



## Solar Power System

3KW 260W panel with battery backup

[www.solairworld.com](http://www.solairworld.com)

## Quotation for Solar Power System

### *3KW solar PV project-12V OPZV battery (Daily supply 10~13kwh electricity)*

Component Name	Specifications	Unit	Quantity
Solar panel	Poly 260W/30V DC, 25 years warranty	pcs	12
Solar Inverter	Hybrid solar inverter 3KW/220V 50Hz, LCD display, 1 year warranty	Pcs	1
Solar Panel Mounting kit	Flat roof installation, aluminium, for 260W solar panel, 5 years warranty	Set	1
Solar cable	2PFG1169 1×4mm <sup>2</sup> , 2 years warranty	M	80
PV switch box	1 solar input, with battery circuit breaker to inverter, 2 years warranty	Set	1
Solar connector	MC4, 2 years warranty	pair	4
OPZV Battery	12V/160AH	Pcs	8
AC Cable	RVV 3*2.5sqmm	M	10
Cable	RVV 1*2.5sqmm	M	50

### Products Photos:

HCT Solar Panel



Solar Inverter



Solar Panel Mounting



Solar cable



Solar Connector



Switch Box



Battery & Battery Mounting



AD245-60P    AD250-60P  
AD255-60P    AD260-60P  
AD265-60P



**60 Cell**    **245-265W**  
**Polycrystalline**    **Power Output**  
**Module**    **Range**

**16.5%**    **0~+5W**  
**Maximum**    **Power Output**  
**Efficiency**    **Guarantee**

AD series is the main brand of Aiduo PV's high quality solar modules.

Its high quality gives the customers more benefits.

AD series is famous for its high output power, convenient installation and high durability.

JIANGSU AIDUO PV TECHNOLOGY CO.,LTD



Coated glass helps the absorption of more lights. Meanwhile it can make it easier to clean the dust on the modules in the rain and reduce the power loss caused by dust cover.



Excellent performance on anti-PID. Passed the PID free test of TUV .



The modules have excellent performance on anticorrosion and have passed the salt spray test of TUV.



Outstanding performance in low-light irradiance environments such as in early morning, evening and cloudy days.



The modules' protection level reaches IP67 such as dustproof and waterproof.

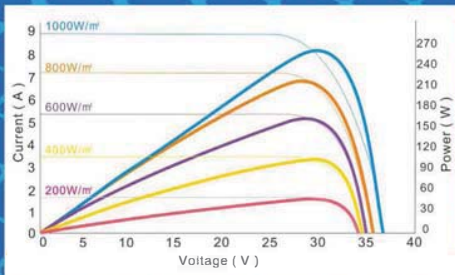
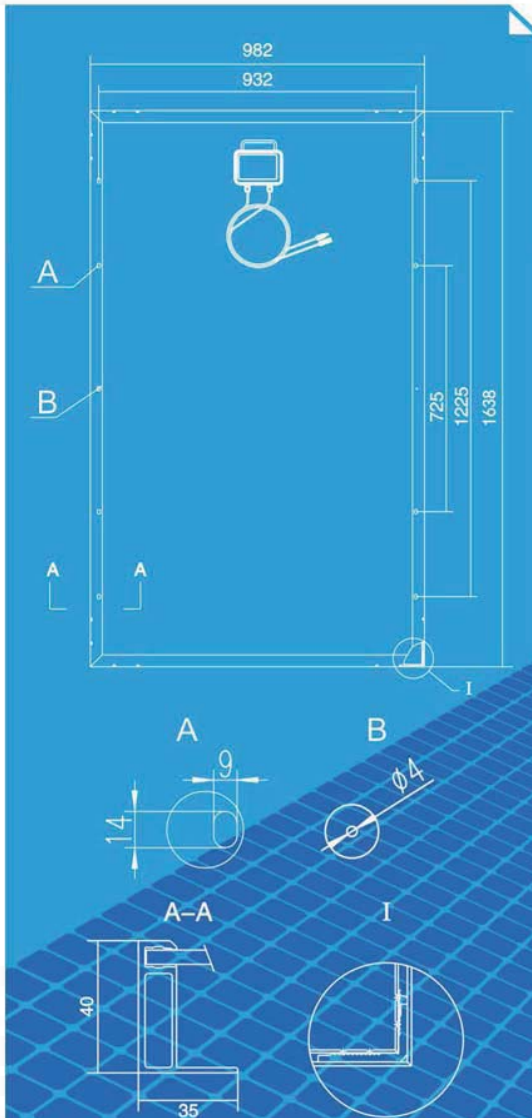


The frame can be customized to be white or black according to the customers' requirement.

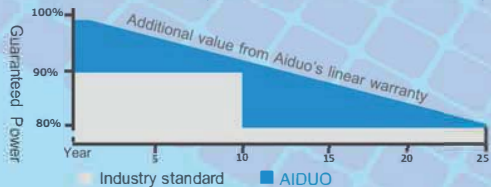
### RELIABLE QUALITY

- Module's power are classified according the tolerance of 0~+5W.
- The modules are soldered by automated machine and all the production are on the automatic assembly line. The quality is stable and reliable.
- EL test before packaging to exclude the product defects.





12 Year Product Warranty & 25 Year Linear Power Warranty



STC	AD245-60P	AD250-60P	AD255-60P	AD260-60P	AD265-60P
Maximum Power (Pm)	245	250	255	260	265
Maximum Power Voltage (Vm)	30.2	30.4	30.6	30.8	31.0
Maximum Power Current (Im)	8.12	8.23	8.34	8.45	8.56
Open Circuit Voltage (Voc)	36.8	36.9	36.9	37.0	37.0
Short Circuit Current (Isc)	8.74	8.88	9.02	9.16	9.31
Module Efficiency (%)	15.2	15.5	15.9	16.2	16.5
Operating Temperature (°C)	-40 ~ +85 °C				
Maximum System Voltage (V)	1000V				
Maximum Series Fuse Rating (A)	15A				
Power Tolerance (W)	0 ~ +5W				

STC: Irradiance 1000W/m<sup>2</sup>, module temperature 25°C, AM=1.5

NOCT	AD245-60P	AD250-60P	AD255-60P	AD260-60P	AD265-60P
Maximum Power (Pm)	179	182	186	189	193
Maximum Power Voltage (Vm)	27.5	27.7	27.8	28.0	28.2
Maximum Power Current (Im)	6.50	6.58	6.67	6.76	6.85
Open Circuit Voltage (Voc)	33.9	33.9	34.0	34.0	34.1
Short Circuit Current (Isc)	7.08	7.19	7.31	7.42	7.54

NOCT: Irradiance 800W/m<sup>2</sup>, ambient temperature 20°C, AM=1.5, wind speed 1m/s

#### Temperature Characteristics

NOCT	45 ± 2 °C
Temperature Coefficient of Pmax	-0.43% / °C
Temperature Coefficient of Voc	-0.31% / °C
Temperature Coefficient of Isc	0.046% / °C

#### Mechanical Characteristics

Solar Cell	Polycrystalline
Cell Size	156×156mm (6 Inches)
No. of Cells	60 (6×10)
Dimensions	1638×982×40mm
Weight	20kg
Frame	Anodized Aluminum Alloy
Junction Box	IP67 rated
Cables	4 mm <sup>2</sup> , 900mm
Connectors	MC4/MC4 compatible

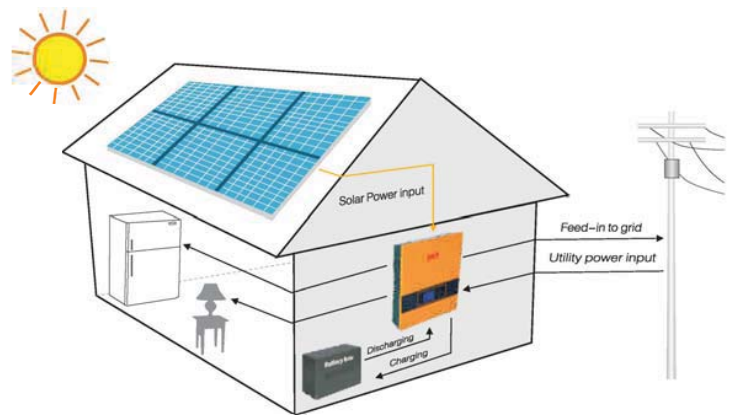
# Hybrid (Bi-direction) Solar Inverter

EA3KHD (Transformerless)

PF = 1



Hybrid (Bi-direction) Solar Inverter is PV energy combined with energy storage systems. It utilizes solar power, AC utility and battery power to ensure continuous power supply, and users can store the unused energy produced during the day by PV system in the battery and use it whenever they need, even at night, it helps increase self-consumption and achieve greater energy self-sufficiency.



## Features

### Operating Flexibility

- Operating modes can be programmed flexibly
- On-grid operating, easy feed-in to the grid, backflow prevention, energy self-generation and self-consumption.
- Off-grid operating, no worry about grid power failure
- Solar power, battery power and AC utility power source to provide loads with continuous power
- Even with grid or PV input only, inverter can still start working without battery
- Priority of PV, battery or grid power source can be programmed flexibly
- High efficiency of battery management system, EOD, floating voltage and charge current are settable.

### High efficiency and safety

- Soft-switching technology, improving inverter efficiency
- DSP complete digital control technology
- Small size, light weight, easy installation
- Superior protection

### Intelligent monitoring

- LCD, LED display real-time operating information
- Monitoring software display real-time operating information
- Monitoring software make operating modes programmed and control
- Various communications selectable via USB, RS232, RS485, SNMP

**Specifications**

MODEL	EA3KHD
Rated power	3000 W
Operating mode	Flexible setup via upper computer software or LCD interface
<b>PV INPUT</b>	
Max. input power	4500 W
Rated input voltage	360 Vdc
Max. input voltage	500 Vdc
Start-up voltage	115 Vdc
Initial feeding voltage	150 Vdc
MPPT voltage range	250 Vdc ~ 450 Vdc
Max. input current	18 A
PV short circuit current	18 A
Number of MPPT	1
<b>BATTERIES</b>	
Battery type	Lithium battery
Rated voltage	51.2 Vdc
Voltage range	46.4 Vdc ~ 57.6 Vdc
Battery type	VRLAAGM maintenance-free battery
Rated voltage	48 Vdc
Voltage range	40 Vdc ~ 58 Vdc
Battery capacity	100 Ah ~ 120 Ah optimized
Rated charger power	1425 W
Max. charging current	25 A (5 A / 10 A / 15 A / 20 A / 25 A settable)
Charging curve	3-Stage
Max. charging efficiency	94%
Rated discharge power	3000 W
Max. discharge current	100 A
Discharge depth (%)	80% default
Max. discharge efficiency	94%
<b>AC GRID INPUT</b>	
AC start-up voltage	120 Vac
Grid voltage range	170 ~ 280 Vac
Rated grid frequency	50 Hz / 60 Hz
Allowed grid frequency	50 ± 5 Hz / 60 ± 5 Hz
AC input power	5100 VA / 5100 W
Max. input current	30 A
<b>AC OUTPUT (connect with load)</b>	
Rated output power	3000 VA / 3000 W
Rated output voltage	230 Vac (208 / 220 / 240Vac settable)
Rated output current	13.0 A (14.4 A / 13.6 A / 12.5 A)
Output voltage range	184 Vac ~ 264.5 Vac
Rated output frequency	50 Hz / 60 Hz
Output frequency precision	± 1%
Power factor	0.9 leading ~ 0.9 lagging
Output voltage precision	± 1%
Transient recovery time	≤ 40 ms
Peak factor	3 : 1
Linear load waveform distortion	≤ 3%
Short circuit current	45 A (100 ms)
<b>TRANSFER TIME</b>	
Off-grid mode → On-grid mode	0 ms
On-grid mode → Off-grid mode	10 ms
<b>EFFICIENCY</b>	
MPPT efficiency	99%
Max. PV efficiency	96%
<b>OTHERS</b>	
Dimensions (W×H×D) (mm)	410 × 470 × 123
Weight (kg)	14
Communications	RS232 / USB / RS485 / SNMP (optional)
Protection rating	IP20
Operating temperature	0 ~ 40°C (> 40°C derating)
Max. relative humidity	0 ~ 90%
Max. altitude	< 1000 m (> 1000 m derating)
Cooling	forced ventilation
Alarm	LED, buzzer
Display	LED, LCD
Noise	≤ 50 dB
Topology	Transformerless

● All specifications subject to change without notice.

# SFS-FR-02 Flat Roof Ballast Mounting System

SFS-FR-02 ballast mounting system adopts foldable triangular to save cost both on installation and transportation. It is a modular structure, which can be expanded from one module to any scale while maximizing the roof usage. Our professional engineers will propose the size and weight of ballast for the project you are involved in.



### Ballast Roof Bracket Specification

- Installation Site:** open ground and roof
- Panels:** Solar panel for any size
- Structural materials:** aluminum, stainless steel
- Survival wind speed:** up to 60m / s
- Design snow pressure:** up to 1.4KN / m2
- Inclination:** Customizable
- Component direction:** Horizontal or vertical
- Design Standards:** CE&AS / NZS 1170
- Life:** Design Life for 25 years, quality assurance for 10 years

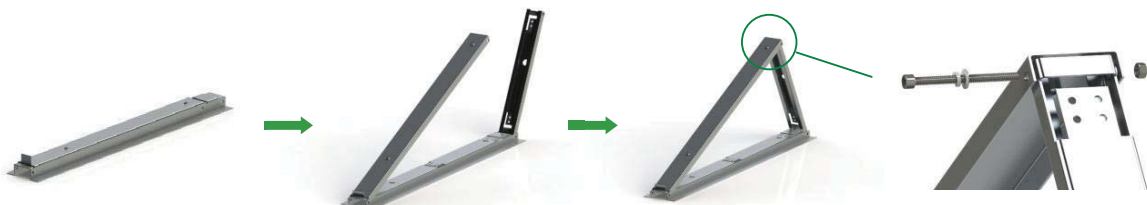
### Products Strengths of our technology

1. Functional triangular mounts
2. Economical with panel in landscape
3. Easy and fast installation with foldable design
4. Best tilt angle 5~15degree

### Overview of system components

(1X3 panel mounting system package: Based on Width of panel:1650X992X50mm )

SFS-BT MG-15	SFS Triangular mounts Group Extruded Al6005-T5 Anodize		SFS-MC G-50	SFS Mid-Clamp Group(50mm) Extruded Al6005-T5 Anodize	
SFS-EC G-50	SFS End Clamp Group(50mm) Extruded Al6005-T5 Anodize		SFS-AP- 1983	SFS Angle Plate L=1983mm Extruded Al6005-T5 Anodize	



# OPzV 12-160 (12V160Ah)



OPzV series is a Valve Regulated Lead Acid battery that adopts immobilized GEL and Tubular Plate technology to offer high reliability and performance. The Battery is designed and manufactured according to DIN standards and with die-casting positive grid and patent formula of active material. OPzV series exceeds DIN standard values with more than 20 years floating design life at 25°C and is even more suitable for cyclic use under extreme operating conditions.

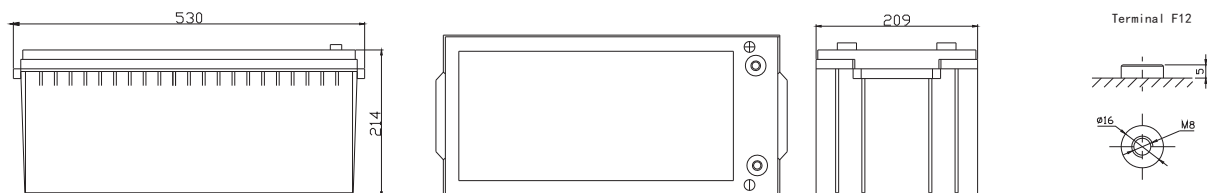
## Specification

Cells Per Unit	6
Voltage Per Unit	12
Capacity	160Ah@10hr-rate to 1.80V per cell @25°C
Weight	Approx. 57.0 Kg(Tolerance ±2%)
Max. Discharge Current	1600 A (5 sec)
Internal Resistance	Approx. 6.5 mΩ
Operating Temperature Range	Discharge: -40°C~70°C Charge: 0°C~50°C Storage: -20°C~60°C
Normal Operating Temperature Range	25°C ± 5°C
Float charging Voltage	13.6 to 13.8 VDC/unit Average at 25°C
Recommended Maximum Charging Current	32A
Equalization and Cycle Service	14.2 to 14.4VDC/unit Average at 25°C
Self Discharge	RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
Terminal	Terminal F12
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.



## Dimensions

Unit: mm Dimension: 530 (L) × 209 (W) × 214 (H)



### Constant Current Discharge Characteristics: A (25°C)

F.V/ Time	30min	1h	2h	3h	4h	5h	6h	8h	10h	20h
11.4	78.72	62.40	44.00	33.37	27.36	23.64	21.28	16.61	14.24	7.476
11.2	88.00	68.80	47.20	35.39	28.88	24.87	22.56	17.38	14.88	7.812
11.0	100.8	76.80	51.20	37.72	30.40	25.95	23.36	18.16	15.52	8.148
10.8	112.0	83.20	53.12	38.80	31.01	26.56	24.00	18.62	16.00	8.400
10.5	124.8	89.12	55.52	40.35	31.52	27.20	24.48	18.93	16.32	8.568
10.2	137.6	92.00	57.12	41.13	32.07	27.52	24.80	19.09	16.48	8.652
9.90	141.9	97.76	59.04	42.24	32.53	27.84	25.12	19.24	16.64	8.736
9.60	148.0	101.1	61.28	44.00	33.44	28.32	25.44	19.40	16.80	8.820

### Constant Power Discharge Characteristics: W (25°C)

F.V/ Time	30min	1h	2h	3h	4h	5h	6h	8h	10h	20h
11.4	904.0	718.8	510.4	387.8	321.3	279.4	252.5	199.3	174.1	91.42
11.2	994.7	780.5	541.3	406.3	338.6	292.8	266.9	207.7	181.6	95.33
11.0	1114	851.0	576.0	427.4	355.0	304.3	275.5	215.1	188.1	98.75
10.8	1218	907.9	595.3	437.0	361.8	311.0	282.2	219.8	192.8	101.2
10.5	1321	948.4	614.6	450.4	366.6	318.7	287.0	222.6	195.6	102.7
10.2	1416	958.0	630.0	458.1	372.4	321.6	289.9	224.4	197.4	103.6
9.90	1440	1000	647.4	468.1	377.2	324.5	292.8	226.3	198.3	104.1
9.60	1458	1031	662.8	483.5	386.9	327.4	294.7	227.2	199.3	104.6

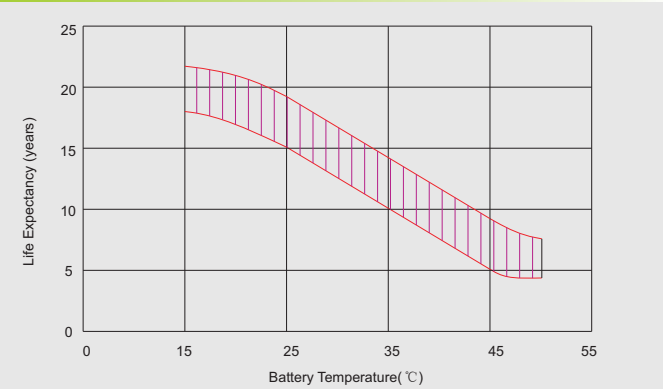
All mentioned values are average values (Tolerance ±2%).



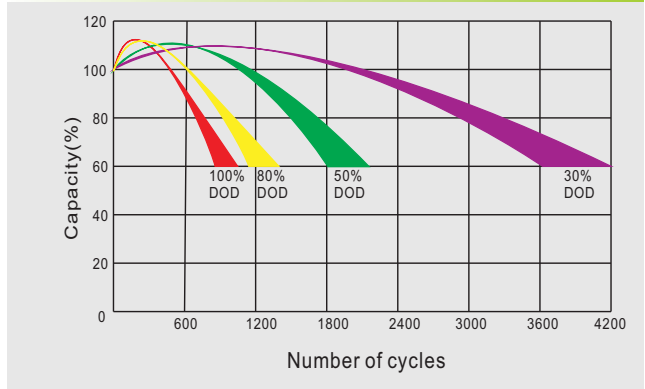
# OPzV 12-160

# 12V160Ah

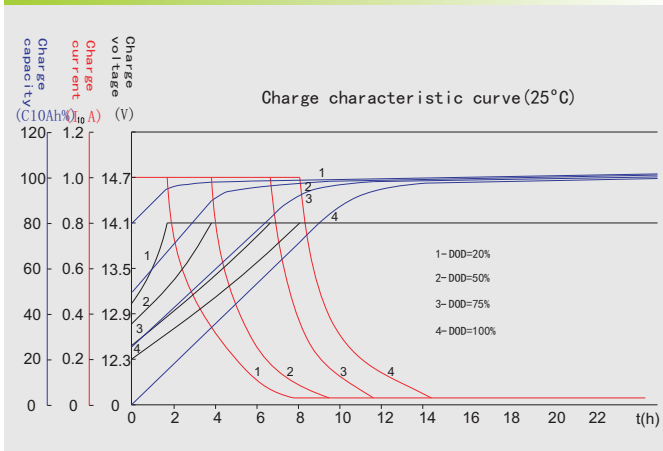
### Effect of temperature on long term float life



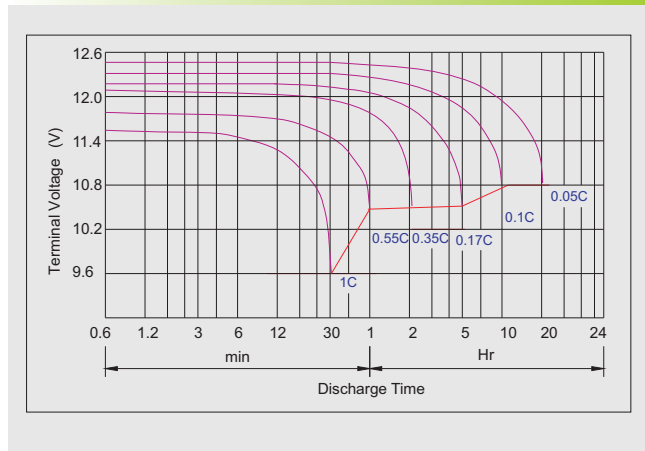
### Life characteristics of cyclic use



### Charge characteristic Curve for cyclic use



### Discharge characteristic Curve



### Long time discharge capacity for solar/wind application

Model	Capacity	C24 (Ah)	C48 (Ah)	C72 (Ah)	C100 (Ah)	C120 (Ah)	C240 (Ah)
		F.V=1.85VPC					
OPzV12-160		161.1	170.2	178.8	182.4	186.0	197.0

### Capacity factors vs temperature (OPzV series)

Temperature	-30°C	-20°C	-10°C	0°C	10°C	20°C	25°C	30°C	40°C	45°C	50°C
Capacity	60%	75%	83%	89%	92%	99%	100%	103%	105%	107%	109%

### Discharge Current VS. Final Voltage

Discharge current	Final voltage (V)
$I_{dis} \leq 0.1I_{10}$	1.90
$0.1I_{10} < I_{dis} \leq I_{10}$	1.85
$I_{10} < I_{dis} \leq 4I_{10}$	1.80
$4I_{10} < I_{dis} \leq 6I_{10}$	1.75
$6I_{10} < I_{dis} \leq 10I_{10}$	1.70
$I_{dis} > 15I_{10}$	1.60

Charge the batteries at least once every one year, if they are stored at 25°C.

Charging Method:

Constant Voltage	-0.2Cx2h+14.1~14.4V,24h,Max. Current 0.2CA
Constant Current	-0.2Cx2h+0.1CAx12h

### Maintenance & Cautions

#### Float Service:

- ※ Every month, recommend inspection every battery voltage.
- ※ Every three months, recommend equalization charge for one time.

Equalization charge method:

Discharge: 40~50% rate capacity discharge.

Charge: Max. current 0.2CA, constant voltage 14.1-14.4V charge 24h.

- ※ Effect of temperature on float charge voltage:  $-3mV/^{\circ}C/Cell.$

- ※ Service life will be directly affected by the number of discharge

cycles, depth of discharge, ambient temperature and charging method.