

M10R 156 SERIES

615Wp-650Wp

(Framed Dual Glass Bifacial Module)

N-TYPE TOPCon



FEATURES:

-  Highest Reliability & Enhanced Crack Tolerance MBB Module
-  Sustain Heavy Snow & Wind Loads (5400 Pa & 2400 Pa)
-  Best in Class Thermal Coefficients
-  Highest Commercial Gains, Lower LCOE
-  Better Weak Light Performance
-  Excellent PID Resistance
-  Zero LID
-  Excellent Bifacial Gain 10% - 30%

*We have applied for below certification.



ALMM UNDER PROCESS, BIS UNDER PROCESS, IS 14286,
IEC: 61215, IEC: 61730, IEC TS: 62804-1, IEC: 61853, IEC: 61701,
IEC: 62716, Quality Management System: ISO 9001:2015,
Environment Management System: ISO 14001: 2015,
Occupational Health and Safety Management System: ISO 45001:2018



ELECTRICAL CHARACTERISTICS: (ATAL-T-156G-615 TO ATAL-T-156G-650)

Models	Pmax(W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
ATAL-T-156G-655	655	489	49.84	45.62	13.15	10.71	14.90	12.17	57.90	53.85	23.43%
ATAL-T-156G-650	650	485	49.77	45.55	13.06	10.64	13.79	11.26	57.85	53.80	23.25%
ATAL-T-156G-645	645	481	49.56	45.36	13.02	10.60	13.75	11.23	57.65	53.62	23.07%
ATAL-T-156G-640	640	477	49.36	45.18	12.97	10.56	13.70	11.19	57.45	53.43	22.90%
ATAL-T-156G-635	635	474	49.16	44.99	12.92	10.52	13.65	11.15	57.25	53.25	22.72%
ATAL-T-156G-630	630	470	48.96	44.81	12.87	10.48	13.60	11.11	57.05	53.06	22.54%
ATAL-T-156G-625	625	466	48.76	44.63	12.82	10.44	13.55	11.07	56.85	52.87	22.36%
ATAL-T-156G-620	620	462	48.56	44.44	12.77	10.40	13.50	11.03	56.65	52.69	22.19%
ATAL-T-156G-615	615	459	48.36	44.26	12.72	10.36	13.45	10.99	56.45	52.50	22.01%

*Standard Test Conditions(STC) - 1000W/m2 irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature(NOCT) - 800W/m2 irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1m/s. Average power reduction of 4.5% at 200W/m2 as per IEC 60904-1. Measurement Uncertainty ±3%.

System Voltage 1500 V | Series Fuse Rating 30A

BI-FACIAL OUTPUT - BACKSIDE POWER GAIN:

		ATAL-T-156G-655	ATAL-T-156G-650	ATAL-T-156G-645	ATAL-T-156G-640	ATAL-T-156G-635	ATAL-T-156G-630	ATAL-T-156G-625	ATAL-T-156G-620	ATAL-T-156G-615
10%	Power Output (W)	720.50	715	709.5	704	698.50	693	687.50	682	676.50
	Module Efficiency (%)	25.76	25.57	25.37	25.17	24.98	24.78	24.58	24.39	24.19
15%	Power Output (W)	753.25	747.50	741.75	736	730.25	724.50	718.75	713	707.25
	Module Efficiency (%)	26.94	26.73	26.52	26.32	26.11	25.91	25.70	25.50	25.29
20%	Power Output (W)	786	780	774	768	762	756	750	744	738
	Module Efficiency (%)	28.11	27.89	27.68	27.46	27.25	27.03	26.82	26.61	26.39
25%	Power Output (W)	818.75	812.50	806.25	800	793.75	787.50	781.25	775	768.75
	Module Efficiency (%)	29.28	29.05	28.83	28.61	28.38	28.16	27.94	27.71	27.49
30%	Power Output (W)	851.50	845	838.5	832	825.50	819	812.50	806	799.50
	Module Efficiency (%)	30.45	30.22	29.98	29.75	29.52	29.29	29.05	28.82	28.59

*The bifacial gains are dependent on the power plant design and location.

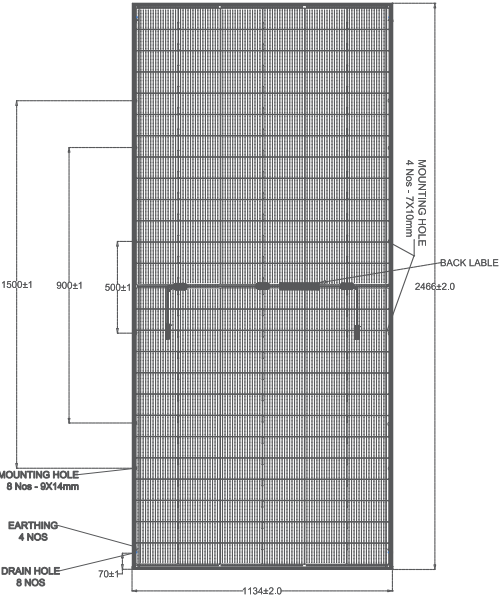
THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), α (%/°C)	0.046
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.26
Temperature coefficient of Power (Pm), γ (%/°C)	-0.30
NOCT (°C)	45 ± 2
Operating temperature range (°C)	-40 to 85
Bifaciality Factor (%)	80 ± 10

MECHANICAL CHARACTERISTICS

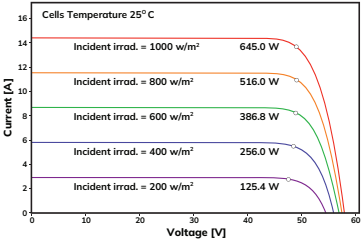
Dimensions	2466 mm (L) x 1134 mm (W) x 35 mm (T)
Weight*	35 kg Approx
Solar Cells per Module (Units) / Arrangement	156 Half-Cut Cells / (13x6 13x6)
Solar Cell Type & Size	M10R N-type TOPCon Bifacial & 182.2 x 183.75 mm
Front Glass (Material / Thickness)	2 mm Low Iron HTAR semi-tempered glass
Back Glass (Material / Thickness)	2 mm Low Iron Printed semi-tempered glass
Encapsulate	PID Free & UV Resistant
Junction Box (Protection degree / Material)	IP68 / Weatherproof PPO
Cable & Connector (Protection degree / Type)	IP68 rated / MC4 compatible
Cable cross-section & Length	4mm² & 400mm (Customised cable length available)
Frame	Anodized Aluminium Alloy
Application Class Rating	Class A
Safety Class Rating	Class II
Fire Safety	Class C (Type 1)

DESIGN SPECIFICATIONS



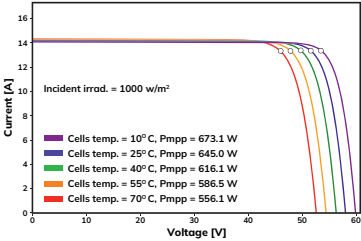
- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.
- Refer installation Manual instructions & Atal warranty statement for terms & conditions.
- Due to constant product modifications, ATAL reserves the right to amend the above specifications without prior notice.

I-V VARIATION WITH IRRADIANCE (GRAPH)

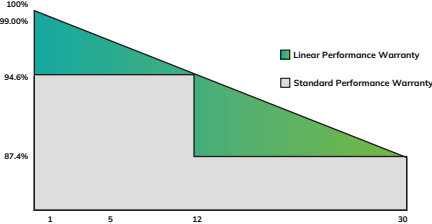


The Graphs are for reference purpose only. Please consult Atal technical team for further clarifications.

I-V VARIATION WITH TEMPERATURE (GRAPH)



LINEAR PERFORMANCE WARRANTY (GRAPH)



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