Safety and Installation Instructions
CRYSTALLINE SERIES

for Europe, Asia, Australia, Latin America and Africa

This document applies to the following Senersun PV Module Series:

125x125mm mono cell	156x156mm mono cell	156x156mm poly cell
SSM96-xxx-C	SSM72-xxx-C	SSP72-xxx-C
SSM72-xxx-C	SSM60-xxx-C	SSP60-xxx-C
SSM60-xxx-C	SSM54-xxx-C	SSP54-xxx-C
SSM54-xxx-C	SSM48-xxx-C	SSP48-xxx-C
SSM48-xxx-C	SSM36-xxx-C	SSP36-xxx-C
SSM36-xxx-C		

Language: **English**

Senersun Limited

www.senersun.com

Document: SNS-IMS1-12-0001-A

IMPORTANT: READ THIS INSTRUCTION MANUAL IN ITS ENTIRETY BEFORE INSTALLING, WIRING, OR USING THIS PRODUCT IN ANY WAY. FAILURE TO COMPLY WITH THESE INSTRUCTIONS WILL INVALIDATE THE SENERSUN LIMITED WARRANTY FOR PV MODULES

This manual applies to Senersun crystalline series, and provides safety and installation instructions for IEC-listed Senersun photovoltaic (PV) modules carrying the TUV logo on the product label (Figure 1). **Note.** The actual *ID* number may vary.

Figure 1

1.1 Disclaimer of Liability

The installation techniques, handling and use of this product are beyond company control. Therefore, Senersun does not assume responsibility for loss, damage or expense resulting from improper installation, handling or use.

1.2 International Electro-technical Commission (IEC) Listing Information

This product meets or exceeds the requirements set forth by IEC 61215 Edition 2 for PV Modules for Class A Applications: ''Hazardous voltage (IEC 61730: higher than 50V DV: EN 61730: higher than 120V), hazardous power applications (higher than 240V) where general contact access is anticipated (modules qualified for safety through EN IEC 61730-1 and -2 within this application class are considered to meet the requirements for Safety Class II) The IEC Standard covers flat-plate PV modules intended for installation on buildings and those intended to be freestanding. This product is not intended for use where artificially concentrated sunlight is applied to the module.

1.3 Limited Warranty

Module limited warranties are described in the Senersun warranty certificates obtainable at www.senersun.com. Warranties do not apply to any of the following:
PV modules which in Senersun's absolute judgment have been subjected to: misuse, abuse, neglect or accident; alteration, improper installation, application or removal (including but not limited to installation, application or removal by any party other than a qualified personnel; non-observance of Senersun's installation, users and/or maintenance instructions; repair or modifications by someone other than an approved service technician; power failure surges, lightning, flood, fire, accidental breakage or other events outside Senersun's control.

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com

1.4 Product identification

Each module has two types of labels providing the following information:

- Manufacturer label(rear side): describes the product type, rated power, power tolerance, peak power voltage, peak power current, open circuit voltage, short circuit current, NOCT, maximum system voltage, maximum series fuse rating, operating temperature, weight, and dimensions.

- Bar code (3 units, rear side, front side and frame side): each module has a unique serial number. Serial Number description: (16 digits)

Structure : SSYYWWZZZZxxxxxx

YY	2 digits	year of production	i.e. 11 for year 2011
WW	2 digits	week of production	Number between 1 and 53
ZZZZ	4 digits	Model Series	First digit: M(mono), P(Poly) or T(Thin film) Second and third digit: number of cells 00 for Thin Film. Fourth digit: Size of cell. A(5 INCHES r150), B(5 inches r165), C(6 inches). i.e. M72A (Mono 72 cells 5 inches r150)
xxxxxx	6 digits	Incremental counter	Number between 000001 and 999999 This number is unique and is incremented without reset

2 Safety Precautions

DANGER: MODULE INTERCONNECTS PASS DIRECT CURRENT (DC) AND ARE SOURCES OF VOLTAGE WHEN THE MODULE IS UNDER LOAD AND WHEN IT IS EXPOSED TO LIGHT. DIRECT CURRENT CAN ARC ACROSS GAPS AND MAY CAUSE INJURY OR DEATH IF IMPROPER CONNECTION OR DISCONNECTION IS MADE, OR IF CONTACT IS MADE WITH MODULE COMPONENTS THAT ARE DAMAGED. DO NOT CONNECT OR DISCONNECT MODULES WHEN CURRENT FROM THE MODULES OR AN EXTERNAL SOURCE IS PRESENT.

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

Before installing this device, read all safety instructions in this manual.

- Cover all modules in the PV array with an opaque cloth or material before making or breaking electrical connections.
- It is imperative to use the supplied locking connectors and safety clips in order to defend against untrained personnel disconnecting the modules once they have been installed.
- All installations must be performed in compliance with all applicable regional and local codes.
- There are no user serviceable parts within the module. Do not attempt to repair any part of the module.
- Only qualified personnel should perform installation.
- Remove all metallic jewelry prior to installing this product to reduce the chance of accidental exposure to live circuits.
- Use insulated tools to reduce your risk of electric shock.
- Do not stand on, drop, scratch or allow objects to fall on modules. Damaged modules (broken glass, torn back sheet, broken j-boxes, broken connectors, etc) can be electrical hazards as well as laceration hazards. Contact with damaged module surfaces or module frame can cause electric shock. The dealer or installers should remove the module from array and contact the supplier for disposal instructions.
- Do not install or handle the modules when they are wet or during periods of high wind.
- Contact your module supplier if maintenance is necessary.
- Save these instructions!

3 Electrical Characteristics

The module electrical ratings are measured under Standard Test Conditions (STC) of 1 kW/m2 irradiance with AM 1.5 spectrum and a cell temperature of 25° C. Senersun modules have specific electrical characteristics as shown on the datasheets and in the end of this manual.
Bypass diodes for each module are factory-installed in the modules, type 10SQ050, 15SQ045 and 12SQ045 respectively.

A photovoltaic module may produce more current and/or voltage than reported at STC. Sunny, cool weather and reflection from snow or water can increase current and power output. Therefore, the values of Isc and Voc marked on the module should be multiplied by a factor of 1.25 when determining component voltage ratings, conductor ampacities, fuse sizes, and size of controls connected to PV output. An additional 1.25 multiplier may be required by certain codes for sizing fuses and conductors.

Senersun recommends the use of open-circuit voltage temperature coefficients listed on the datasheets when determining Maximum System Voltage.

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

4 Electrical Connections

Modules may be connected in series and/or parallel to achieve the desired electrical output as long as certain conditions are met. Please use only the same type of modules in a combined source circuit. The connectors on Senersun modules ship with a locking safety clip, which once connected requires the use of a tool to disconnect module-to-module connections. This defends against untrained personnel disconnecting the modules when under load and may be considered as a change in the next update of IEC 61730.

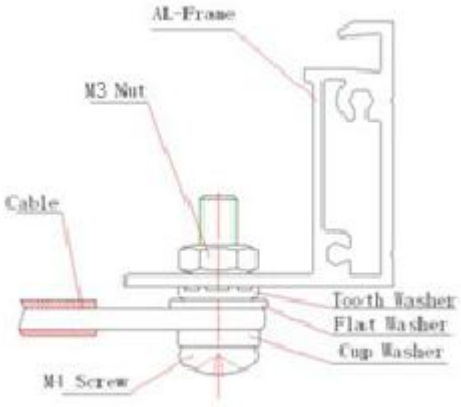
Senersun recommends that all wiring be double insulated with a minimum rating of 85° C (185° F). All wiring should use flexible copper (Cu) conductors. The minimum size should be determined by the applicable codes. We recommend a size not less than 4mm2. The insulation type should be appropriate for the type of installation method used and must meet SCII (Safety Class II) and IEC 61730 requirements.

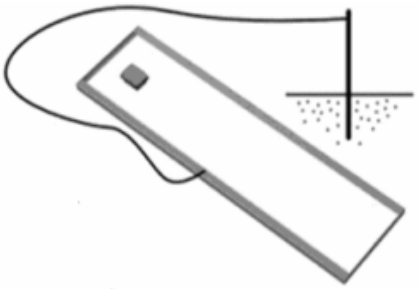
4.1 System Grounding

- Please refer to the applicable regional and local codes on grounding PV arrays and ensure to comply with all the regulations.
- The earth grounding connection should be made by a qualified electrician.
- Proper grounding of the PV modules is achieved by connecting the module frame(s) and structural members continuously to one another using a suitable copper equipment grounding conductor. The grounding conductor must make a connection to earth using a suitable earth ground electrode. Senersun recommends the following grounding method:
    - The grounding conductor shall be attached to the module frame at the designated grounding location. Do not drill additional holes into the frame.
    - A stainless steel cup washer is required between the copper and aluminum module frame.
    - A stainless steel backing nut is required to secure the grounding hardware to the frame.
    - A stainless steel tooth lock washer is required to engage the frame and penetrate the nonconductive anodized layer of the aluminum frame. The tooth lock washer can either be integrated with or independent of the backing nut.

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com





Module to Ground Rod

- Senersun modules can also be grounded using third party ground washers or clip devices as long as the products are approved for grounding metallic frames of PV modules.

4.2 Series Connection

The modules may be wired in series to produce the desired voltage output. Do not exceed the maximum system voltage.

4.3 Parallel Connection

The modules may be combined in parallel to produce the desired current output. Series string must be fused prior to combining with other strings if the resulting maximum reverse current exceeds the fuse rating as shown in the datasheets. Bypass diodes are factory installed in the modules. Please refer to the applicable regional and local codes for additional fusing requirements and limitations on the maximum number of modules in parallel.

4.4 Recommended maximum series/parallel module configuration

	Senersun Mono 5'' modules						*Senersun Mono 6'' modules*				
	SSM36	*SSM48*	*SSM54*	*SSM60*	*SSM72*	*SSM96*	*SSM36*	*SSM48*	*SSM54*	*SSM60*	*SSM72*
Series	*45*	*34*	*30*	*27*	*22*	*18*	*45*	*34*	*30*	*27*	*22*
Parallel	*2*						*2*				

	Senersun Poly 6'' modules				
	SSP36	*SSP48*	*SSP54*	*SSP60*	*SSP72*
Series	*45*	*34*	*30*	*27*	*22*
Parallel	*2*				

5 Module Mounting

The Senersun Limited Warranty for PV Modules is contingent upon modules being mounted in accordance with the requirements described in this section.

5.1 Site Considerations

Senersun module Series referred in this manual should be mounted in locations that meet the following requirements:

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

Operating Temperature: Senersun modules will operate within the following maximum and minimum operating temperatures:

Maximum	Operating Temperature:	+85°Celsius,	+185° Fahrenheit
Minimum	Operating Temperature:	-40° Celsius,	- 40° Fahrenheit

Care should be taken to provide adequate ventilation behind the modules, especially in hot environments. The whole system mounting should be installed around 20cm away from the roof.

Design Strength:
The mechanical load bearing (include wind and snow loads) of the module is based on the mounting methods. The professional system installer must be responsible for mechanical load calculation according to the system design.

When mounting modules in snow prone or high wind environments, special care should be taken to mount the modules in a manner that provides sufficient design strength while meeting local code requirements.

Excluded Operating Environments:
Certain operating environments are not recommended for specific Senersun modules and are excluded from the Senersun Limited Warranty for these modules.

No Senersun module should be mounted at a site where it may be subject to direct contact with salt water.

5.2 Mounting Configuration

Modules may be mounted at any angle from horizontal to vertical. Select the appropriate orientation to maximize sunlight exposure. Specific information on module dimensions and the location of mounting and grounding holes is provided in the technical data sheet of each module type.

In order to prevent water from entering the junction box, which could present a safety hazard, modules should not be mounted such that the front/top glass faces downward (e.g., on a tracking structure that positions the module with the junction box facing skyward during sleep mode).

Clearance between the module frames and structure or ground is required to prevent wiring damage and allows air to circulate behind the module.

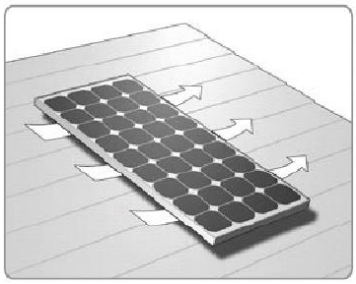
When installing a module on a roof or building:

1. Ensure that it is securely fastened and cannot fall as a result of wind or snow loads.
2. Provide adequate ventilation under a module for cooling (5cm minimum air space between module and mounting surface).

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com

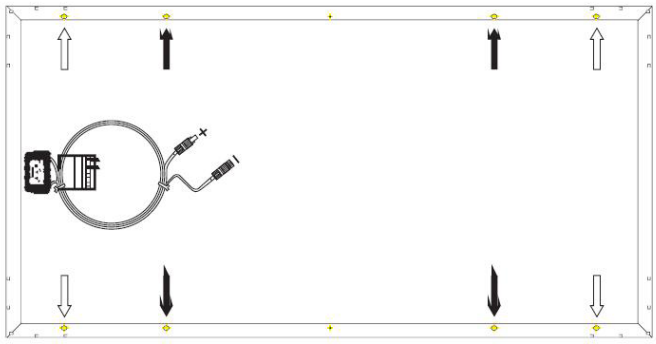
3. Any roof penetration required to mount the module must be properly sealed to prevent leaks.
4. In some cases, a special support frame may be necessary.
5. The roof installation of solar modules may affect the fireproofing of the house construction. Ensure the modules are mounted over a fire resistant roof covering rated for the application.
6. When installing the module on a roof or building, do so in calm winds. Installing a module during strong winds may cause accidents.



The module is only IEC Listed for use when its factory frame is fully intact. Do not remove or alter the module frame. Creating additional mounting holes may damage the module and reduce the strength of the frame. Modules may be mounted using the following method:

Frame Holes

Modules shall be mounted using 4 or 8 holes located on the rear side of the long frame parts. Use 4 or 8 M8 stainless steel bolts per PV module, with nuts and washers. Refer to the technical datasheets for the module dimensions and mounting hole locations.

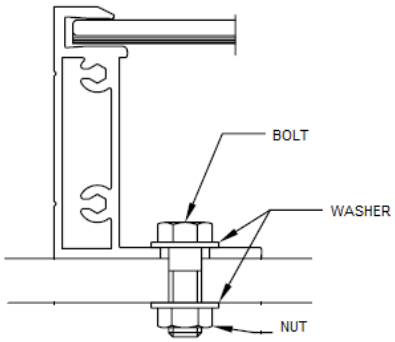


Mounting holes for normal installation

For high wind and snow-loads, these mounting holes must also be used

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com



5.3 Handling of Modules during Installation

Do not place modules face forward in direct contact with abrasive surfaces like roofs, driveways, wooden pallets, railings, stucco walls, etc.... The module front surface glass is sensitive to oils and abrasive surfaces, which may lead to scratches and irregular soiling.

Modules that feature antireflective-coated glass are prone to visible finger print marks if touched on the front glass surface. Senersun recommends handing modules with anti-reflective glass with gloves or limiting touching of the front surface. Any finger print marks resulting from installation will naturally disappear over time or can be reduced by following the washing guidelines in Section 6.0 below. Product datasheets specify the glass type used by a particular module.

6 Maintenance

Senersun recommends visual inspection on a regular basis of all modules for safe electrical connections, sound mechanical connection, and freedom from corrosion. This visual inspection should be performed by trained personnel.

Periodic cleaning of modules is recommended, but is not required. Periodic cleaning has resulted in improved performance levels, especially in regions with low levels of annual precipitation (less the 18.25 inches (46.3cm)). Consult your dealer or supplier about recommended cleaning schedules for your area.

To clean a module, wash with potable, non-heated, water. Normal water pressure is more than adequate, but pressurized water up to 100 bar (min.50 cm distance) may be used. Senersun recommends to use a large hosepipe and not at high outside temperature. Fingerprints, stains, or accumulations of dirt on the front surface may be removed as follows: first rinse off area and let soak for a short period of time (5 mins). Re-wet and use a soft sponge or seamless cloth to wipe glass surface in a circular motion. Fingerprints typically can be removed with a soft cloth or sponge and water after wetting. Do not use harsh cleaning materials such as scouring powder, steel wool, scrapers, blades, or other sharp instruments to clean the glass surface of the module. Use of such materials or cleaning without consultation will invalidate the product warranty.

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com

MODULE DATA SHEETS

SSM96A Series — 96 pcs 125x125mm monocrystalline cells - 1580x1062x50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM96-260-C	59.65	48.50	5.36	59.65	260	10	96	4
SSM96-255-C	59.53	48.40	5.27	59.53	255	10	96	4
SSM96-250-C	59.28	48.17	5.19	59.28	250	10	96	4
SSM96-245-C	59.21	48.14	5.09	59.21	245	10	96	4
SSM96-240-C	59.04	48.00	5.00	59.04	240	10	96	4
SSM96-235-C	58.99	47.96	4.90	58.99	235	10	96	4
SSM96-230-C	58.94	47.92	4.80	58.94	230	10	96	4
SSM96-225-C	58.88	47.80	4.70	58.88	225	10	96	4
SSM96-220-C	58.57	47.62	4.62	58.57	220	10	96	4
SSM96-215-C	58.51	47.57	4.52	58.51	215	10	96	4

SSM72A Series — 72 pcs 125x125mm monocrystalline cells - 1580x808x35 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM72-195-C	44.7	36.7	5.32	5.75	195	10	72	3
SSM72-190-C	44.6	36.6	5.2	5.62	190	10	72	3
SSM72-185-C	44.5	36.5	5.07	5.48	185	10	72	3
SSM72-180-C	44.2	35.9	5.01	5.44	180	10	72	3

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSM72-175-C	44.1	35.8	4.88	5.31	175	10	72	3
SSM72-170-C	43.9	35.7	4.76	5.17	170	10	72	3

SSM60A Series — 60 pcs 125x125mm monocrystalline cells - 1326*808*35 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM60-160-C	37.5	30.5	5.26	5.68	160	10	60	3
SSM60-155-C	37.2	30.3	5.11	5.56	155	10	60	3
SSM60-150-C	37.1	30.2	4.96	5.4	150	10	60	3
SSM60-145-C	37	30.1	4.81	5.23	145	10	60	3
SSM60-140-C	36.8	30	4.66	5.07	140	10	60	3
SSM60-135-C	36.7	29.9	4.51	4.9	135	10	60	3

SSM54A Series — 54 pcs 125x125mm monocrystalline cells - 1199*808*35 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM54-145-C	33.65	27.32	5.31	6.17	145	10	54	3
SSM54-140-C	33.5	27.3	5.13	5.58	140	10	54	3
SSM54-135-C	33.4	27.2	4.96	5.4	135	10	54	3
SSM54-130-C	33.3	27.1	4.8	5.21	130	10	54	3
SSM54-125-C	33.2	27	4.63	5.03	125	10	54	3

SSM48A Series — 48 pcs 125x125mm monocrystalline cells - 1072*808*35 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSM48-130-C	29.88	24.30	5.35	5.78	130	10	48	3
SSM48-125-C	29.68	24.13	5.18	5.60	125	10	48	3
SSM48-120-C	29.22	23.76	5.05	5.54	120	10	48	3
SSM48-115-C	28.99	23.57	4.88	5.27	115	10	48	3
SSM48-110-C	28.67	23.31	4.72	5.09	110	10	48	3

SSM36A Series — 36 pcs 125x125mm monocrystalline cells - 1199*541*35 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM36-095-C	22.38	18.2	5.22	5.63	95	10	36	2
SSM36-090-C	22.2	18.1	4.98	5.41	90	10	36	2
SSM36-085-C	22.1	18.0	4.72	5.13	85	10	36	2
SSM36-080-C	22.0	18.0	4.46	4.84	80	10	36	2

SSM72C Series — 72 pcs 156x156mm monocrystalline cells - 1956×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM72-300-C	45.05	36.75	8.16	8.81	300	15	72	6
SSM72-295-C	44.85	36.60	8.06	8.70	295	15	72	6
SSM72-290-C	44.76	36.51	7.94	8.57	290	15	72	6
SSM72-285-C	44.68	36.38	7.84	8.46	285	15	72	6
SSM72-280-C	44.50	36.27	7.72	8.39	280	15	72	6
SSM72-275-C	44.35	36.15	7.61	8.27	275	15	72	6
SSM72-270-C	44.21	36.03	7.49	8.15	270	15	72	6

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSM72-265-C	43.99	35.85	7.39	8.03	265	15	72	6
SSM72-260-C	43.78	35.68	7.29	7.92	260	15	72	6
SSM72-255-C	43.63	35.56	7.17	7.79	255	15	72	6
SSM72-250-C	43.49	35.44	7.05	7.67	250	15	72	6

SSM60C Series — 60 pcs 156x156mm monocrystalline cells - 1640×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM60-250-C	37.54	30.53	8.19	8.84	250	15	60	6
SSM60-245-C	37.30	30.44	8.05	8.69	245	15	60	6
SSM60-240-C	37.17	30.31	7.92	8.54	240	15	60	6
SSM60-235-C	37.08	30.21	7.78	8.45	235	15	60	6
SSM60-230-C	36.96	30.12	7.64	8.30	230	15	60	6
SSM60-225-C	36.84	30.02	7.49	8.15	225	15	60	6
SSM60-220-C	36.60	29.83	7.38	8.02	220	15	60	6
SSM60-215-C	36.48	29.73	7.23	7.86	215	15	60	6
SSM60-210-C	36.24	29.54	7.11	7.73	210	15	60	6

SSM54C Series — 54 pcs 156x156mm monocrystalline cells - 1482×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM54-225-C	33.84	27.51	8.18	8.83	225	15	54	6
SSM54-220-C	33.70	27.40	8.03	8.67	220	15	54	6
SSM54-215-C	33.45	27.32	7.87	8.50	215	15	54	6
SSM54-210-C	33.37	27.20	7.72	8.39	210	15	54	6
SSM54-205-C	33.26	27.11	7.56	8.22	205	15	54	6

SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

www.senersun.com info@senersun.com

SSM54-200-C	32.99	26.89	7.44	8.09	200	15	54	6
SSM54-195-C	32.83	26.76	7.29	7.92	195	15	54	6
SSM54-190-C	32.62	26.59	7.15	7.77	190	15	54	6

SSM48C Series — 48 pcs 156x156mm monocrystalline cells - 1324×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM48-200-C	30.07	24.45	8.18	8.83	200	15	48	6
SSM48-195-C	29.91	24.32	8.02	8.66	195	15	48	6
SSM48-190-C	29.76	24.20	7.85	8.47	190	15	48	6
SSM48-185-C	29.57	24.10	7.68	8.34	185	15	48	6
SSM48-180-C	29.47	24.02	7.49	8.15	180	15	48	6
SSM48-175-C	29.28	23.86	7.33	7.97	175	15	48	6
SSM48-170-C	29.09	23.71	7.17	7.79	170	15	48	6

SSM36C Series — 36 pcs 156x156mm monocrystalline cells - 1008×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSM36-150-C	22.45	18.25	8.22	8.87	150	15	36	6
SSM36-145-C	22.43	18.24	7.95	8.47	145	15	36	6
SSM36-140-C	22.25	18.13	7.72	8.39	140	15	36	6
SSM36-135-C	22.10	18.01	7.50	8.15	135	15	36	6
SSM36-130-C	21.89	17.84	7.29	7.92	130	15	36	6
SSM36-125-C	21.74	17.72	7.05	7.67	125	15	36	6

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSP72C Series — 72 pcs 156x156mm polycrystalline cells - 1956×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSP72-285-C	45.00	36.49	7.81	8.47	285	15	72	6
SSP72-280-C	44.50	36.27	7.72	8.39	280	15	72	6
SSP72-275-C	44.35	36.15	7.61	8.27	275	15	72	6
SSP72-270-C	44.21	36.03	7.49	8.15	270	15	72	6
SSP72-265-C	43.99	35.85	7.39	8.03	265	15	72	6
SSP72-260-C	43.78	35.68	7.29	7.92	260	15	72	6
SSP72-255-C	43.63	35.56	7.17	7.79	255	15	72	6
SSP72-250-C	43.49	35.44	7.05	7.67	250	15	72	6

SSP60C Series — 60 pcs 156x156mm polycrystalline cells - 1640×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSP60-245-C	38.64	31.37	7.81	8.47	245	15	60	6
SSP60-240-C	37.17	30.31	7.92	8.54	240	15	60	6
SSP60-235-C	37.08	30.21	7.78	8.45	235	15	60	6
SSP60-230-C	36.96	30.12	7.64	8.30	230	15	60	6
SSP60-225-C	36.84	30.02	7.49	8.15	225	15	60	6
SSP60-220-C	36.60	29.83	7.38	8.02	220	15	60	6
SSP60-215-C	36.48	29.73	7.23	7.86	215	15	60	6

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSP60-210-C	36.24	29.54	7.11	7.73	210	15	60	6
SSP60-205-C	36.12	29.44	6.96	7.57	205	15	60	6

SSP54C Series — 54 pcs 156x156mm polycrystalline cells - 1482×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSP54-215-C	33.90	27.52	7.81	8.47	215	15	54	6
SSP54-210-C	33.37	27.20	7.72	8.39	210	15	54	6
SSP54-205-C	33.26	27.11	7.56	8.22	205	15	54	6
SSP54-200-C	32.99	26.89	7.44	8.09	200	15	54	6
SSP54-195-C	32.83	26.76	7.29	7.92	195	15	54	6
SSP54-190-C	32.62	26.59	7.15	7.77	190	15	54	6
SSP54-185-C	32.51	26.50	6.98	7.59	185	15	54	6

SSP48C Series — 48 pcs 156x156mm polycrystalline cells - 1324×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSP48-190-C	30.00	24.20	7.85	8.47	190	15	48	6
SSP48-185-C	29.57	24.10	7.68	8.34	185	15	48	6
SSP48-180-C	29.47	24.02	7.49	8.15	180	15	48	6
SSP48-175-C	29.28	23.86	7.33	7.97	175	15	48	6
SSP48-170-C	29.09	23.71	7.17	7.79	170	15	48	6
SSP48-165-C	28.90	23.55	7.01	7.61	165	15	48	6

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143

SSP36C Series — 36 pcs 156x156mm polycrystalline cells - 1008×992×50 mm

Model	Open Circuit Voltage at STC,(V dc)	Rated Voltage at STC, (V dc)	Rated Current at STC,(A dc)	Short Circuit Current at STC,(A dc)	Rated Maximum Power at STC,(Watts)	Maximum Series Fuse,(A)	Total number of cells	Total number of diodes
SSP36-145-C	22.86	18.24	7.95	8.47	145	15	36	6
SSP36-140-C	22.25	18.13	7.72	8.39	140	15	36	6
SSP36-135-C	22.10	18.01	7.50	8.15	135	15	36	6
SSP36-130-C	21.89	17.84	7.29	7.92	130	15	36	6
SSP36-125-C	21.74	17.72	7.05	7.67	125	15	36	6

www.senersun.com info@senersun.com
SENERSUN FRANCE SAS
2, cours du XXX Juillet
33064 Bordeaux
France
T +33 556641143