DL5.0C

DL5.0C is designed for residential and small commercial applications, with up to 50 units in parallel and an energy range from 5.12 kWh to 256 kWh. It supports 1C discharge rate. With high cycle times and a long lifespan, it ensures worry-free electricity consumption.

Flexible Expansion

Up to 50 units in parallel, 5.12kWh--256kWh capacity

1C Discharge

Simultaneously supplying power to multiple loads, no need to worry about power outages

Automatic Self-heating

-20°C to 55°C operating temperature (optional)

Easy Installation

Support wall-mounted, floor-mounted, stacked and rack-mounted installations, high space utilization

Long-term Reliability

LFP cells, 6000+ cycles, 10 years warranty

All-round Safety

Short-circuit lockout, surge-resistant, safe and reliable

Model	DL5.0C
Battery Type	$LiFePO_4$
Nominal Battery Energy	5.12 kWh
Nomina Capacity	100Ah
Nominal Voltage	51.2V
Operating Voltage	44.8~57.6V
Recomended Charge & Discharge C Rate	0.5C
Maximum Discharge Crate	1C
Recommended Charge/Discharge Current	50A
Max. Charge/Discharge Current	Charge 75A Discharge 100A
Peak Discharge Current	110A(15s)
Depth of Discharge (DOD)	90%
Net Weight	54kg
Dimension[W/D/H](mm)	558/545/150
Charging Temp. Range	0~55°C/-20~55°C (with heating function)
Discharging Temp. Range	-20~55°C
Communication	CAN/RS485/RS232
Cycle Life *	≥6000 Cycles
Protection Level	IP20
WIFI Module	Optional
Expansion	Up to 50 units in parallel
Certification & Safety Standard	UN38.3/CE-EMC/IEC62619/CEI-021/GOST-R
Compatible Inverterst	SMA/Schneider/Victron energy/Ingeteam/Solis/GoodWe/Growatt/Soplanet/Luxpower/DEYE etc.

* Test conditions: 0.2C Charging & Discharging. @25°C, 90% DOD

HD HYUNDAI ENERGY SOLUTIONS

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HD HYUNDAI SOLAR MODULE

HeteroMax™ (CE-BF Series)

Premium N-Type HJT module

HiT-H440CE-BF | HiT-H445CE-BF | HiT-H450CE-BF | HiT-H455CE-BF | HiT-H460CE-BF

23.0%
23.0%
High Efficiency

HJT
High-End
Heterojunction
Technology

Enhanced Power
Generation with low
Temp. Coefficient

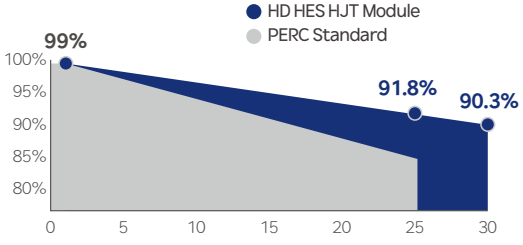
More Power
Generation
In Low Light

For Residential
(Full Black Design)

HD Hyundai's Warranty Provisions

30 YEARS
- 30-Year Product Warranty
  - Materials and workmanship

30 YEARS
- 30-Year Performance Warranty
  - First year degradation: 1%
  - Linear warranty after initial year: with 0.3%p annual degradation, 90.3% is guaranteed up to 30years



*Refer to HD HES standard warranty for details.

Certification

- ISO 9001:2015:ISO Quality Management System
- ISO 14001:2015:ISO Environment Management System
- ISO 45001:Occupational Health and Safety
- IEC 61215, IEC 61730

Electrical Characteristics (STC*)

HiT-HxxxCE-BF						
Item	Unit	440	445	450	455	460
Nominal Output (Pmax)	W	440	445	450	455	460
Open Circuit Voltage (Voc)	V	36.52	36.62	36.72	36.82	36.92
Short Circuit Current (Isc)	A	15.31	15.42	15.53	15.64	15.75
Voltage at Pmax (Vmpp)	V	30.61	30.72	30.83	30.94	31.05
Current at Pmax (Impp)	A	14.38	14.49	14.60	14.71	14.82
Module Efficiency	%	22.0	22.3	22.5	22.8	23.0
Power Selection	W	0 ~ +5				
Temperature Coefficient of Pmax	%/K	-0.24				
Temperature Coefficient of Voc	%/K	-0.22				
Temperature Coefficient of Isc	%/K	0.04				
Bifaciality	%	90 ± 5				

*STC : Irradiance 1,000 W/m², cell temperature 25℃, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±5%

BNPI** (Bifacial Nameplate Irradiance)

Item	Unit	440	445	450	455	460
Nominal Output (Pmax)	W	493	499	504	510	515
Open Circuit Voltage (Voc)	V	36.65	36.75	36.85	36.95	37.05
Short Circuit Current (Isc)	A	17.17	17.29	17.42	17.54	17.66
Voltage at Pmax (Vmpp)	V	30.72	30.83	30.94	31.05	31.16
Current at Pmax (Impp)	A	16.07	16.19	16.31	16.44	16.56

**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Mechanical Characteristics

Dimensions	1,762 mm (L) x 1,134 mm (W) x 30 mm (H)
Weight	21.8 kg
Solar Cells	N-Type HJT, 96 (6x16) monocrystalline half-cut bifacial cells
Output Cables	Cable : 4mm² / 12AWG / (+)1,250 mm, (-)1,250 mm / Customized length Connector : MC4 / MC4-Evo2A / PV-H4 / Z4S-abcd / ST4
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 1.6mm semi-tempered solar glass with high cut-off and anti-reflective coating Rear : 1.6mm semi-tempered solar glass
Frame	Anodized aluminum alloy

Installation Safety Guide

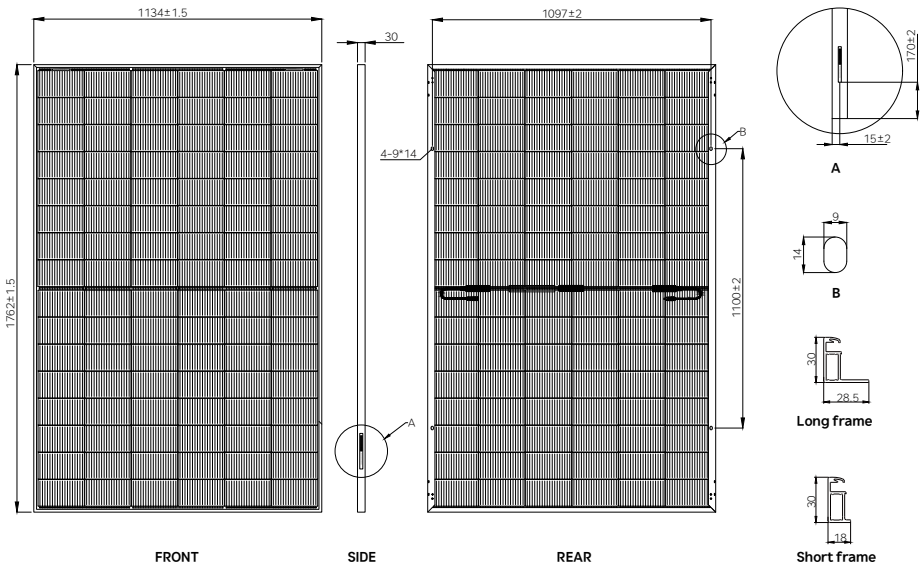
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not damage or scratch the rear surface of the module.
- Do not handle or install modules when they are wet.

Nominal Module Operation Temperature	44℃ ± 2℃
Operating Temperature	-40℃~+85℃
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load	Front 5,400Pa Rear 2,400Pa

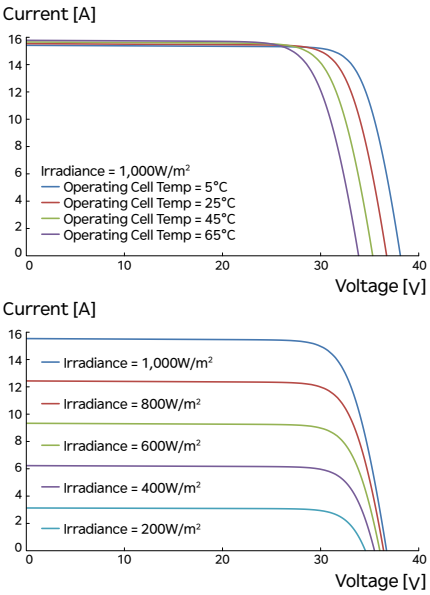
Shipping Configurations

Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	26	Modules Per Container (pcs)	936

Module Diagram (unit : mm)



I-V Curves (HiT-H450CE-BF)



Sales & Marketing
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HD HYUNDAI ENERGY SOLUTIONS

ECO HYBRID

Single-Phase

SNA **12K**

- 2 MPPTs with 4 strings, Max. 24kW PV input
- Max. charging and discharging current: 250A
- Off-grid application for high demand with 12kW output power
- Dual AC output ports for multiple load connections
- Separate GEN port

  -Up to 19.2kW Gen/AC coupling input

  -Auto generator start and stop control
- Integrated Design with Load and Battery Breaker
- PV or AC or Generator wake up battery

Specification

Your Reliable Energy Solution Partner

INPUT (PV DC)	SNA 12K
Max. PV array power (W)	24000 (12000/12000)
Rated PV input voltage (V)	320
Number of independent MPPT inputs	2/(2:2)
PV input voltage range (V)	100-480
MPPT voltage range (V)	120-385
Start-up voltage (V)	100
Max. PV input current per MPPT (A)	35/35
Max. PV short-circuit current input per MPPT (A)	44/44
Battery	
Compatible battery type	Lithium-ion/Lead-Acid
Rated battery voltage (V)	48/51.2
Battery voltage range (V)	46.4-60/38.4-60
Max. charging / discharging current (A)	250
Max. charging / discharging power (W)	12000
Force wake up battery from PV and Grid function	YES
Grid	
Rated AC voltage (V)	230
Acceptable Input Voltage Range (V)	90~280
Rated AC frequency (Hz)	60/50
Rated AC intput current (A)	100
Rated AC intput power (W)	24000
PF	0.99
THDI	<5%
Max. continuous AC passthrough current(A)	100
UPS	
Rated output power (W)	12000
Rated output voltage (V)	230
Rated output current (A)	50
Rated output frequency (Hz)	50/60
Surge power, duration	2Pn, 5s
Switching time (UPS)	<10ms@Single and Parallel
Wave form	Sine wave
THDV	3%
GEN	
Acceptable input voltage range	230
Max. AC input voltage (V)	280
Max. AC input current (A)	63
Rated input frequency	50Hz/60Hz (Auto detection)
Transfer time	<10ms@Single; <20ms@Parallel
THDV	<3%
Overload protection	5s@≥150% load /10s@110%~150% load
Efficiency	
Max. efficiency	93.5%
Max. charging / discharging efficiency	93.0%
Max. MPPT efficiency	99.0%
Protection	
PV reverse polarity protection(Y/N)	YES
Over current / voltage protection(Y/N)	YES
AC Short-circuit current protection(Y/N)	YES
Grid monitoring(Y/N)	YES
DC switch(Y/N)	YES
DC / AC Surge protection Type III	YES
Battery reverse polarity protection(Y/N)	YES
General	
Dimensions (W*H*D mm)	530*830*150mm(17.72*25.59*5.9inch)
Weight	40kg/88.2lbs
Ingress protection rating	IP20
Operating environment temperature range(°C)	0~45
Storage temperature range(°C)	-15~60
Relative humidity	5% ~ 95%
Display & Communication interface	LCD+RGB, RS485 / Wifi / CAN
Warranty	2 years
Cooling method	Smart cooling
Topology on AC / Battery side	Transformer-less / Transformer
Altitude (m)	<2000
Noise emission (typical)	<50dB
Standard & Certification	
CE	