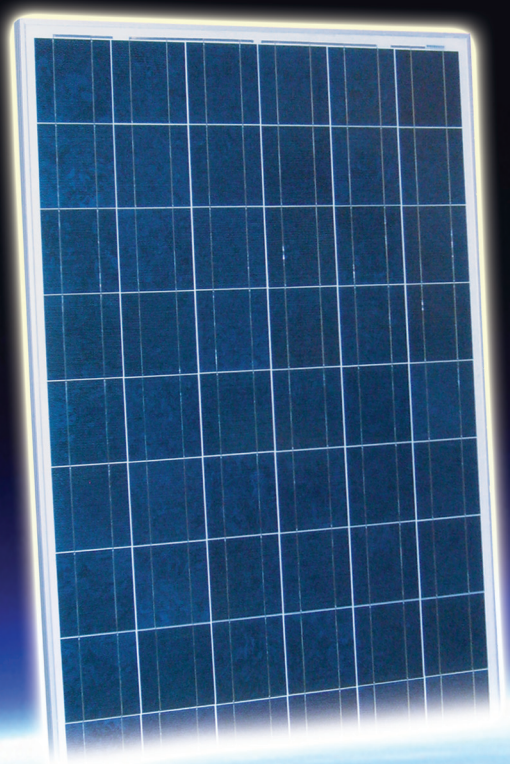
FVG ENERGY

ENERGY CATALOGUE





www.fvgenergy.com

FVG ENERGY - PRODUCTION OF PHOTOVOLTAIC MODULES

The sun offers energy at a "real bargain" and also in great abundance.
Even in times of "energy hunger" like the present, the energy that the sun continuously irradiates on the earth is equal to 10,000 times the world energy requirements.
Of all the energy sources available to us, the sun represents the more long-lasting source by far, with a life expectancy of billions of years.
To satisfy the world energy requirement, by using photovoltaics, a surface area of 145,000 km² would be sufficient.
This corresponds to a square having 380 Km sides.

THE COMPANY

FVG Energy was established in 2006, offspring of a ten-year old project of an important company with more than thirty years' experience in the production of electronic equipment for the management of electricity in areas without grid connection, bringing together highly qualified engineers and production personnel. An evolution from battery chargers with converter, modified and pure sinewave inverters, up-to-date switching battery chargers, solar chargers, rectifiers, isolators to photovoltaic panels for stand alone systems. 2007 saw the first IEC61215 and II Class certification for the FVG 36 and 72 cells range and then the certification IEC61215 and EN61730-1 and EN61730-2 for the FVG 60 cells range for grid connect systems, with the production of a series of modules from 10W to 250W mono and polycrystalline.

ITALIAN PRODUCTION SITE

The first machinery purchased for the soldering and lamination process in 2005 was later backed up by modern infrastructures and September 2008 saw the opening of the new production centre in Shanghai, which allows to satisfy the ever-growing demand for products within a short delivery time. FVG Energy Shanghai in this way backs up the Italian production, pursuing the philosophy of quality, competence and reliability that has always distinguished FVG Energy and enabled it to grow at an incredible rate. The ISO9001 certified production locations, with the use of modern and sophisticated Italian and Swiss production lines, manufacture the FVG Energy module which is sold all over the world from the Shanghai production centre.

ITALIAN PRODUCTION



HEADQUARTERS - FVG ENERGY
Carlino (UD) - ITALY



NEW PRODUCTION SITE
AND R&D CENTRE FVG ENERGY
Carlino (UD) - ITALY

SHANGHAI PRODUCTION



HEAD OFFICE
IN P.R.CHINA
Bund Centre - SHANGHAI



FACTORY IN P.R.CHINA
SHANGHAI

GLOBAL COVERAGE



CERTIFICATIONS

In 2007 the 36 and 72 cells series of monocrystalline silicon photovoltaic modules produced by FVG Energy obtained the first IEC61215 and Safety Class II certifications. In 2008 the study began for the design of the new range of modules with the use of 60 cells 156x156mm both in mono and polycristalline, with a power range from 190W to 250W and obtaining certification in 2009 from the Eurotest Laboratori in Padua. The present production range, which is evermore in expansion, offers modules with a power range from 10W to 250W using cells with an efficiency that reaches 18%. FVG Energy is presently committed to the research and development of the new technologies in THINFILM and foresees the marketing of this new variety in 2010.



COMPANY STRATEGY

FVG Energy chooses to produce according to the highest European qualitative standards. The highly efficient modules produced by FVG Energy confirm the commitment of the company towards green energy and technology that has a low environmental impact. The use of high-efficiency solar panels reduces the number of modules required which means:

- lower cost of photovoltaic modules
- lower weight of the modules = reduced transport costs, reduced structural loads
- lower number of mounting/wiring/connecting structures.

DISTRIBUTION OF PHOTOVOLTAIC PRODUCTS

FVG Energy has become an important reference point of the major installation companies of photovoltaic systems and distributes, on a national and international scale, its photovoltaic modules, FRONIUS, SMA and MASTERVOLT inverters, steel and aluminum structures, solar cables, MC and TYCO connectors and anything else necessary for the completion of the systems.



DISTRIBUTED BRANDS

FVG ENERGY · Fronius · MASTERVOLT THE POWER TO BE INDEPENDENT. · SMA · cabur

FVG ENERGY

www.fvgenergy.com

PHOTOVOLTAIC MODULES



FVG 72-125

Monocrystalline Silicon Photovoltaic Module Power peak 160 to 185W

UPDATED 08-03-2009

GENERAL DESCRIPTION

The FVG 72-125 photovoltaic modules are suitable for residential systems, stand-alone and grid-connect systems, office buildings, solar power stations, solar villages, villas, mountain cottages, pumps, traffic signs, radio relay stations, telecommunication systems, telemeter systems, lighting equipment.
The number of the cells is 72 and the max system voltage DC is 700V.
The FVG 72-125 photovoltaic modules are IEC61215 and Safety Class II certified.

CHARACTERISTICS

1. The FVG 72-125 photovoltaic modules are manufactured with 72 125x125 mm monocrystalline silicon cells.

2. The cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 4mm tempered glass.

3. The production process ensures the cells maximum protection against critical and environmental conditions.

4. Modules are extremely resistant thanks to the aluminum frame for extended outdoor use.

5. Our photovoltaic modules are manufactured using specialized personnel and high quality materials.

PHOTOVOLTAIC MODULES

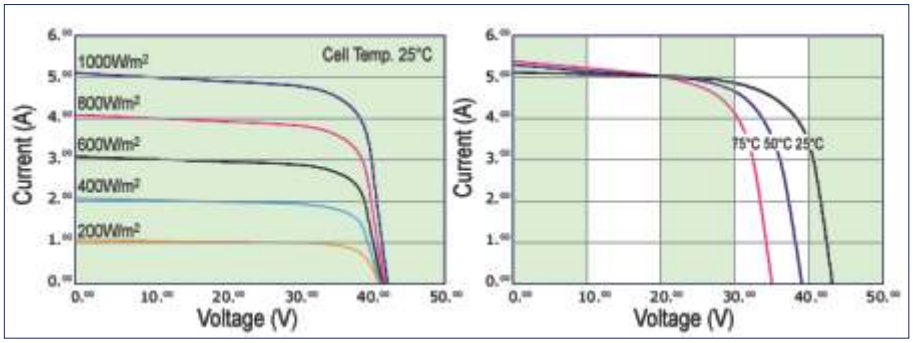
www.fvgenergy.com

ELECTRO-OPTICAL CHARACTERISTICS

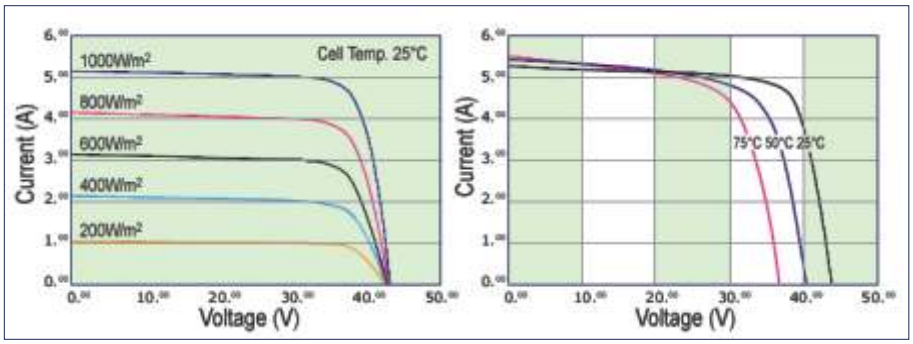
Code	Type	Model	Module Efficiency	Cell Efficiency	Power Peak (W)	Vm (V)	Im (A)	Voc (V)	Isc (A)	Power Tolerance
50181	FVG 72 - 125	FVG 160M - MC	12.60%	15.00%	160	34.90	4.60	42.80	5.15	+/- 3%
50183	FVG 72 - 125	FVG 165M - MC	13.00%	15.50%	165	35.60	4.65	43.20	5.20	+/- 3%
50184	FVG 72 - 125	FVG 170M - MC	13.40%	16.00%	170	35.80	4.76	43.60	5.25	+/- 3%
50185	FVG 72 - 125	FVG 175M - MC	13.80%	16.50%	175	36.20	4.85	43.90	5.30	+/- 3%
50186	FVG 72 - 125	FVG 180M - MC	14.20%	17.00%	180	36.80	4.90	44.20	5.35	+/- 3%
50187	FVG 72 - 125	FVG 185M - MC	14.60%	17.50%	185	37.50	4.95	44.50	5.40	+/- 3%

Cell and Connection	Mono-crystalline silicon - 72 in series
Max Series Fuse	7A
Pm Temperature Coefficient	-0.45%/°C
Voc Temperature Coefficient	-0.35%/°C
Isc Temperature Coefficient	0.05%/°C
Test Condition	STC:AM=1.5 1000W/m2
NOCT	47± 2°C
Max System Voltage (VDC)	700
Operating Temperature / Storage Temperature	-40 +85°C
Loading Capacity	600pcs/40ft Container; 300pcs/20ft Container

FVG 165M-MC - 72 CELLS - MONOCRYSTALLINE



FVG 180M-MC - 72 CELLS - MONOCRYSTALLINE

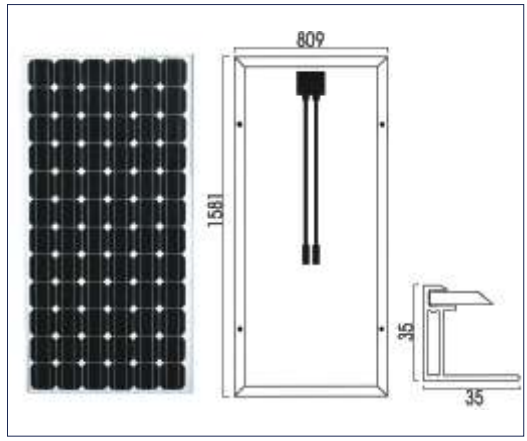


WARRANTY

3 YEARS LIMITED ON PV MODULES AND 25 YEARS LTD ON POWER OUTPUT
The power output values shall be those measured under FVG Energy standard measurement conditions as follows:
(a) light spectrum of AM 1.5;
(b) irradiation of 1,000W per m²;
(c) a cell temperature of 25°C.

For more information ask your local dealer or FVG Energy directly (www.fvgenergy.com) for the full document of Warranty.

DIMENSIONS AND PACKING



Module Dimensions: mm 1581 x 809 x 35
Module Net Weight: kg 16
Carton Dimensions: about cm 161 x 83 x 9
Pallet Dimensions: about cm 165 x 85 x h195
Pallet Net Weight: kg 620
1 carton = 2 modules
1 pallet = 19 cartons = 38 modules
1 maxi pallet of 50 modules = cm 104x164xh190
Maxi pallet weight of 50 modules = kg 800

JUNCTION BOX



Junction box with cables and waterproof connectors.
With 3 bypass diodes.
Cable length cm 90.
Line 3 type connectors.

FVG ENERGY

www.fvgenergy.com

PHOTOVOLTAIC MODULES



FVG 60-156

Monocrystalline Silicon Photovoltaic Module Power peak 210 to 250W

UPDATED 08-03-2009

GENERAL DESCRIPTION

The FVG 60-156 photovoltaic modules are suitable for residential systems, grid-connect systems, office buildings, solar power stations, solar villages, villas, mountain cottages, pumps, traffic signs, radio relay stations, telecommunication systems, telemeter systems, lighting equipment, MW ground plants.
The number of the cells is 60 and the max system voltage DC is 1000V.
The FVG 60-156 photovoltaic modules are IEC61215 and EN61730-2 certified.

CHARACTERISTICS

1. The FVG 60-156 photovoltaic modules are manufactured with 60 156x156 mm monocrystalline silicon cells.

2. The cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 4mm tempered glass.

3. The production process ensures the cells maximum protection against critical and environmental conditions.

4. Modules are extremely resistant thanks to the aluminum frame for extended outdoor use.

5. Our photovoltaic modules are manufactured using specialized personnel and high quality materials.

PHOTOVOLTAIC MODULES

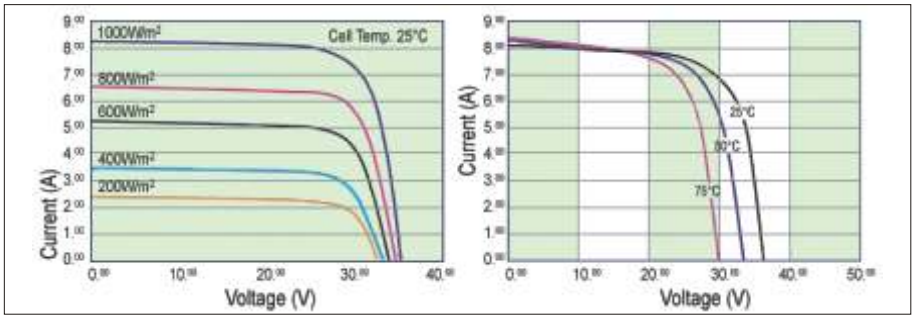
FVG ENERGY www.fvgenergy.com

ELECTRO-OPTICAL CHARACTERISTICS

Code	Type	Model	Module Efficiency	Cell Efficiency	Power Peak (W)	Vm (V)	Im (A)	Voc (V)	Isc (A)	Power Tolerance
50240	FVG 60 - 156	FVG 210M - MC	12.80%	14.80%	210	29.20	7.20	36.40	7.86	+/- 3%
50241	FVG 60 - 156	FVG 215M - MC	13.10%	15.15%	215	29.50	7.29	36.60	7.91	+/- 3%
50242	FVG 60 - 156	FVG 220M - MC	13.40%	15.50%	220	29.80	7.39	36.80	8.00	+/- 3%
50243	FVG 60 - 156	FVG 225M - MC	13.75%	15.85%	225	29.90	7.55	36.90	8.09	+/- 3%
50244	FVG 60 - 156	FVG 230M - MC	14.10%	16.20%	230	30.00	7.67	37.00	8.18	+/- 3%
50245	FVG 60 - 156	FVG 235M - MC	14.40%	16.55%	235	30.30	7.77	37.25	8.28	+/- 3%
50246	FVG 60 - 156	FVG 240M - MC	14.70%	16.90%	240	30.60	7.85	37.50	8.38	+/- 3%
50247	FVG 60 - 156	FVG 245M - MC	15.00%	17.20%	245	30.80	7.97	37.75	8.48	+/- 3%
50248	FVG 60 - 156	FVG 250M - MC	15.30%	17.50%	250	30.95	8.10	37.95	8.58	+/- 3%

Cell and Connection	Monocrystalline silicon - 60 in series
Max Series Fuse	11A
Pm Temperature Coefficient	-0.45 % /°C
Voc Temperature Coefficient	-0.35 % /°C
Isc Temperature Coefficient	0.05 % /°C
Test Condition	STC:AM=1.5 1000W/m², Cell Temperature 25°C
NOCT	47± 2°C
Max System Voltage (VDC)	1000
Operating Temperature / Storage Temperature	-40~+85°C
Dielectric Insulation Voltage	3000 VCD max

FVG - 60 CELLS - MONOCRYSTALLINE

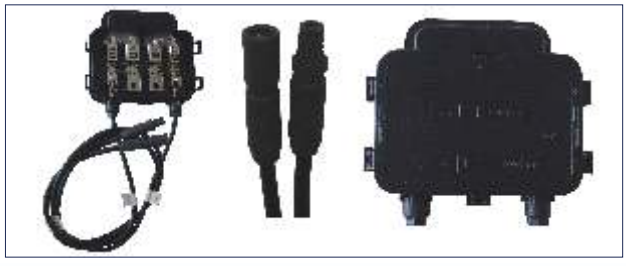


WARRANTY

3 YEARS LIMITED ON PV MODULES AND 25 YEARS LTD ON POWER OUTPUT
The power output values shall be those measured under FVG Energy standard measurement conditions as follows:
(a) light spectrum of AM 1.5;
(b) irradiation of 1,000W per m²;
(c) a cell temperature of 25°C.

For more information ask your local dealer or FVG Energy directly (www.fvgenergy.com) for the full document of Warranty.

JUNCTION BOX



Junction box with cables and waterproof connectors.
With 6 bypass diodes.
Cable length cm 90.
Line 3 type connectors.

DIMENSIONS AND PACKING



Module Dimensions: mm 1650 x 990 x 35
Module Net Weight: kg 21.50
Carton Dimensions: about cm 172 x 108 x h8
Pallet Dimensions: about cm 176 x 109 x h180
Pallet Net Weight: kg 900
1 carton = 2 modules
1 pallet = 20 cartons = 40 modules

Container Loading Capacity
20ft: 240 Pcs (6 pallets)
40ft: 480 Pcs (12 pallets)

FVG ENERGY

www.fvgenergy.com

PHOTOVOLTAIC MODULES



FVG 60-156

Polycrystalline Silicon Photovoltaic Module Power peak 200 to 240W

UPDATED 08-03-2009

GENERAL DESCRIPTION

The FVG 60-156 photovoltaic modules are suitable for residential systems, grid-connect systems, office buildings, solar power stations, solar villages, villas, mountain cottages, pumps, traffic signs, radio relay stations, telecommunication systems, telemeter systems, lighting equipment, MW ground plants.
The number of the cells is 60 and the max system voltage DC is 1000V.
The FVG 60-156 photovoltaic modules are IEC61215 and EN61730-1 certified.

CHARACTERISTICS

1. The FVG 60-156 photovoltaic modules are manufactured with 60 156x156 mm polycrystalline silicon cells.

2. The cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 4mm tempered glass.

3. The production process ensures the cells maximum protection against critical and environmental conditions.

4. Modules are extremely resistant thanks to the aluminum frame for extended outdoor use.

5. Our photovoltaic modules are manufactured using specialized personnel and high quality materials.

PHOTOVOLTAIC MODULES

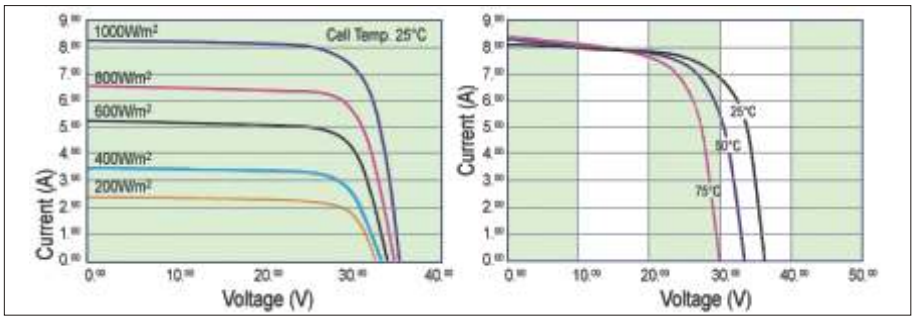
FVG ENERGY www.fvgenergy.com

ELECTRO-OPTICAL CHARACTERISTICS

Code	Type	Model	Module Efficiency	Cell Efficiency	Power Peak (W)	Vm (V)	Im (A)	Voc (V)	Isc (A)	Power Tolerance
50230	FVG 60 - 156	FVG 200P - MC	12.20%	13.70%	200	28.70	6.97	36.00	7.75	+/- 3%
50231	FVG 60 - 156	FVG 205P - MC	12.50%	14.05%	205	29.20	7.05	36.20	7.81	+/- 3%
50232	FVG 60 - 156	FVG 210P - MC	12.80%	14.40%	210	29.70	7.10	36.40	7.86	+/- 3%
50233	FVG 60 - 156	FVG 215P - MC	13.10%	14.75%	215	29.75	7.25	36.60	7.93	+/- 3%
50234	FVG 60 - 156	FVG 220P - MC	13.40%	15.10%	220	29.80	7.39	36.80	8.00	+/- 3%
50235	FVG 60 - 156	FVG 225P - MC	13.70%	15.45%	225	30.00	7.50	37.00	8.07	+/- 3%
50236	FVG 60 - 156	FVG 230P - MC	14.00%	15.80%	230	30.30	7.60	37.20	8.14	+/- 3%
50237	FVG 60 - 156	FVG 235P - MC	14.30%	16.15%	235	30.40	7.75	37.40	8.21	+/- 3%
50238	FVG 60 - 156	FVG 240P - MC	14.60%	16.50%	240	30.50	7.88	37.60	8.28	+/- 3%

Cell and Connection	Polycrystalline silicon - 60 in series
Max Series Fuse	11A
Pm Temperature Coefficient	-0.45 % /°C
Voc Temperature Coefficient	-0.35 % /°C
Isc Temperature Coefficient	0.05 % /°C
Test Condition	STC:AM=1.5 1000W/m², Cell Temperature 25°C
NOCT	47± 2°C
Max System Voltage (VDC)	1000
Operating Temperature / Storage Temperature	-40~+85°C
Dielectric Insulation Voltage	3000 VCD max

FVG 60 CELLS- POLYCRYSTALLINE

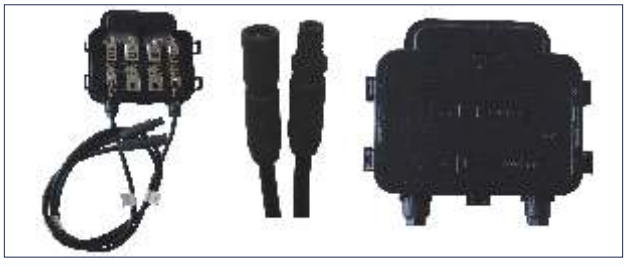


WARRANTY

3 YEARS LIMITED ON PV MODULES AND 25 YEARS LTD ON POWER OUTPUT
The power output values shall be those measured under FVG Energy standard measurement conditions as follows:
(a) light spectrum of AM 1.5;
(b) irradiation of 1,000W per m²;
(c) a cell temperature of 25°C.

For more information ask your local dealer or FVG Energy directly (www.fvgenergy.com) for the full document of Warranty.

JUNCTION BOX



Junction box with cables and waterproof connectors.
With 6 bypass diodes.
Cable length cm 90.
Line 3 type connectors.

DIMENSIONS AND PACKING



Module Dimensions: mm 1650 x 990 x 35
Module Net Weight: kg 21.50
Carton Dimensions: about cm 172 x 108 x h8
Pallet Dimensions: about cm 176 x 109 x h180
Pallet Net Weight: kg 900
1 carton = 2 modules
1 pallet = 20 cartons = 40 modules

Container Loading Capacity
20ft: 240 Pcs (6 pallets)
40ft: 480 Pcs (12 pallets)

PHOTOVOLTAIC MODULES

www.fvgenergy.com



FVG 36-125

Monocrystalline Silicon Photovoltaic Module Peak power 80 - 85 - 90 W

UPDATED 08-03-2009

GENERAL DESCRIPTION

The FVG 36-125 photovoltaic modules are suitable for residential systems stand-alone and grid-connect systems, office buildings, solar power stations, solar villages, villas, mountain cottages, pumps, traffic signs, radio relay stations, telecommunication systems, telemeter systems, lighting equipment.
The number of the cells is 36 and the max system voltage DC is 700V.
The FVG 36-125 photovoltaic modules are IEC61215 and Safety Class II certified.

CHARACTERISTICS

1. The FVG 36-125 photovoltaic modules are manufactured with 36 125x125 mm monocrystalline silicon cells.

2. The cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 4mm tempered glass.

3. The production process ensures the cells maximum protection against critical and environmental conditions.

4. Modules are extremely resistant thanks to the aluminum frame for extended outdoor use.

5. Our photovoltaic modules are manufactured using specialized personnel and high quality materials.

PHOTOVOLTAIC MODULES

ELECTRO-OPTICAL CHARACTERISTICS

Code	Type	Model	Module Efficiency	Cell Efficiency	Power Peak (W)	Vm (V)	Im (A)	Voc (V)	Isc (A)	Power Tolerance
50166	FVG 36 - 125	FVG 80M - MC	12.60%	15.00%	80	18.20	4.40	22.10	4.87	+/- 5%
50167	FVG 36 - 125	FVG 85M - MC	13.40%	14.00%	85	18.50	4.59	22.20	5.13	+/- 5%
50168	FVG 36 - 125	FVG 90M - MC	14.20%	17.00%	90	18.50	4.86	22.30	5.37	+/- 5%

Electrical specifications at 1000 W/mq, 25°C, AM 1.5.

WARRANTY

A: 3 Years Limited PV Modules Warranty
FVG Energy srl warrants the PV Module(s) to be free from the defects and/or failures specified below for a period not exceeding three (3) years from the date of sale to the original customer - ("Customer"):
1) defects and/or failures due to manufacturing;
2) defects and/or failures due to materials;
3) cracking of the front glass surface due to foreign objects inside the glass;
Note: This limited warranty shall exclude cracking of the front glass surface due to external shock from flying objects or external stress or transportation damages.
4) non-conformity to specifications due to faulty manufacturing and/or inspection processes.
If the PV Module(s) fails to conform to this warranty, FVG Energy srl will repair or replace the PV Module(s), at its sole option.

B. Limited Power Output Warranty of 25 years (90%- 80%)
FVG Energy srl warrants that if:
(a) within the first twelve and a half (12.5) years from the date of sale to the Customer, the PV Module(s) exhibits a power output of less than ninety percent (90%) of the original minimum rated power specified at the time of sale (Power peak minus the power tolerance %);
(b) within twenty-five (25) years from the date of sale to the Customer, the PV Module(s) exhibits a power output of less than eighty percent (80%) of the original minimum rated power specified at the time of sale (Power peak minus the power tollerance %)*, FVG Energy will deliver additional PV Module(s) to replace the missing power output, or repair or replace the PV Module(s), at FVG Energy srl sole option.

*The power output values shall be those measured under FVG Energy srl standard measurement conditions as follows: (a) light spectrum of AM 1.5; (b) irradiation of 1,000w per m²; (c) a cell temperature of 25°C.

For more information ask your local dealer or FVG Energy srl directly (www.fvgenergy.com) for the full document of Warranty.

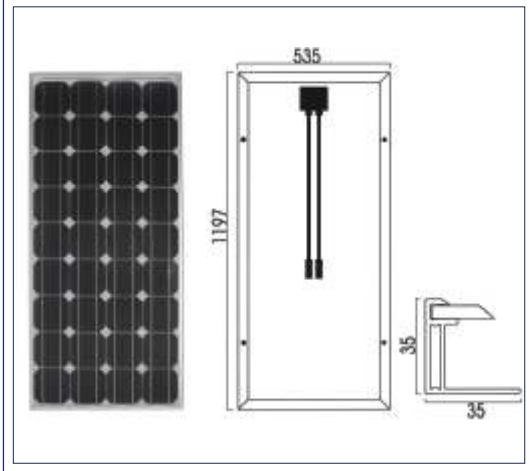
JUNCTION BOX



Junction box with cables and waterproof connectors.
With 2 bypass diodes.
Cable length cm 90.
Line 3 type connectors.

DIMENSIONS AND PACKING





Module Dimensions: mm 1197 x 535 x 35
Module Net Weight: kg 9.2
Carton Dimensions: about cm 121.5 x 57 x h8.5
Pallet Dimensions: about cm 80 x 120 x h160
Pallet Net Weight: kg 400
1 carton = 2 modules
1 pallet = 20 cartons = 40 modules

Container Loading Capacity
20ft: 600 Pcs
40ft: 1200 Pcs

PHOTOVOLTAIC MODULES

ENERGY FVG

www.fvgenergy.com



FVG

Photovoltaic Module Power peak 10 to 50W Monocrystalline and Polycrystalline

UPDATED 08-03-2009

GENERAL DESCRIPTION

The photovoltaic modules are suitable for residential systems, stand-alone systems, office buildings, solar power stations, solar villages, villas, mountain cottages, pumps, traffic signs, radio relay stations, telecommunication systems, telemeter systems, lighting equipment.
The number of the cells is 36 and the max system voltage DC is 600V.
The FVG photovoltaic modules are manufactured according to the IEC61215 standards.

CHARACTERISTICS

1. The FVG photovoltaic modules are manufactured with 36 silicon cells.

2. The cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron tempered glass.

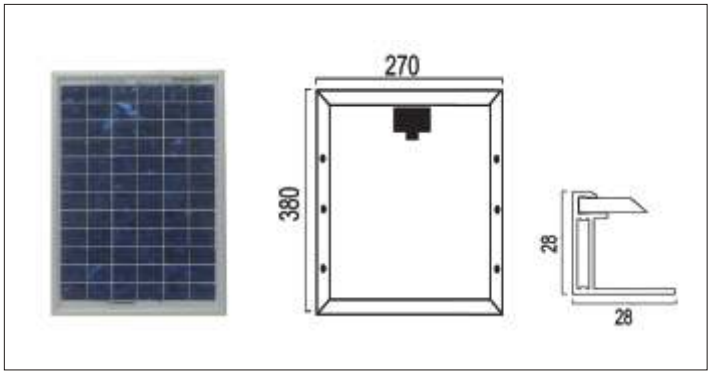
3. The production process ensures the cells maximum protection against critical and environmental conditions.

4. Modules are extremely resistant thanks to the aluminum frame for extended outdoor use.

5. The photovoltaic modules are manufactured using specialized personnel and high quality materials.

PHOTOVOLTAIC MODULES

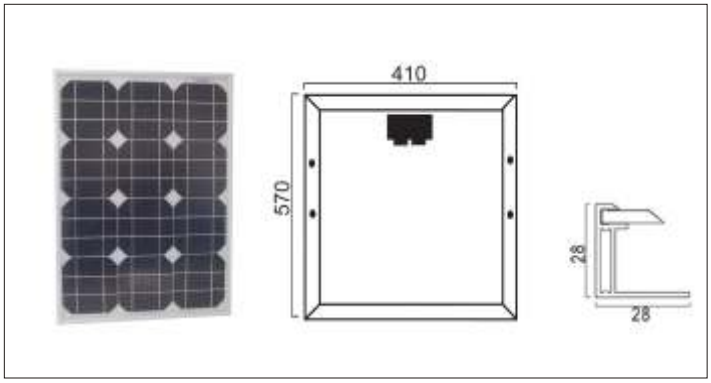
www.fvgenergy.com



PHOTOVOLTAIC MODULE - 10W - POLYCRYSTALLINE

CODE	MODEL	POWER PEAK	Vm(V)	Im(A)	Voc(V)	Isc(A)
50102	FVG 10P	10W	17.5	0.57	21	0.66

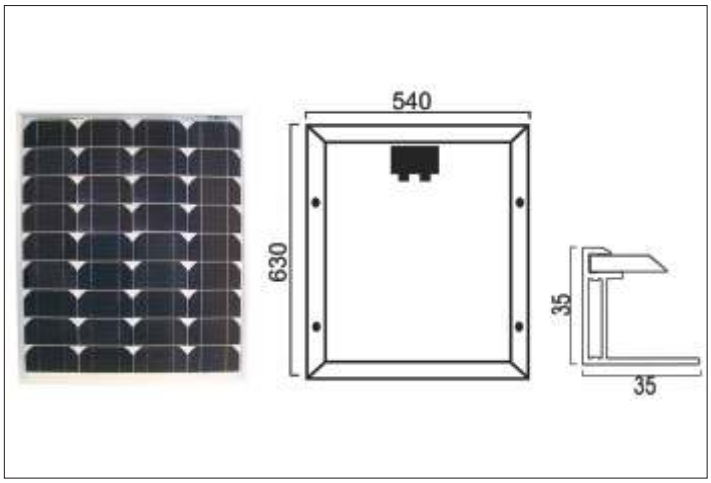
Dimensions: mm 270 x 380 x h28



PHOTOVOLTAIC MODULE - 25W - MONOCRYSTALLINE

CODE	MODEL	POWER PEAK	Vm(V)	Im(A)	Voc(V)	Isc(A)
50107	FVG 25M	25W	17.1	1.46	21.8	1.76

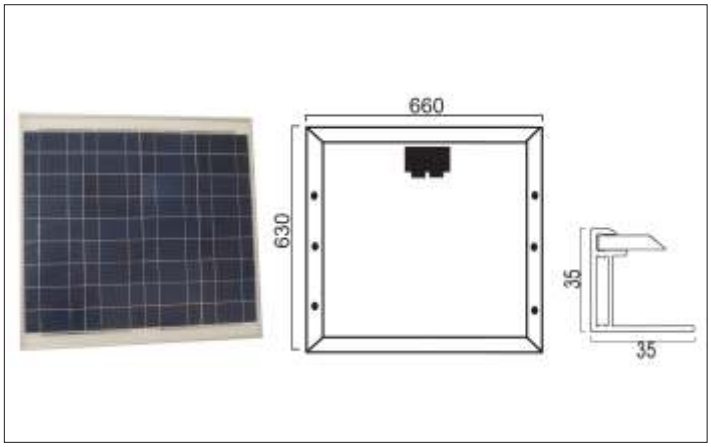
Dimensions: mm 410 x 570 x h28



PHOTOVOLTAIC MODULE - 40W - MONOCRYSTALLINE

CODE	MODEL	POWER PEAK	Vm(V)	Im(A)	Voc(V)	Isc(A)
50110	FVG 40M	40W	17.3	2.32	21.9	2.56

Dimensions: mm 540 x 630 x h35



PHOTOVOLTAIC MODULE - 50W - POLYCRYSTALLINE

CODE	MODEL	POWER PEAK	Vm(V)	Im(A)	Voc(V)	Isc(A)
50116	FVG 50P	50W	17.5	2.90	22	3.20

Dimensions: mm 660 x 630 x h35



MODEL	IG15	IG20	IG30	IG40	IG60HV
INPUT DATA					
MPP voltage range	150 - 400V	150 - 400V	150 - 400V	150 - 400V	150 - 400V
Max input voltage (at 1000W/m^2; -10°C)	500V	500V	500V	500V	530V
PV system output	1300 - 2000 Wp	1800 - 2700 Wp	2500 - 3600Wp	3500 - 5500Wp	4600 - 6700Wp
Max input current	10.8A	14.3A	19A	29.4A	35.8A
OUTPUT DATA					
Nominal output	1300W	1800W	2500W	3500W	5000W
Max power output	1500W	2000W	2650W	4100W	5000W
Max efficiency	94.2%	94.3%	94.3%	94.3%	94.3%
Euro efficiency	91.4%	92.3%	93.5%	93.5%	93.5%
Mains voltage/ frequency	230V / 50Hz				
Distortion factor	< 3.5%				
Power factor	1				
Power consumption at night	0 W				
GENERAL DATA					
Size (l x w x h)	366 x 344 x 220 mm (500 x 435 x 225 mm)			610 x 344 x 220 mm (733 x 435 x 225 mm)	
Weight	9 kg (12 kg)			16 kg (20 kg)	
Cooling	controlled forced-air cooling				
Housing variations	designer internal housing; optional outdoor housing				
Ambient temperature range	From -20°C to + 50°C				
Permissible humidity	From 0% to 95%				
PROTECTIVE DEVICED					
DC insulation measurement	Warning at R_{ISO}<500k Ohm				
Polarity reversal protection	built-in				
Behaviour on DC overload	displacement of operating point				
FVG ENERGY CODE	**50850**	**50855**	**50860**	**50865**	**50870**

MODEL	IG Plus35	IG Plus50	IG Plus70	IG Plus100	IG Plus150
INPUT DATA					
DC nominal capacity	3700W	4200W	6800W	8400W	12600W
MPP voltage range	230 - 500V	230 - 500V	230 - 500V	230 - 500V	230 - 500V
Max input voltage (for 1000W/m^2; -10°C)	600V	600V	600V	600V	600V
Max input	16A	18.3A	29.7A	36.6A	54.9A
OUTPUT DATA					
AC nominal capacity	3500W	4000W	6500W	8000W	12000W
Max output	3500W	4000W	6500W	8000W	12000W
Max efficiency	96.0%	96.0%	96.0%	96.0%	96.0%
Euro efficiency	95.0%	95.1%	95.4%	95.5%	95.5%
MPP adaptation efficiency	99.9%				
Main voltage / Frequency	230V / 50Hz (60Hz)				
Power factor	1-phase		2-phase / 1-phase (optional)		3-phase
Harmonic factor	< 3,5%				
Power factor	1				
Power consumption at night	1 W				
GENERAL DATA					
Size (l x w x h)	631 x 434 x 244 mm		926 x 434 x 244 mm		1221 x 434 x 244 mm
Connection area weight	11 kg				
Power module area weight	14 kg		26 kg		38 kg
Protection class	IP 44				
Inverter concept	HF transformer				
Cooling	Regulated cooling				
Housing	Metal housing for inside and outside installation				
Ambient temperature range	From -20°C to + 50°C				
Permitted humidity	From 0% to 95%				
SAFETY EQUIPMENT					
DC insulation measurement	Warning at R_{ISO}<500k Ohm				
Overload behaviour	Operating point shift, power limiter				
DC circuit breaker	Integrated				
FVG ENERGY CODE	**50835**	**50836**	**50837 - 50838**	**50939 - 50840**	**50842**



MODEL	SB 1100	SB1700	SB2500	SB3000	SB3300	SB3300TL-HC	SB 3800	SB4000TL	SB5000TL
INPUT (CC)									
Max DC input power	1210W	1850W	2700W	3200W	3832W	3440W	4040W	4300W	5300W
Max DC voltage	400V	400V	600V	600V	500V	750V	500V	550V	550V
PV voltage range, MPPT	139V-400V	139V-400V	224V-600V	268V-600V	200V-500V	125V-750V	200V - 500V	125V - 440V	
Max input current	10A	12,6A	12A	12A	20A	11A	20A	2 x 15A	
N°of MPP trackers	1	1	1	1	1	1	1	2	2
Max N°of strings (parallel)	2	2	3	3	3	2	3	2x2	2x2
OUTPUT (AC)									
Nominal AC output power	1000W	1550W	2300W	2750W	3300W	3000W	3800W	4000W	4600W
Max AC output power	1100W	1700W	2500W	3000W	3600W	3300W	3800W	4000W	5000W
Max output current	5.6A	8.6A	12.5A	15A	16.6A	16A	16.6A	22A	22A
Nominal AC voltage / range	220V - 240V / 180V - 262V				220V - 240V / 180V - 260V			220V-240V/180V-260V	
AC grid frequency / range	50Hz / 60Hz / ±4.5Hz					50Hz/45.5Hz-52.5Hz	50Hz/60Hz/±4.5Hz	50Hz,60Hz/45Hz-65Hz	
Power factor (cos ϕ)	1	1	1	1	1	1	1	1	1
AC connection	single-phase								
EFFICIENCY									
Max efficiency	93.0%	93.5%	94.1%	95.0%	95.2%	96.0%	95.6%	97.0%	97.0%
Euro ETA	91.6%	91.8%	93.2%	93.6%	94.4%	94.6%	94.7%	96.2%	96.5%
GENERAL DATA									
Dimensions (l x w x h) mm	434 x 295 x 214				450x352x236	470x490x225	450x352x236	470 x 445 x 180	
Weight	22 kg	25 kg	30 kg	32 kg	41 kg	28 kg	41 kg	25 kg	25 kg
Operating temperature range	-25°C to +60°C								
Operat. consump.:standby/night	<4W/0.1W	<5W/0.1W	<7W/0.25W		<7W/0.1W	<10W / 0.25W	<7W/0.1W	<10W/0.5W	
Topology	NF transformer					transformerless	NF transformer	transformerless	
Cooling concept	Convenction				OptiCool	Convenction	OptiCool		
Mounting location: in/out (IP65)	Standard equipment								
FVG ENERGY CODE	**50900**	**50901**	**50902**	**50903**	**50904**	**50905**	**50913**	**50906**	**50907**

MODEL	SMC5000	SMC6000	SMC6000TL	SMC7000TL	SMC8000TL	SMC7000HV	SMC9000TL	SMC10000TL	SMC11000TL
INPUT (CC)									
Max DC input power	5750W	6300W	6200W	7200W	8250W	7500W	9300W	10350W	11400W
Max DC voltage	600V	600V	700V	700V	700V	800V	700V	700V	700V
PV voltage range, MPPT	246V - 480V		333V - 500V			335V - 560V	333V-500V	333V-500V	333V-500V
Max input current	26A	26A	19A	22A	25A	23A	28A	31A	34A
N°of MPP trackers	1	1	1	1	1	1	1	1	1
Max N°of strings (parallel)	4	4	4	4	4	4	5	5	5
OUTPUT (AC)									
Nominal AC output power	5000W	6000W	6000W	7000W	8000W	6650W	9000W	10000W	11000W
Max AC output power	5000W	6000W	6000W	7000W	8000W	7000W	9000W	10000W	11000W
Max output current	26A	26A	27A	31A	25A	31A	40A	44A	48A
Nominal CA voltage / range	220V-240V/180V-260V								
AC grid frequency / range	50Hz/60Hz/±4.5Hz		50Hz / ±4.5Hz				50Hz/60Hz/±4.5Hz		
Power factor (cos ϕ)	1	1	1	1	1	1	1	1	1
AC connection	single-phase								
EFFICIENCY									
Max efficiency	96.1%	96.1%	98.0%	98.0%	98.0%	96.1%	98.0%	98.0%	98.0%
Euro ETA	95.2%	95.2%	97.7%	97.7%	97.7%	95.3%	97.6%	97.5%	97.5%
GENERAL DATA									
Dimensions (l x w x h) mm	468 x 613 x 242								
Weight	62kg	63kg	31kg	32kg	33kg	65kg	ca. 35kg		
Operating temperature range	-25°C to +60°C								
Operat. consump.:standby/night	<7W / 0.25W		<10W / 0.25W			<7W / 0.25W	<10W / 0.25W		
Topology	NF transformer		transformerless			NF transformer	transformerless		
Cooling concept	OptiCool								
Mounting location: in/out (IP65)	Standard equipment								
FVG ENERGY CODE	**50908**	**50909**	**50910**	**50914**	**50912**	**50911**	**50915**	**50916**	**50917**






MODEL	XS2000	XS3200	XS4300	XS6500
SOLAR INPUT DC				
Recommended PV power range	1300-2000Wp	2200-3300Wp	2900-4350Wp	4000-7000Wp
Nominal input power	1590W DC	2650W DC	3490W DC	5265W DC
Maximum input power	1670W DC	2780W DC	3660W DC	5525W DC
Start-up power	5W	7W	7W	10W
Operating voltage range	62-450V DC	100-600V DC	100-550V DC	100-600V DC
MPP voltage range at nom. power	145-360V DC	180-480C DC	230-440V DC	180-480V DC
Maximum voltage	450V DC	600V DC	550V DC	600 V DC
Rated current	11A	15A	15A	2x15A o 1x30A
MPP tracker	1	1	1	2
DC connection	2 sets of MultiContact (4mm) connectors			
GRID OUTPUT AC				
Voltage	230V AC (184-276 Italy), single phase			
Nominal output power at 45°C	1500W	2500W	3300W	5000W
Maximum output power	1575W	2625W	3465W	5250W
Nominal current	8A	13A	17A	25A
Frequency	45 - 65Hz (according to country)			
Standby power	< 0.5 W			
European efficiency	94.4% a 300V	94.3% a 400V	94.6% a 370V	94.5% a 400V
Maximum efficiency	95.7%	95.4%	95.6%	95.5%
AC connection	terminal block 2.5 - 4mm^2			
GENERAL DATA				
Operating temperature	from -20° to 60°C, full power up to 45°C ambient air temperature, derating -3%/°C above 45°C			
Relative humidity	maximum 95% non-condensing, PCB has anti-moisture coating			
Protection degree	IP44			
Dimensions (h x w x d) mm	545x356x145	545x356x145	545x356x145	725x356x145
Weight	10kg	10kg	10kg	15kg
FVG ENERGY CODE	**50820**	**50821**	**50822**	**50823**

MODEL	XL10	XL15
SOLAR INPUT CC		
Recommended PV power range	from 9 to 13 Kwp	from 14 to 20Kwp
Maximum input power	11200W DC	16800W DC
Continuous power at 40°C	10650 W DC	15975W DC
Start-up power	3x10W	3x10W
Operating voltage	100-550V DC; nominal 400V DC	100-600V DC; nominal 400V DC
MPP voltage range at nominal power	180-480V DC	180-480V DC
Maximum voltage	600V DC	600 V DC
Rated current	3x15A	3x30A
MPP tracker	3 MPP tracker with 99.9% MPP efficiency (Fraunhofer algorithm)	
DC connectors	6 MultiContact II connectors	
GRID OUTPUT AC		
Voltage	3x230V AC three phase	
Nominal power	10000W	15000W
Maximum power	10500W	15750W
Nominal current	3x15A	3x22A
Frequency	50Hzmodels: programmable from 48 to 52Hz	
Stand-by power	< 0.5 W	
EU efficiency	95% at Unom	
Maximum efficiency	96%	96%
AC connectors	AC and DC glands on detachable plate in bottom of connection compartment.	
GENERAL DATA		
Operating temperature	-20°C to +60°C ambient,full power up to 45°C ambient air temperature, derating 3%/°C above 45°C	
Relative humidity	Protected against humidity and condensing air by PCB coating	
Protection degree	IP55	
Dimensions (h x w x d) mm	1200x580x480 (with legs: 1408x638x480)	
Weight	135kg	
FVG ENERGY CODE	**50824**	**50825**

Unipolar wire with grade 5 tinplated copper flexible conductor. First insulation HEPR type G7 special. Second insulation Elastomer compound Halogen Free Type M2. Specific for Photovoltaic systems with nominal voltage U o/U600/100V in alternating current and not over 1500V in direct current, flame retardant, halogen free, designed to last at least 25 years.



FVG ENERGY CODE	CABUR CODE	DESCRIPTION
50290	ISCS04400	Black cable 4mm. Spool 400mt
50291	ISCS04401	Red cable 4mm. Spool 400mt
50292	ISCS06300	Black cable 6mm. Spool 300mt
50293	ISCS06301	Red cable 6mm. Spool 300mt

WIRE STRIPPER
CABUR CODE
KXCSLSPE

FVG ENERGY CODE 50411



LINE 3: PIN dimension: 3mm; Maximum voltage 1000V DC; Maximum current: 25A at 70°C - 20A at 85°C; Contact resistance <5m Ohm; Contact material: Cu; Plating: Tin; Insulation: PPO; Protection grade: IP67 (IEC 60529); Temperature range: -40°C +90°C; Flammability level: UL94-V0.





FVG ENERGY CODE	CABUR CODE	DESCRIPTION	Pcs
50400	IS15240	Male connector with harness clamp for contacts with sec. from 1.5mm^2 to 4mm^2	100
50401	IS25241	Female connector with harness clamp for contacts with sec. from 1.5mm^2 to 4mm^2	100
50276	IS15240	Male connector with harness clamp for contacts with sec. from 1.5mm^2 to 4mm^2	10
50277	IS25241	Female connector with harness clamp for contacts with sec. from 1.5mm^2 to 4mm^2	10

FVG ENERGY CODE	CABUR CODE	DESCRIPTION	Pcs
50296	IS41410	Y connector male/female-female for contacts with sec. from 1.5mm^2 to 6mm^2	10
50297	IS41420	Y connector female/male-male for contacts with sec. from 1.5mm^2 to 6mm^2	10

LINE 4: PIN dimension: 4mm; Maximum voltage 1000V DC; Maximum current: 30A at 70°C - 25A at 85°C; Contact resistance <5m Ohm; Contact material: Cu; Plating: Tin; Insulation: PPO; Protection grade: IP67 (IEC 60529); Temperature range: -40°C +90°C; Flammability level: UL94-V0.



FVG ENERGY CODE	CABUR CODE	DESCRIPTION	Pcs
50398	IS14240	Male connector for contacts with sec. from 1.5mm^2 to 6mm^2	100
50399	IS24241	Female connector for contacts with sec. from 1.5mm^2 to 6mm^2	100
50294	IS14240	Male connector for contacts with sec. from 1.5mm^2 to 6mm^2	10
50295	IS24241	Female connector for contacts with sec. from 1.5mm^2 to 6mm^2	10

DC ELECTRICAL SWITCHBOARD for protection and parallel connection of 2, 4, 6 and 8 arrays, for connection and protection from overcurrent and overvoltage. Prewired, it is equipped with isolator, fuse-holders, fuses, voltage arresters, Type 4 connectors (diodes optional) - Maximum Voltage 1000V .



FVG ENERGY CODE	ARRAYS Nr	MAX CURRENT
50300	2	30A
50301	4	40A
50302	6	50A
50303	8	60A

CRIMPING TOOL
CABUR CODE
KXR10406

FVG ENERGY CODE 50410





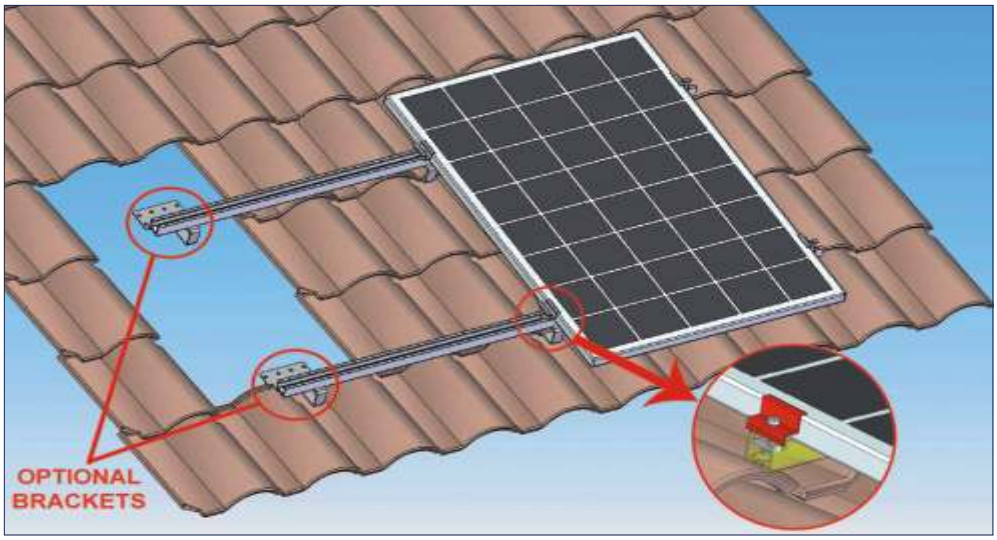
FVG ENERGY CODE	CABUR CODE	DESCRIPTION
50298	ISKIT03	PROFESSIONAL TOOL BOX KIT03 - LINE 3
		The Kit includes:
	KXMC03MG1540	Male connector with harness clamp 3mm for contacts with sec. from 1.5 to 4mm^2
	KXMC03FG1540	Female connector with harness clamp 3mm for contacts with sec. from 1.5 to 4mm^2
	KXMC03MPAN	Male panel connector diam. 3mm for contacts with sec. from 1.5 to 4mm^2
	KXMC03FPAN	Female panel connector diam. 3mm for contacts with sec. da 1.5 to 4mm^2
	KXMC03YMFF	Y connector male/female-female diam. 3mm for contacts with sec. from 1.5 to 4mm^2
	KXMC03YMFF	Y connector female/male-male diam. 3mm for contacts with sec. from 1.5 to 4mm^2
	UMCT	Crimping tool
	KXMM0406	Contact Case



FVG ENERGY CODE	CABUR CODE	DESCRIPTION
50299	ISKIT04	PROFESSIONAL TOOL BOX KIT04 - LINE 4
		The Kit includes:
	KXMC04M1560	Male connector diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	KXMC04F1560	Female connector diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	KXMC04MPAN	Male panel connector diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	KXMC04FPAN	Female panel connector diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	KXMC04YMFF	Y connector male/female-female diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	KXMC04YMFF	Y female/male-male diam. 4mm for contacts with sec. from 1.5 to 6mm^2
	UMCT	Crimping tool
	KXMM0406	Contact Case

FIXING STRUCTURES FOR PHOTOVOLTAIC MODULES mm 1581 x 809 x 35 ON A SLOPING ROOF

FVG ENERGY



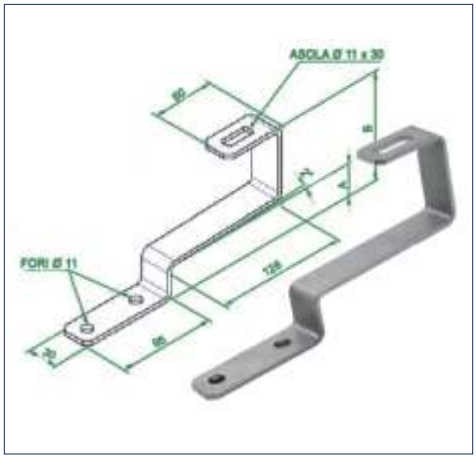
Standard fixing structures for module arrays from 2 to 10 units installed on a sloping roof. Aluminium bars and special stainless steel clamps make a photovoltaic plant assembly quick and easy.

Brackets for fixing modules to roof are optional.

The kit does not include photovoltaic modules.

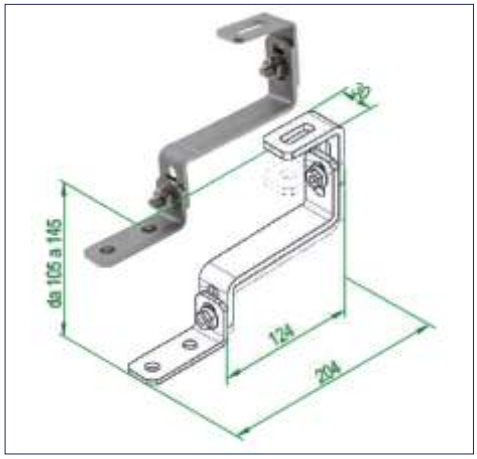
KIT COMPONENTS STRUCTURE	JOINING PLATE	ALUMINIUM BAR	TERMINAL	MIDDLE CLAMP	M8 S.S. SCREW	M8 SPRING NUT	M10 S.S. SCREW	N° OF OPTIONAL BRACKETS FOR SEMI-INTEGRATED PLANT
2 Modules-cod.**KITEL00102**	0	2	4	2	6	6	4	4
3 Modules-cod.**KITEL00103**	0	2	4	4	8	8	8	8
4 Modules-cod.**KITEL00104**	2	3	4	6	10	10	10	10
5 Modules-cod.**KITEL00105**	2	4	4	8	12	12	12	12
6 Modules-cod.**KITEL00106**	2	4	4	10	14	14	16	16
7 Modules-cod.**KITEL00107**	2	4	4	12	16	16	18	18
8 Modules-cod.**KITEL00108**	6	5	4	14	18	18	20	20
9 Modules-cod.**KITEL00109**	4	6	4	16	20	20	24	24
10 Modules-cod.**KITEL00110**	4	6	4	18	22	22	30	30

STAINLESS STEEL BRACKETS FOR SOME COMMON ROOF TILES



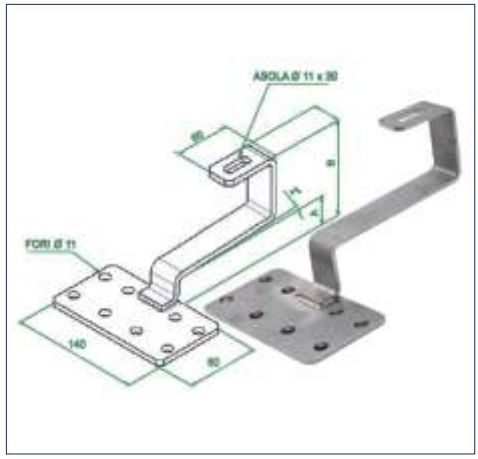
ANCHORING ON CONCRETE
CODE EL66056





ANCHORING ON CONCRETE
CODE EL66063

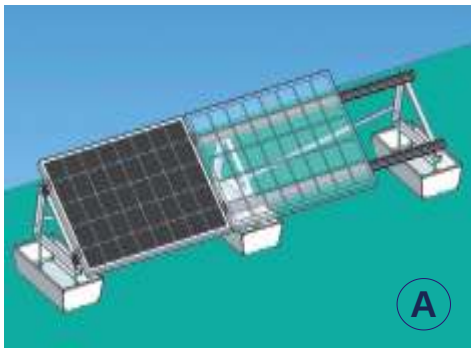




ANCHORING ON WOOD
CODE EL66074



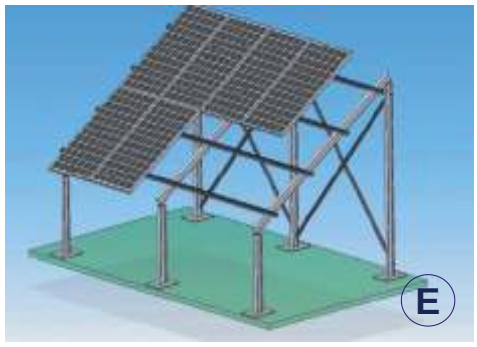
MOUNTING EXAMPLES

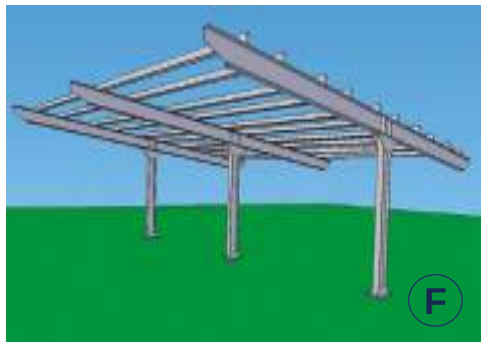




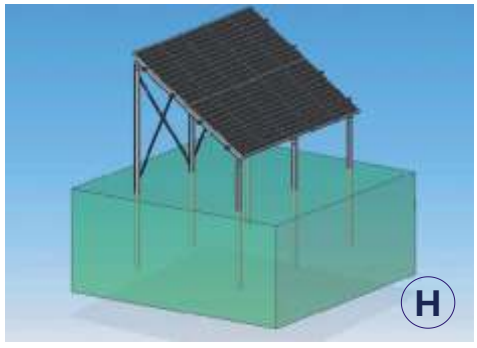












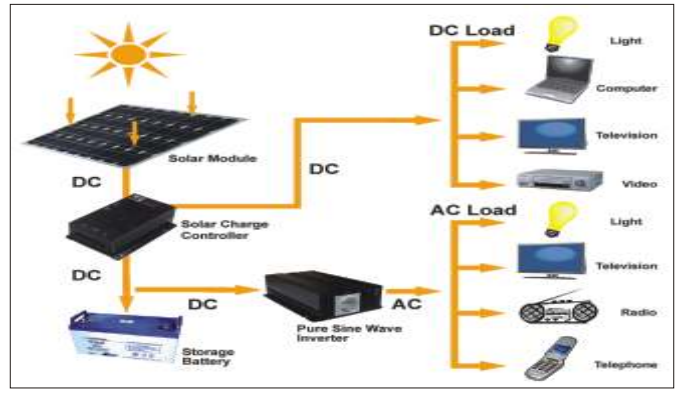


For further information please visit our website where you can also download our full catalogue of mounting structures:
www.fvgenergy.com

SOLAR CHARGER

FVG ENERGY www.fvgenergy.com





MODEL	SolarCharger
VOLTAGE CONFIGURATIONS	12 and 24Vdc Auto-Detection
RATED CHARGING CURRENT	40 Amp
RATED LOAD CURRENT	15 Amp
MAXIMUM PV OPEN VOLTAGE	55Vcd
TYPICAL IDLE POWER	< 10mA
BULK CHARGE	14.6Vcd / 29.2Vcd
FLOATING VOLTAGE	13.4Vcd / 26.8Vcd
EQUALIZATION VOLTAGE	14.0Vcd / 28.0Vcd
OVER CHARGING PROTECTION	14.8Vcd / 29.6Vcd
LEAD ACID BATTERY SETTINGS	Adjustable
NiCad BATTERY SETTING	Adjustable
LOAD CONTROL MODE	1. Low Voltage Reconnect (LVR): Adjustable 2. Low Voltage Disconnect (LVD): Automatic disconnection
OPERATING TEMPERATURE	0-40°C (De-Rating at 40 60°C)
OPERATING ALTITUDE	5000 Metres
CHASSIS LEVEL	IP21
RECOMMENDED WIRE SIZE	#8 AWG
COOLING	Natural Cooling
BATTERY TEMPERATURE SENSOR	Optional
DIMENSIONS (LxWxH)	192 x 140 x 66 mm
CODE	**50080**

SOLAR CHARGER CONTROLLER 12V/24V WITH MPPT

Adopting advanced MPPT technology, Solar Charger photovoltaic charge controller is the key component in off-grid or stand alone solar power generation systems. Solar Charger can track the maximum power point and transfer the energy to various types of batteries. The built-in MPPT microprocessor enables Solar Charger to increase the charging current up to 30% compared to traditional charge controllers. Easy installation and capable of parallel connection, Solar Charger is the perfect solution for home to large solar system applications.

Technical Features:

- High converting efficiency higher than 97% for minimizing energy loss;
- Built-in MPPT tracker for optimizing power transformation;
- Reversed current protection for preventing equipment damage;
- Automatic battery temperature compensation for long-term reliability;
- Capable of selecting different charging mode for various type of batteries;
- Capable of connecting additional DC load for wider applications;
- Three-stage charge control system (bulk, absorption and float mode) with temperature compensation;
- LED indicators display charge status in real time;
- Pulse Width Modulation (PWM) topology combined with a multi-stage charge control algorithm leads to superior charging and enhanced battery performance.



Cod. 50062-50061



Cod. 50065



Cod. 50075



Cod. 50068

SOLAR CHARGE CONTROLLER 12V/24V

This new range of multi-voltage (12V/24V) solar charge controllers from 10A to 30A with a 3 or 4 stage charge control system can load up to 2 battery banks simultanuously (code 50075).
They are ideal for stand-alone photovoltaic plants, on boats, campervans, street-lighting, according to the model.

MODEL	LP12/24-10A	SH12/24-10A	SH12/24-20A	SH12/24-30A	SH12/24-10A-2
Output Volts	12/24V	12/24V	12/24V	12/24V	12/24V
Maximum current	10A	10A	20A	30A	10A
Max charge voltage	14.4/28.8V	14.4/28.8V	14.4/28.8V	14.4/28.8V	14.4/28.8V
Load disconnection	11.1/22.2V	11.1/22.2V	11.1/22.2V	11.1/22.2V	11.1/22.2V
Load reconnection	13.1/26.2V	13.1/26.2V	13.1/26.2V	13.1/26.2V	13.1/26.2V
Charge mode	4 stage	4 stage	4 stage	3 stage	3 stage
N° of output	1	1	1	1	2
Operating temperature	-35/+55°C	-35/+55°C	-35/+55°C	-20/+50°C	-35/+55°C
Protection degree	IP22	IP22	IP22	//	
Type	Street-light	Stand Alone Boat/Camper	Stand Alone Boat/Camper	Stand Alone Boat/Camper	Stand Alone - Boat/Camper
LCD Display	No	No	No	Yes	No
FVG ENERGY CODE	**50062**	**50061**	**50065**	**50068**	**50075**

UNIVERSAL CHARGER

www.fvgenergy.com





INPUT	Voltage Range	90 280Vac		
	Frequency Range	40 70Hz		
	Connection	Hard Wiring		
OUTPUT	Voltage	12V/24Vdc, Adjustable		
	Charging Voltage	14.4±0.1Vdc / 28.8±0.2Vdc		
	Charging Current (Max.)	Input Voltage 180 280Vac	12Vdc	40A
			24Vdc	20A
		Input Voltage 90 180Vac	12Vdc	20A
			24Vdc	10A
	Selectable Charging Current	4 Steps: Approach to 25/50/75/100% of Max. Rating Current		
	Selectable Battery Type	Lead-Acid / Gel / AGM Battery		
	Parallel Operation	Yes		
	Connection	Harg Wiring		
	3-Steps Charging Mode	Costant Current / Costant Voltage / Floating Voltage		
EFFICIENCY	>80% at 230 Vac with various Full Load			
INDICATOR	LED	Three color LEDs with various combinations		
DIMENSIONS	Tower Case (LxWxH)	mm 224 x 255 x 80		
WEIGHT	Tower Case	1.7 Kg		
ENVIRONMENT	EMC	EMS: EN55024; EMI: EN55022, Class A		
	Operating Environment	-10°~60°C (Derating from 40~60°C)		
	Relative Humidity	5-95% (NON-CONDENSING)		
	Cooling	Fan Cooling		
	Noise Level	<50dB at 1 Metre		
CODE	**20800**			

UNIVERSAL CHARGER 40

Up to 40A Charging Capacity with wider input voltages and connected battery type selections. Responding to the demand of the large charging ability to diverse types of batteries in the market, FVG Energy is proud to introduce the new generation Universal Charger which adopts the reliable high frequency structure, compatible with wider selective range of input voltage from 90Vac-280Vac, and has 12Vdc or 24Vdc output selections. It provides maximized flexibility in terms of wider input voltage, optional output voltage, customized output current and selective charging modes for diverse types of batteries that maximize battery lifetime. Universal Charger is suitable for satisfying various demands of large power charging ability and is the best choice for multiple power surroundings.

Technical Features:

- Three stages variable charging voltage algorithm by timing for maximizing battery lifetime;
- Large charging design (40A for 12Vdc mode, 20A for 24Vdc mode) for shortening charging time;
- Selectable charging currents based on connected capacity for extending battery lifetime with optimized charging types of batteries of Flooded Lead-Acid, Gel, AGM chemistries batteries;
- Wider input voltage range from 90Vac to 280Vac for universal input;
- High AC to DC converting efficiency design (higher than 80%);
- Smart fan control. Built-in control firmware for controlling fan on/off status bases on charger operating mode. When the battery is charged, the fan will stop to reduce the noise and also extend the fan lifetime.



MAINTENANCE-FREE RECHARGEABLE SEALED LEAD ACID BATTERIES

Sealed lead acid batteries with oxygen recombination technology. Totally sealed batteries, maintenance-free, suitable for photovoltaic systems, and for every application that needs long duration and high performances.

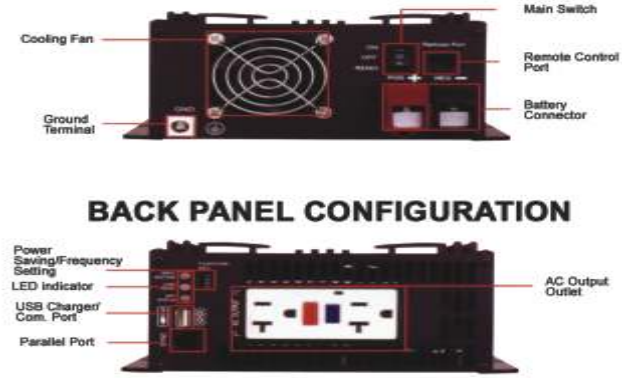
These batteries have an average life of 5 years (if the use is correct). The battery has plates, separators, safety valves and container. Since the electrolyte is held by a glassmat separator and plates, the battery can be used in any direction and position without leakage.

MODEL	12AH	44AH	65AH	100AH-HP	150AH	200AH
Tens.stand-by	13.5-13.8V	13.5-13.8V	13.5 - 13.6 V	13.5-13.8V	13.5 - 13.6 V	13.5 - 13.8 V
Tens.deep cycle	14.1-15.0V	14.4-15.0V	14.7 - 15.0 V	14.4-15.0V	14.7 - 15.0 V	14.4 - 15.0 V
Average life	5 years	5 years	5 years	10 years	5 years	5 years
Size cm	10x15.1Xh9.8	19x16.5xh18	35x16.5xh17.5	33x17xh22	48x17xh24.5	53x24xh21.5
Weight	Kg 5.2	Kg 13.5	Kg 30	Kg 31.7	Kg 43.8	Kg 62
CODE	**50455**	**50460**	**50465**	**50490**	**50475**	**50480**

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PURE SINE WAVE INVERTER





MODEL	PURE SINE WAVE INVERTER 600	PURE SINE WAVE INVERTER 1000	PURE SINE WAVE INVERTER 2000
OUTPUT POWER (CONTINUOUS)	600W	1000W	2000W
SURGE RATING	1200W	2000W	4000W
NOMINAL INPUT VOLTAGE	12Vdc		
OUTPUT VOLTAGE	220Vac		
CREST FACTOR	3 : 1		
OUTPUT FREQUENCY	50Hz ± 0.1%		
EFFICIENCY	> 88%		
NO LOAD CURRENT DRAW	< 15W		
STAND-BY CURRENT DRAW	< 5W		
OUTPUT WAVEFORM	PURE SINE WAVE		
TOTAL HARMONIC DISTORTION	< 3% with Linear Load		
INPUT VOLTAGE REGULATION	10.5-15Vcd for 12V series		
OUTPUT VOLTAGE REGULATION	220Vac ± 5%		
PROTECTION	Overload, Short circuit, reverse polarity, over/under input voltage, over temperature		
OPERTAING TEMPERATURE	0 40°C (de-rating with 2.5% / °C from 40°C up to 60°C)		
DIMENSIONS (LxWxH) mm	270 x 160 x 70	350 x 180 x 88	400 x 200 x 166
WEIGHT	2.5 Kg	4.0 Kg	8.0 Kg
EMC	FCC Part 15, EN55022 Class B		
COMMUNICATION PORT	RS 232		
CODE	**20780**	**20782**	**20786**

PURE SINE WAVE INVERTER 600-1000-1500 - 12V
The new Sine Wave Inverter series inverter adopts superior features and is designed with the highest standards in the industry. The high frequency structure reduces the size of the Pure Sine Wave Inverter and achieves the highest power density in the market. The unique N+X parallel redundancy feature maximizes the flexibility and expansibility of integrating additional inverter units in the features. Designed for diverse applications, this inverter promises to fulfill the demands from home to heavy-duty industrial enviroment.
Technical Features:
- High frequency switching technology for compact size and light weight;
- Pure sine wave output (THD < 3%) for wide range of applications and harsh environment;
- High efficient DC-to-AC conversion minimizing energy loss;
- "All master" dynamic mechanism eliminates single point failure to optimize reliability;
- Low power "Power Saving Mode": no-load consumption lower than 15W;
- Input/output isolated design for maximum operation safety;
- Intelligent cooling fan speed control determinated by loads;
- LED indicators;
- DSP control;
- Multiple protection: input low voltage / overload / short circuit / low battery alarm / input over voltage / over temperature;
- Wall-mount design for easy placement.

INVERTER PURE SINE WAVE WITH UPS - INPUT 24+230V - OUTPUT 230V AC



MODEL	2024	3224
Capacity	2000W	3200W
Surge Power Capacity	6000W	9600W
Voltage Range	184-253VAC	184-263VAC
Frequency Range	50-60Hz ± 3Hz, Auto Detection	
Short Circuit Protection	Circuit Breaker	
Transfer Time	20ms	
Nominal Voltage	24VDC	24VDC
Rated Charging Voltage	Float: 27.0Vdc±0.6Vdc; Bulk: 28.4Vdc±0.3Vdc	
Rated Charging Current	35A	70A
Charging Mode	Constant Current Mode/Constant Voltage Mode/Floating Mode	
Dimensions (DxWxH) mm	381x217x179	579x227x179
Net Weight kg	20 kg	25 kg
Operating Temperature	0-40°C, 0-90% relative humidity (no-condensing)	
Noise Level	Less than 60dB	
FVG ENERGY CODE	**20805**	**20807**

SWITCHING BATTERY CHARGERS

FVG ENERGY



20911
20912



20909



20913

SWITCHING BATTERY CHARGERS "SBC" - WALL-MOUNTED

Simultaneously handle up to 3 separate banks of batteries supplying each one with the required current. Fully automatic. 3-stage charging system (normal, boost and floating) for a 100% charge and long battery life. They can be used as an independent power supply unit without the need of backup batteries. Switching mode technology allows minimum weight and dimensions. Possibility of connecting more battery chargers in parallel. They also operate with very low AC mains voltage (180V). Dual voltage power supply (115/230V) that make them suitable for worldwide use. Protection against reverse polarity, short circuit, and overheating. Input and output fuses. Forced ventilation through 2 electronically controlled fans. 3/5 LED controls.

CODE	Input Volt	Input Amp (230V)	Output Volts	Charge voltage floating	Charge voltage Booster	Out DC (Amp)	Dimensions mm	Net Weight Kg	Operating Temperature
20911	110 or 220V	4A	12V	13.4-13.8V	14.1-14.5V	60A	340x300x80	4 Kg	-10/+50°C
20912	110 or 220V	7A	24V	26.8-27.6V	28.2-29V	50A	340x300x80	4 Kg	-10/+50°C
20909	110 or 220V	7A	24V	26.8-27.6V	28.2-29V	30A	310x230x80	4 Kg	-10/+50°C
20913	110 or 220V	14A	24V	26.8-27.6V	28.2-29V	100A	340x300x180	7 Kg	-10/+50°C







20915
20916

REMOTE CONTROL

Remote control panel with 6 mt cable. With ampere out indicator.
Dimensions: mm 130 x 65 x 30

Suitable for codes # 20909 - 20911 - 20912:
Code 20915

Suitable for code # 20913:
Code 20916



20889



20890
20895

PTSBC - CHARGERS

PTSBC series provides automatic multi-rate charge, with 3 charge stages. They provide short circuit protection, reverse polarity protection and over loaded protection. Electronic cooling system with fan (only in 6A and 10A models). LED light to indicate stage. These battery chargers are suitable for cars, trucks, agricultural machinery, camping and boats. The switching system allows a 100% charge and a battery long life. PTSBC's can always be connected because they are fully automatic.

MODEL	PTSBC-212F	PTSBC-1012F	PTSBC-624F
Input Voltage (VAC)	90V ~ 240V	90V ~ 240V	90V ~ 240V
Frequency	50 ~ 60 Hz	50 ~ 60 Hz	50 ~ 60 Hz
Output Current	2A	10A	6A
Output Voltage	12V	12V	24V
Equalizer Charge	14.6V	14.6V	29.2V
Floating Charge	13.7V	13.7V	27.4V
Dimensions mm	115x62x33	162x90x50	162x90x50
Net Weight	0.50 Kg	0.85 Kg	0.85 Kg
CODE	**20889**	**20890**	**20895**

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