

HYUNDAI SOLAR MODULE

VI
SERIES

PERC Shingled

HiE-S475VI HiE-S480VI HiE-S485VI



Shingled Technology



For Utility-Scale Applications



More Power Generation In Low Light



M6 PERC Shingled

M6 PERC Shingled Technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.



Anti-LID / PID

Both LID(Light Induced Degradation) and PID(Potential Induced Degradation) are strictly eliminated to ensure higher actual yield during lifetime.



Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow and strong wind.



Reliable Warranty

Global brand with powerful financial strength provide reliable 25-year warranty. (Europe and Australia only)



Corrosion Resistant

Various tests under harsh environmental conditions such as ammonia and salt-mist passed.



UL / VDE Test Labs

Hyundai's R&D center is an accredited test laboratory of both UL and VDE.

Hyundai's Warranty Provisions



- 25-Year Product Warranty (Europe and Australia only)
- On materials and workmanship



- 25-Year Performance Warranty
- Initial year: 98.0%
- Linear warranty after second year: with 0.55%p annual degradation, 84.8% is guaranteed up to 25 years

About Hyundai Energy Solutions

Established in 1972, Hyundai Heavy Industries Group is one of the most trusted names in the heavy industries sector and is a Fortune 500 company. As a global leader and innovator, Hyundai Heavy Industries is committed to building a future growth engine by developing and investing heavily in the field of renewable energy.

As a core energy business entity of HHI, Hyundai Energy Solutions has strong pride in providing high-quality PV products to more than 3,000 customers worldwide.

Certification



Growatt SPH3000~6000

- 2 MPPTs
- IP65 & Natural cooling
- Workmodes programmable
- Supports export limitation
- Online Smart Service



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Datasheet	SPH3000	SPH3600	SPH4000	SPH4600	SPH5000	SPH6000
DC input data						
Max. recommended PV power	6600W	6600W	6600W	8000W	8000W	8000W
Start voltage	150V	150V	150V	150V	150V	150V
Max. PV voltage	550V	550V	550V	550V	550V	550V
PV voltage range	120V-550V	120V-550V	120V-550V	120V-550V	120V-550V	120V-550V
MPPT voltage range/ nominal voltage	150V-550V /360V	150V-550V /360V	150V-550V /360V	150V-550V /360V	150V-550V /360V	150V-550V /360V
Max. input current of tracker A/B	12A/12A	12A/12A	12A/12A	12A/12A	12A/12A	12A/12A
Number of MPP trackers / strings per MPP tracker	2/1	2/1	2/1	2/1	2/1	2/1
AC Output						
Rated AC output power	3000W	3680W	4000W	4600W	4999W	6000W
Max. AC apparent power	3000VA	3680VA	4000VA	4600VA	5000VA	6000VA
Max. output current	16A	16A	22A	22A	22A	27A
Nominal AC output voltage	230V	230V	230V	230V	230V	230V
Nominal grid frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Power factor at rated power	1	1	1	1	1	1
Displacement power factor	0.8leading... 0.8lagging	0.8leading... 0.8lagging	0.8leading... 0.8lagging	0.8leading... 0.8lagging	0.8leading... 0.8lagging	0.8leading... 0.8lagging
THDI	<3%	<3%	<3%	<3%	<3%	<3%
AC output power(Backup)						
Max. output power	3000W	3000W	3000W	3000W	3000W	3000W
Rated AC output voltage	230Vac	230Vac	230Vac	230Vac	230Vac	230Vac
Rated AC output frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Automatic switchover time	<0.5S	<0.5S	<0.5S	<0.5S	<0.5S	<0.5S
Battery data						
Battery voltage range	42~59V	42~59V	42~59V	42~59V	42~59V	42~59V
Max. charging voltage	58V	58V	58V	58V	58V	58V
Max charging and discharging current	66A	66A	66A	66A	66A	66A
Max charging and discharging power	3000W	3000W	3000W	3000W	3000W	3000W
Battery type	lithium /Lead-acid	lithium /Lead-acid	lithium /Lead-acid	lithium /Lead-acid	lithium /Lead-acid	Lithium /Lead-acid
Capacity of battery	50~2000AH	50~2000AH	50~2000AH	50~2000AH	50~2000AH	50~2000AH
Efficiency						
Max. efficiency	97.5%	97.5%	97.5%	97.6%	97.6%	97.7%
Euro European efficiency	97.0%	97.0%	97.0%	97.1%	97.1%	97.1%
MPPT efficiency	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Protection devices						
DC switch	yes	yes	yes	yes	yes	yes
DC reverse polarity protection	yes	yes	yes	yes	yes	yes
Battery reverse protection	yes	yes	yes	yes	yes	yes
Output over current protection	yes	yes	yes	yes	yes	yes
Output over voltage protection	yes	yes	yes	yes	yes	yes
Ground fault monitoring	yes	yes	yes	yes	yes	yes
Grid monitoring	yes	yes	yes	yes	yes	yes
Integrated all - pole sensitive leakage	yes	yes	yes	yes	yes	yes
General Data						
Dimensions (W / H / D) in mm	547/516/170	547/516/170	547/516/170	547/516/170	547/516/170	547/516/170
Weight	27KG	27KG	27KG	27KG	27KG	27KG
Operating temperature range	-25°C ... +60°C	-25°C ... +60°C	-25°C ... +60°C	-25°C ... +60°C	-25°C ... +60°C	-25°C ... +60°C
Noise emission (typical)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)
Altitude	2000m	2000m	2000m	2000m	2000m	2000m
Self-Consumption	< 3 W	< 3 W	< 3 W	< 3 W	< 3 W	< 3 W
Topology	transformerless	transformerless	transformerless	transformerless	transformerless	transformerless
Cooling concept	Natural	Natural	Natural	Natural	Natural	Natural
Environmental Protection Rating	IP65	IP65	IP65	IP65	IP65	IP65
Relative humidity	100%	100%	100%	100%	100%	100%
Features						
DC connection	MC4/H4(opt)	MC4/H4(opt)	MC4/H4(opt)	MC4/H4(opt)	MC4/H4(opt)	MC4/H4(opt)
Interface:RS232/USB/CAN/RF/Wi-Fi	yes/yes/yes/opt/opt	yes/yes/yes/opt/opt	yes/yes/yes/opt/opt	yes/yes/yes/opt/opt	yes/yes/yes/opt/opt	yes/yes/yes/opt/opt
Display	LCD	LCD	LCD	LCD	LCD	LCD
Warranty: 5 years / 10 years	yes /opt	yes /opt	yes /opt	yes /opt	yes /opt	yes /opt

CE, IEC62109, G98/G99, VDE0126-1-1, AS4777, AS/NZS 3100, CEI 0-21, VDE-AR-N4105, UTE C 15-712, EN50438, IEC 61727, IEC 62116

Growatt GBLI3331 Lithium battery

- Compact size and easy installation
- High energy density and efficiency
- Excellent safety of LiFePO4 battery
- DoD up to 93%



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Battery Data

Nominal Voltage	51.2V
Normal Capacity	3.3kWh
Usable Capacity	3kWh
Operating voltage	48 ~ 57.6V
Charging/Discharging Current	32A/42.5A
Rated discharging power	1.64KW
MAX discharging power	2.5KW/3s

General Data

Dimension (W/D/H)mm	444*131*394 (±1)
Weight	30Kg
IP Protection	IP20
Working temperature	-10°C~+50°C
Storage Temperature	-20°C~+45°C

Features

DoD	93%
Cycle Life	> 6000 (25°C, 90% DOD)
Parallel Connection	Max .6pack
Communication Port	CAN2.0 / RS485
Warranty	10 Years

IEC62619 , CE , UN38.3

* When the temperature is below 0 °C or above 45°C, the performance will be limited.