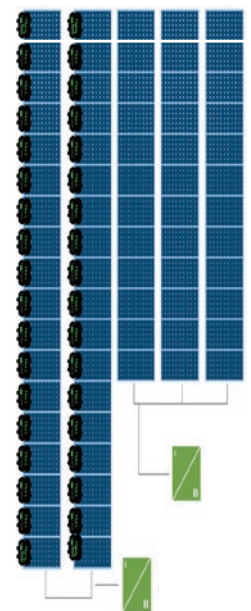
The system can be remotely monitored by the smart phone app and from a PC, making O&M easier



INVERTER READY, EASILY CUSTOMIZABLE, FLEXIBLE SYSTEM

Flexible design allows the modules to be deployed selectively at places where shading increases space utilization. The system is compatible with more than 2000 types of inverters

Up to 30% longer string length



3 strings vs 2 strings

SMART-READY: SWITCH TO ANY SOLUTION ACCORDING TO YOUR NEEDS

▶ DIODES (TS4-D)

DIODES

- Similar to a standard junction box
- Applicable to conventional and smart modules
- Field replaceable and upgradable
- Heat dissipation away from the module

☑ MONITORING (TS4-M)

DIODES MONITORING

- Reduced O&M cost
- PV-2.0 data synchronization
- CRM integration
- Warranty tracking

🛡 SAFETY (TS4-S)

DIODES MONITORING SAFETY

- NEC 690.12 rapid shutdown compliant
- Module-level deactivation
- Automatic or manual shutdown
- Over-voltage protection
- Over-temperature protection
- Plus all the benefits of Monitoring
- Fire Safety (TS4-F): SunSpec signaling

🕒 OPTIMIZATION (TS4-O)

DIODES MONITORING SAFETY OPTIMIZATION

- Shade and age tolerance
- Enhanced energy yield
- Greater design flexibility
- Maximized roof usage
- Plus all the benefits of Safety

➡ LONGER STRINGS (TS4-L)

DIODES MONITORING SAFETY OPTIMIZATION LONGER STRINGS

- String length increased by up to 30%
- Fewer BOS components
- Faster installation
- Inverter optimization
- Lower wire-losses
- Plus all the benefits of Optimization

CERTIFICATIONS



INTEGRATED WITH TIGO'S TS4 PLATFORM

FIRE SAFETY
(TS4-F)



SAFETY
(TS4-S)

MONITORING
(TS4-M)



OPTIMIZATION
(TS4-O)

DIODES
(TS4-D)



LONG STRINGS
(TS4-L)

INTERCHANGEABLE COVERS FOR CHOICE OF FUNCTION

TECHNICAL DATA

THIS DATASHEET IS APPLICABLE FOR: SOLIVO SMART GRAND ULTIMA SERIES
REGISTERED AS SOMERA VSMS.72.AAA.03.04 (AAA=340-370)

Electrical Data^{1,2} All data refers to STC (AM 1.5, 1000 W/m², 25°C)

Peak Power P _{max} [Wp]	340	342.5	345	347.5	350	352.5	355	357.5	360	362.5	365	367.5	370
Maximum Voltage V _{mpp} [V]	38.1	38.1	38.1	38.1	38.1	38.2	38.2	38.2	38.3	38.3	38.4	38.4	38.4
Maximum Current I _{mp} [A]	8.93	8.99	9.06	9.12	9.18	9.24	9.29	9.35	9.41	9.46	9.52	9.58	9.63
Open Circuit Voltage V _{oc} [V]	46.8	46.8	47.2	47.3	47.4	47.4	47.5	47.6	47.7	47.7	47.8	47.9	48
Short Circuit Current I _{sc} [A]	9.37	9.42	9.44	9.51	9.56	9.61	9.64	9.71	9.78	9.81	9.84	9.85	9.9
Module Efficiency η[%]	17.55	17.68	17.81	17.94	18.07	18.19	18.32	18.45	18.58	18.71	18.84	18.97	19.10
Maximum Voltage V _{max} TS4-L [V]	43	43	43.1	43.1	43.1	43.2	43.3	43.3	43.4	43.4	43.5	43.5	43.5
Maximum Current I _{max} TS4 [A]	12	12	12	12	12	12	12	12	12	12	12	12	12

1) STC: 1000 W/m² irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3
Average relative efficiency reduction of 5% at 200 W/m² according to EN 60904-1 | 2) Power measurement uncertainty is within +/- 3%

Electrical Parameters at NOCT³

Power [W]	251.8	253.5	256.0	257.7	259.6	262.0	263.7	265.4	267.7	269.3	272.1	274.7	276.2
V@P _{max} [V]	35.4	35.4	35.7	35.7	35.8	35.9	35.9	36.0	36.0	36.1	36.3	36.5	36.5
I@P _{max} [A]	7.12	7.16	7.18	7.22	7.26	7.31	7.34	7.38	7.43	7.47	7.51	7.53	7.57
V _{oc} [V]	43.3	43.3	43.6	43.7	43.8	43.8	43.9	44.0	44.1	44.1	44.2	44.2	44.3
I _{sc} [A]	7.58	7.62	7.64	7.69	7.73	7.77	7.80	7.86	7.91	7.94	7.96	7.97	8.01
V _{max} TS4-L [V]	43	43	43.1	43.1	43.1	43.2	43.3	43.3	43.4	43.4	43.5	43.5	43.5

3) NOCT irradiance 800 W/m², ambient temperature 20°C, wind speed 1 m/sec

Temperature Coefficients (Tc) permissible operating conditions

Tc of Open Circuit Voltage (β)	- 0.28%/°C
Tc of Open Circuit Voltage TS4-L (β_V _{oc})	0.0%/°C
Tc of Short Circuit Current (α)	0.057%/°C
Tc of Power (γ)	-0.39%/°C
Maximum System Voltage	1000 V
NOCT	45°C ± 2°C
Temperature Range	-40°C to + 85°C

Mechanical Data

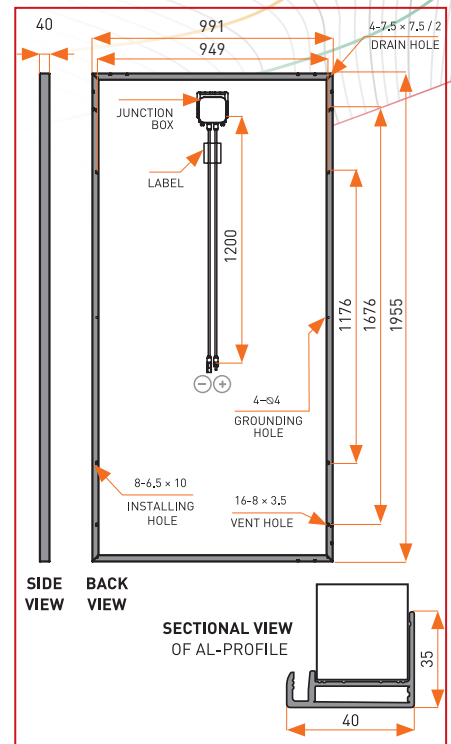
Length × Width × Height	1955 × 991 × 40 mm (76.96 × 39.01 × 1.57 inches)
Weight	21.3 kg (54.67 lbs)
Junction Box	IP67, TS4-base with smart ready covers. (TS4-D; TS4-M; TS4-F; TS4-S; TS4-O; TS4-L)
Cable & Connectors	1200 mm (47.24 inches) length cables, MC4 Compatible/MC4 Connectors
Application Class	Class A (Safety class II)
Superstrate	3.2 mm (0.13 inches) high transmission low iron tempered glass, AR coated
Cells	72 Monocrystalline, 5BB solar cells
Cell Encapsulant	EVA (Ethylene Vinyl Acetate)
Back Sheet	Composite film
Frame	Anodized aluminium frame with twin wall profile
Mechanical Load Test	5400 Pa (Snow load), 2400 Pa (Wind load)
Maximum Series Fuse Rating	15 A

Warranty and Certifications

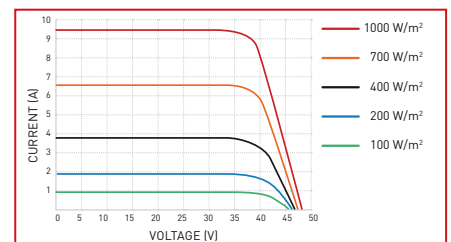
Product Warranty**	10 years
Performance Warranty**	Linear Power Warranty for 25 years with 3% for 1st year degradation and 0.65% from year 2 to year 25
Approvals and Certificates	IEC 61215 Ed2, IEC 61730, IEC 61701*, IEC 60068-2-68*, MCS, CE, CEC (California)†, UL 1703*

VSL/ENG/SC/132

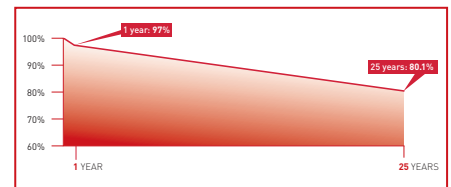
Dimensions in mm



Typical I-V Curves



Performance Warranty



Packaging Information

Quantity/Pallet	25
Pallets/Container (40'HC)	24
Quantity/Container (40'HC)	600

* All (*) certifications under progress.

** Refer to Vikram Solar's warranty document for terms and conditions.

CAUTION: READ SAFETY AND INSTALLATION MANUAL BEFORE USING THE PRODUCT.

Specifications included in this datasheet are subject to change without notice. Electrical data without guarantee. Please confirm your exact requirement with the company representative while placing your order.

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