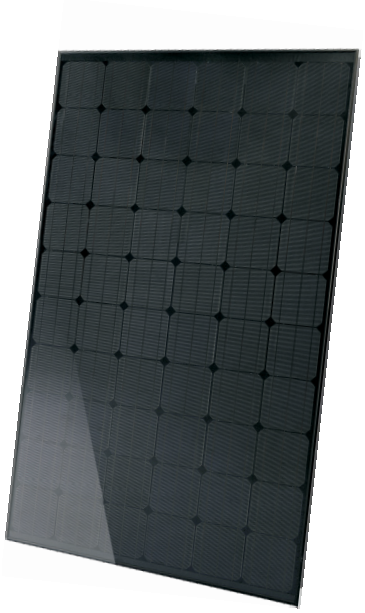
HONE
Revolutionary Energy

HONE® (SERIES 501)
230W HIGH PERFORMANCE RESIDENTIAL



HONE® is a renewable technology company with its residential product portfolio specialising in performance and solutions for the built environment. This involves designing, engineering, and producing premium solar energy components, products, and solutions. Our comprehensive portfolio of systems and mounting structures cover all eventualities including Class 1 Wind locations. HONE® systems can deliver on-grid, off-grid and private grid solutions from residential to industrial. All residential panels are all-black as are all residential mounting systems. Long life and high performance are validated daily with detailed management and operational data.

Monocrystalline Silicon Solar Module

- **17.4% -18.8%** Cell Efficiency
- **12 years** Product Warranty
- **0-3%** Power Tolerance

All Black

Performance
High output and efficiency even under low light conditions

Versatility
Salt mist corrosion tested, perfect for harsh climatic conditions

Reliability
Durable and reliable solar panels due to stringent quality control measures, testing and strict selection of raw materials and components. PID free (TUV certified)

Design and Innovation
HONE is committed to innovation and constantly working to provide the next breakthrough in solar technology: the All-Black panel is an example of this commitment.

Power Warranty

- 25 YEAR — 80% Power Output Warranty
- 12 YEAR — 90% Power Output Warranty
- 12 YEAR — Material & Workmanship Warranty

Qualifications & Certifications

IEC 61215, IEC 61730, CE, IEC 62804 (PIO Free), UL 1703, J-PEC, PY CYCLE, IEC/EN 61701, IEC 62716

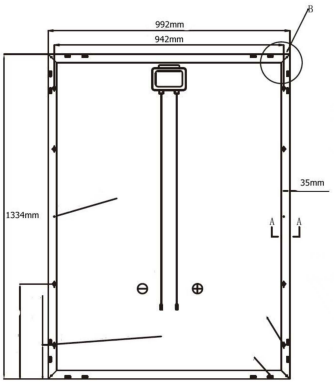
CE

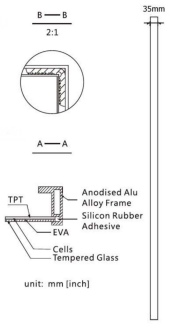
MONOCRYSTALLINE, 48-CELL SERIES

Electrical Performance

Module type	HONE-230B-48						
Power output	P_{max}	W	230				
Power outputtolerances	ΔP_{max}	%	0-3				
Voltage at Pmax	V_{mpp}	V	26.02				
Current at Pmax	I_{mpp}	A	8.84				
Open-circuit voltage	V_{oc}	V	31.49				
Short-circuit current	I_{sc}	A	9.47				
Cell Efficiency			17.79				
Module Efficiency			15.37				
STC: l000W /m' irradiance, 25°C cell temperature, AM 1.5g spectrum according to EN 60904-3.							

Module Diagram:





Thermal Characteristics

Nominal operating cell temperature	NOCT	°C	45±2
Temperature coefficient of Pmax	y	%/°C	-0.40
Temperature coefficient of Voc	B_{voc}	%/°C	-0.30
Temperature coefficient of Isc	a_{ise}	%/°C	0.06
Temperature coefficient of Vmpp	B_{vmpp}	%/°C	-0.40

Operating Conditions

Max. system voltage	1000V_{DC}
Limiting reverse current	15A
Operating temperature range	-40°C to 85°C
Max. static load front (e.g., snow)	5400PA
Max. static load back (e.g., wind)	2400Pa
Max. hailstone impact (diameter/ velocity)	40mm I 80kph

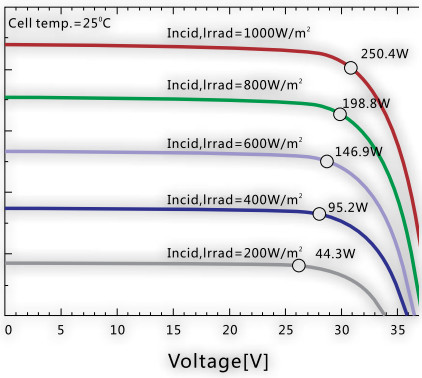
Mechanical Characteristics

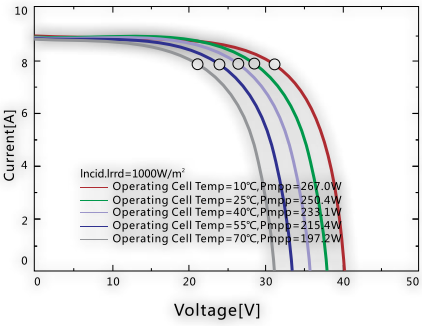
Front cover (material / thickness)	low-iron tempered glass/ 3.2mm
Backsheet (color)	black
Cell (quantity/ material / dimensions)	48 I monocrystalline silicon / 156 x 156mm
Frame (material / color)	anodized aluminum alloy / black
Junction box (protection degree)	>IP65
Cables & Plug connectors	900mm I 4mm' & MC4 compatible / IP67
Module Dimensions (L / W / H)	1334mm x 992mm x 35mm
Module Weight	12kg

Packing Details

Container	20'GP	40'HQ
Pieces per pallet	52	58
Pallets per container	6	14
Pieces per container	312	812

Electrical Curves:





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