

# TOUGH SERIES

Single phase Grid-Tied

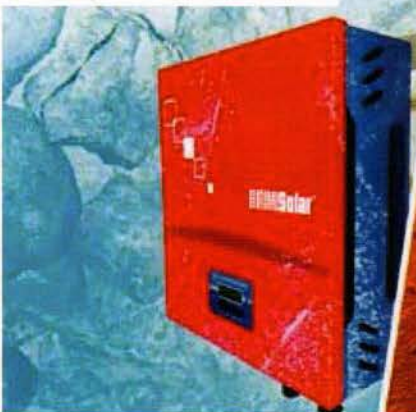
3.3 kW - 5kW

## Features :

- Select Single/Dual MPPT (Maximum power point tracking) automatically, the range of MPPT: 150-500 Vdc
- Maximum DC voltage is up to 650V to design system on best MPPT easily
- Maintenance-free fan-less nature cooling design.
- Modbus RS485 supported for monitoring
- Conformity to the EMC, Low Voltage Directives and Standards, e.g. 2004 /108 / EC, 2006 / 95 / EC, IEC / EN 62109-1 / -2 and VDE-AR-N 4105.



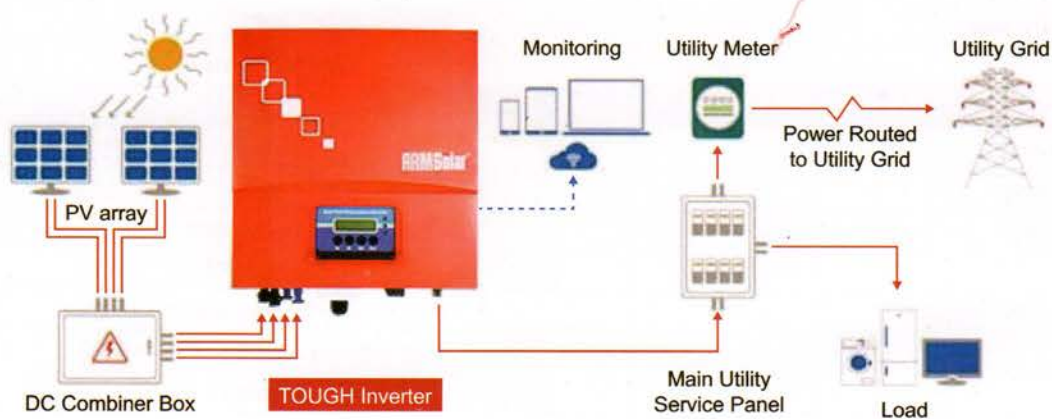
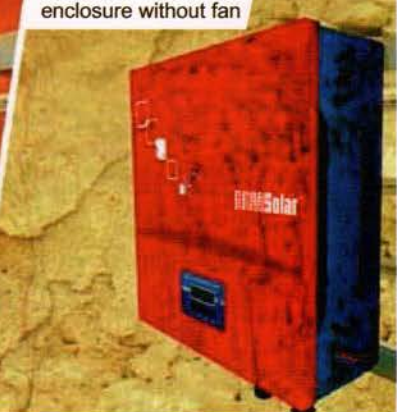
Start generating power from -25°C



Work up to 55°C without derating



IP65 complete sealed enclosure without fan



## Specification :

Model	Tough-3300	Tough-5000
<b>Output Data (AC)</b>		
Maximum AC Output	3,300W	5,000W*
Maximum AC Output Current	16.5 a.c.A	22 a.c.A
Nominal AC Voltage	220 a.c.V-240 a.c.V	
Grid AC Frequency	50/60Hz, auto-selection	
Power Factor	> 0.99 @ 20% load	
Reactive Power Factor	1 or adjustable from -0.9 to +0.9**	
Total Harmonic Distortion	< 3%	
AC connection / Grid forms	Single-Phase / TN-C, TN-S, TN-C-S	
<b>Input Data (DC)</b>		
Maximum DC Power	3,600W	5,300W
Maximum DC Input Current	2 x 10 d.c.A	2 x 15 d.c.A
Max. number of MPP Trackers	2	
Maximum DC Voltage	650 d.c.V	
MPP Tracking Voltage Range	150-500 d.c.V	
Peak Power Tracking Voltage Range	200-460 d.c.V	
<b>Efficiency</b>		
MPPT Efficiency	>99.9%	
Maximum Efficiency	96.5%	96.9%
Euro. Efficiency	96.1%	96.6%
Consumption: Standby / Night	<12.5W / <0.2W	
<b>General Specification</b>		
Dimensions (W x H x D) in mm	405 x 442 x 165	
Weight	25.8kg	
Cooling Concept	Natural Cooling	
Acoustic Noise Level	< 35dB	
Maximum Operating Temperature Range without derating	-25 °C to +60 °C	-20 °C to +55 °C
Ambient Temperature Range	-25 °C to +60 °C	
Relative Humidity	0 to 95%, non-condensing	
Protection Degree	IP65	
Topology	Transformerless	
<b>Features</b>		
DC Connection	MC4	
DC Disconnect	yes	
AC Connection	AC connectors	
Display	LCD screen	
Communication Interface	RS232 ,RS485 ; Bluetooth (Option)	
Safety	VDE-AR-N 4105 ; IEC 62109-1 / -2	
Warranty	5 years	

\* For VDE-AR-N4105, the inverter is rated 4,600VA

\*\* Adjustable from 0.95 over-excited to 0.95 under-excited with VDE-AR-N 4105

\*\*\* Specifications are subject to change without prior notice.