



# PHOTOVOLTAIC SOLAR PANELS



**SITECNO GROUP**  
Energy - Efficiency - Innovation

## 1. POSITIVE POWER TOLERANCE

Photovoltaic solar panels from SITECNO have an outstanding positive power tolerance of up to +10 Wp.

## 2. FULLY INTEGRATED PRODUCTION

From the manufacture of poly-silicon to the production of ingots, silicon wafers and solar cells to the integration of PV panels, the manufacturing process at SITECNO is gapless.

## 3. RESISTANCE TO THE ELEMENTS

Every SITECNO PV panel must operate reliable for decades, and in all type of weather and under all temperature fluctuations. Therefore, SITECNO solar panels are subjected to the most demanding load tests.

## 4. MATERIAL CONTROL

SITECNO panels are manufactured using only the best materials. An important basis for this is the regular monitoring of all suppliers.

## 5. MAINTENANCE

Since there are no parts that suffer wear and tear, SITECNO panels are virtually maintenance free.

## 6. FLEXIBILITY OF USE

PV solar panels have been proven for the most diverse uses from small rooftop systems up to mega watt power plants on open land. Also, salt spray and ammonia tests expressly permit the use of SITECNO panels close to the sea and on agricultural land.



# SITECNO SOLAR PANELS CONVINCES THROUGH PERFORMANCE

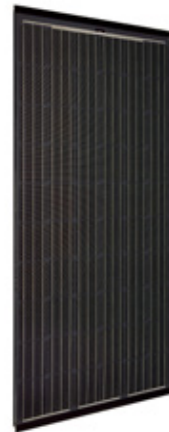
Due to the unique combination of components, the high-efficiency solar panels from SITECNO are particularly powerful. With the high efficiency, the SITECNO offers maximum performance compared to the small overall area required. This also means: less effort and less material for installation. This increase in efficiency and the long-term high energy yields of SITECNO ensure efficient operation of your photovoltaic system. The quality of SITECNO solar panel is continuously tested and confirmed by independent institutes. SITECNO solar panels are stored with a positive power classification. The performance is guaranteed by SITECNO for 25 years, the product guarantee is 10 years.



SITECNO Panel Polycrystalline



SITECNO Panel Monocrystalline



SITECNO Panel BIPV



Extensive quality management through production according to international quality and environmental standards as well as strict internal examinations.



Consistently high cell quality through strict quality examinations by high-resolution electro-luminescence and infrared measurements.



Strict quality examinations of the supplied components and each manufacturing step through optical and electronic test stations along the whole manufacturing line.



10 years product and 25 years performance guarantee



Proper recycling and all sold panels through full membership in the PV Cycle association



Intelligent and perfectly matched systems and services from the technical and economical plant layout up to the factory service



Worldwide known and certified through VDE (IEC 61215 Ed.2, IEC 61730-1 Ed.1 and IEC 61730-2 Ed.1)

## CERTIFIED SAFETY FOR PRODUCTIVE DECADE

### Damp-Heat Test IEC 61215

Result: The panels exceed the requirements by the factor of three in regard to environments with intense damp/heat.

### Thermal Cycling Test IEC 61215

Result: The panels exceed the requirements in regard to temperature fluctuation and three times extended performance time.

### Mechanical Load Test IEC 61215

Result: SITECNO PV-panels' structural engineering sustains above-average loads.

## PV Solar Panel SI-36P135 to SI-36P150

Electrical data (STC)			SI-36P135	SI-36P140	SI-36P145	SI-36P150
Rated Power	$P_{MPP}$	[W]	135	140	145	150
Rated voltage	$V_{MPP}$	[V]	17.8	17.9	18.3	18.4
Rated current	$I_{MPP}$	[A]	7.56	7.81	7.90	8.14
Open-circuit voltage	$V_{OC}$	[V]	21.7	21.8	22.3	22.4
Short circuit current	$I_{SC}$	[A]	8.31	8.59	8.68	8.94
Efficiency	$\eta$	[%]	13.4	13.9	14.4	14.9

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-36P135	SI-36P140	SI-36P145	SI-36P150
Power	$P_{MPP}$	[W]	108	112	116	120
Voltage	$V_{MPP}$	[V]	16.0	16.1	16.4	16.5
Current	$I_{MPP}$	[A]	6.04	6.24	6.32	6.51
Open-circuit voltage	$V_{OC}$	[V]	19.5	19.6	20.0	20.1
Short-circuit current	$I_{SC}$	[A]	6.64	6.8	6.9	7.1
Efficiency	$\eta$	[%]	12.0	12.5	12.9	13.4

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

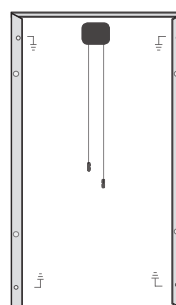
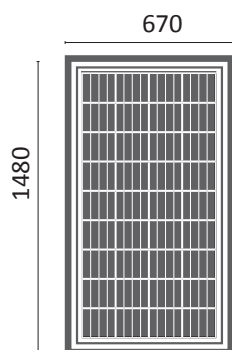
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1480 x 670 x 35
Weight	[kg]	14
Number of cells		36
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		MC4
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .



# PV Solar Panel SI-48P195 to SI-48P210

Electrical data (STC)			SI-48P195	SI-48P200	SI-48P205	SI-48P210
Rated Power	$P_{MPP}$	[W]	195	200	205	210
Rated voltage	$V_{MPP}$	[V]	24.2	24.3	24.4	24.5
Rated current	$I_{MPP}$	[A]	8.07	8.24	8.41	8.58
Open-circuit voltage	$V_{OC}$	[V]	30.0	30.0	30.1	30.1
Short circuit current	$I_{SC}$	[A]	8.6	8.76	8.92	9.08
Efficiency	$\eta$	[%]	14.6	15.0	15.4	15.8

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-48P195	SI-48P200	SI-48P205	SI-48P210
Power	$P_{MPP}$	[W]	143	146	150	154
Voltage	$V_{MPP}$	[V]	21.8	21.9	22.0	22.1
Current	$I_{MPP}$	[A]	6.53	6.67	6.81	6.95
Open-circuit voltage	$V_{OC}$	[V]	27.6	27.6	27.7	27.7
Short-circuit current	$I_{SC}$	[A]	6.99	7.12	7.25	7.38
Efficiency	$\eta$	[%]	13.4	13.7	14.1	14.4

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

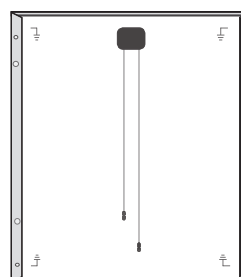
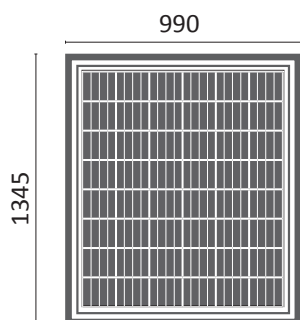
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1345 x 990 x 50
Weight	[kg]	16
Number of cells		48
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.





# PV Solar Panel SI-60P245 to SI-60P265

Electrical data (STC)			SI-60P245	SI-60P250	SI-60P255	SI-60P260	SI-60P265
Rated Power	$P_{MPP}$	[W]	245	250	255	260	265
Rated voltage	$V_{MPP}$	[V]	30.2	30.3	30.4	30.5	30.7
Rated current	$I_{MPP}$	[A]	8.11	8.24	8.38	8.51	8.64
Open-circuit voltage	$V_{OC}$	[V]	37.5	37.5	37.6	37.7	37.7
Short circuit current	$I_{SC}$	[A]	8.63	8.76	8.88	9.01	9.14
Efficiency	$\eta$	[%]	14.9	15.2	15.5	15.8	16.1

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-60P245	SI-60P250	SI-60P255	SI-60P260	SI-60P265
Power	$P_{MPP}$	[W]	179	183	187	190	194
Voltage	$V_{MPP}$	[V]	27.3	27.4	27.5	27.6	27.7
Current	$I_{MPP}$	[A]	6.56	6.67	6.78	6.89	7.00
Open-circuit voltage	$V_{OC}$	[V]	34.5	34.5	34.6	34.6	34.7
Short-circuit current	$I_{SC}$	[A]	7.02	7.12	7.22	7.33	7.43
Efficiency	$\eta$	[%]	13.6	13.9	14.2	14.5	14.7

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

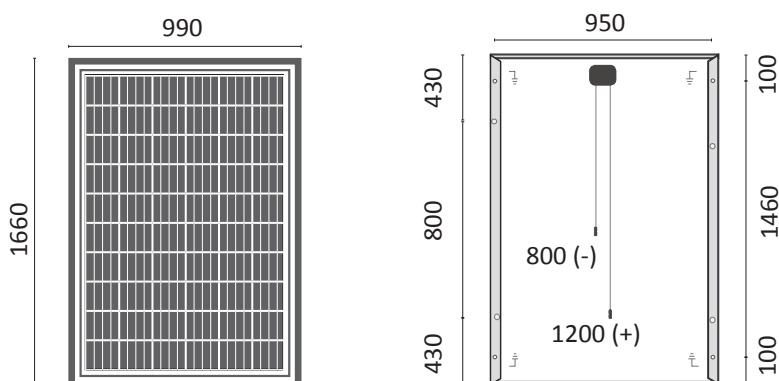
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1660 x 990 x 50
Weight	[kg]	20
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .



# PV Solar Panel SI-60PS250 to SI-60PS265

Electrical data (STC)			SI-60PS250	SI-60PS255	SI-60PS260	SI-60PS265
Rated Power	$P_{MPP}$	[W]	250	255	260	265
Rated voltage	$V_{MPP}$	[V]	30.3	30.4	30.5	30.7
Rated current	$I_{MPP}$	[A]	8.24	8.38	8.51	8.64
Open-circuit voltage	$V_{OC}$	[V]	37.5	37.6	37.7	37.7
Short circuit current	$I_{SC}$	[A]	8.76	8.88	9.01	9.14
Efficiency	$\eta$	[%]	15.2	15.5	15.8	15.3

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-60PS250	SI-60PS255	SI-60PS260	SI-60PS265
Power	$P_{MPP}$	[W]	183	187	190	194
Voltage	$V_{MPP}$	[V]	27.4	27.5	27.6	27.7
Current	$I_{MPP}$	[A]	6.67	6.78	6.89	7.00
Open-circuit voltage	$V_{OC}$	[V]	34.5	34.6	34.6	34.7
Short-circuit current	$I_{SC}$	[A]	7.12	7.22	7.33	7.43
Efficiency	$\eta$	[%]	13.9	14.2	14.5	14.0

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

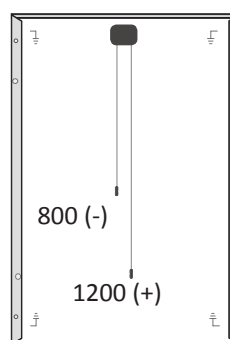
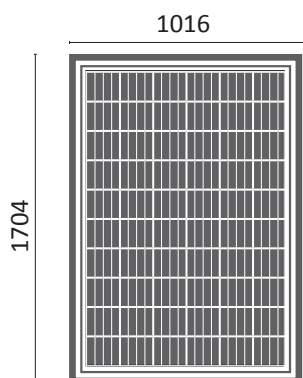
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1016 x 1704 x 36 /1640 x 992 x 38
Weight	[kg]	19
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-) /1000 (+), 1000 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.



# PV Solar Panel SI-72P295 to SI72P315

Electrical data (STC)			SI-72P295	SI-72P300	SI-72P305	SI-72P310	SI-72P315
Rated Power	$P_{MPP}$	[W]	295	300	305	310	315
Rated voltage	$V_{MPP}$	[V]	35.7	35.9	36.1	36.3	36.5
Rated current	$I_{MPP}$	[A]	8.26	8.36	8.45	8.54	8.63
Open-circuit voltage	$V_{OC}$	[V]	45.4	45.6	45.8	46.0	46.2
Short circuit current	$I_{SC}$	[A]	8.58	8.66	8.74	8.82	8.90
Efficiency	$\eta$	[%]	15.2	15.5	15.7	16.0	16.2

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-72P295	SI-72P300	SI-72P305	SI-72P310	SI-72P315
Power	$P_{MPP}$	[W]	216	219	223	226	234
Voltage	$V_{MPP}$	[V]	32.5	33.0	33.2	33.5	33.6
Current	$I_{MPP}$	[A]	6.69	6.77	6.85	6.92	6.99
Open-circuit voltage	$V_{OC}$	[V]	41.3	41.5	41.6	41.8	42
Short-circuit current	$I_{SC}$	[A]	6.88	6.95	7.01	7.08	7.14
Efficiency	$\eta$	[%]	13.8	13.9	14.1	14.4	14.5

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 45°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

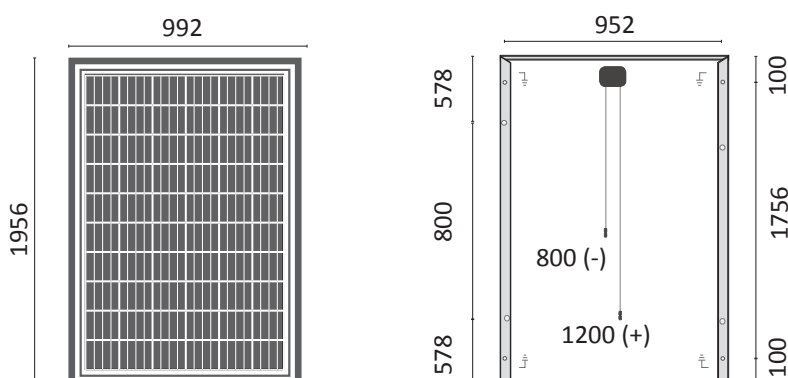
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1956 x 992 x 40
Weight	[kg]	26.5
Number of cells		72
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .





# PV Solar Panel SI-36M95 to SI-36M105

Electrical data (STC)			SI-36M95	SI-36M100	SI-36M105
Rated Power	$P_{MPP}$	[W]	95	100	105
Rated voltage	$V_{MPP}$	[V]	18	18.6	18.7
Rated current	$I_{MPP}$	[A]	5.28	5.38	5.61
Open-circuit voltage	$V_{OC}$	[V]	22.5	22.7	22.8
Short circuit current	$I_{SC}$	[A]	5.78	5.90	6.16
Efficiency	$\eta$	[%]	14.6	15.4	15.8

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-36M95	SI-36M100	SI-36M105
Power	$P_{MPP}$	[W]	76	80	84
Voltage	$V_{MPP}$	[V]	16.2	16.74	16.83
Current	$I_{MPP}$	[A]	4.22	4.30	4.48
Open-circuit voltage	$V_{OC}$	[V]	20.2	20.43	20.52
Short-circuit current	$I_{SC}$	[A]	4.62	4.72	4.92
Efficiency	$\eta$	[%]	13.1	13.8	14.2

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 45°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

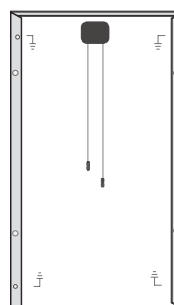
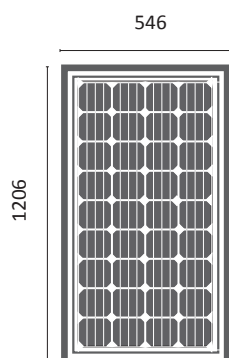
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.38
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.47

Basic panels data		
Length x width x height	[mm <sup>3</sup> ]	1206 x 546 x 35
Weight	[kg]	19
Number of cells		36
Cell size	[mm <sup>2</sup> ]	125 x 125
Cell material		Monocrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>3</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	850 (+), 850 (-)
Connectors		MC4
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.



## PV Solar Panel SI-48M220 to SI-48M230

Electrical data (STC)			SI-48M220	SI-48M225	SI-48M230
Rated Power	$P_{MPP}$	[W]	220	225	230
Rated voltage	$V_{MPP}$	[V]	24.9	25.0	25.1
Rated current	$I_{MPP}$	[A]	8.83	9.00	9.18
Open-circuit voltage	$V_{OC}$	[V]	31.3	31.4	31.4
Short circuit current	$I_{SC}$	[A]	9.62	9.69	9.76
Efficiency	$\eta$	[%]	16.5	16.9	17.3

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-48M220	SI-48M225	SI-48M230
Power	$P_{MPP}$	[W]	161	164	168
Voltage	$V_{MPP}$	[V]	22.6	22.7	22.8
Current	$I_{MPP}$	[A]	7.10	7.24	7.39
Open-circuit voltage	$V_{OC}$	[V]	28.8	28.9	28.9
Short-circuit current	$I_{SC}$	[A]	7.78	7.84	7.90
Efficiency	$\eta$	[%]	15.1	15.4	15.8

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<2
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	20

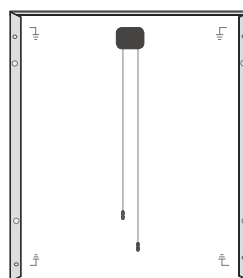
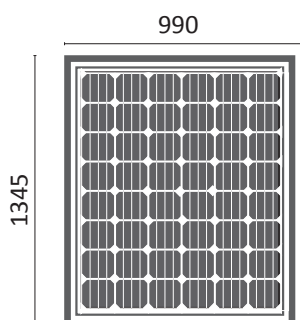
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.30
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1345 x 990 x 50
Weight	[kg]	16
Number of cells		48
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Monocrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 27
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3



# PV Solar Panel SI-48MN215 to SI-48MN230

Electrical data (STC)			SI-48MN215	SI-48MN220	SI-48MN225	SI-48MN230
Rated Power	$P_{MPP}$	[W]	215	220	225	230
Rated voltage	$V_{MPP}$	[V]	24.8	24.9	25.0	25.1
Rated current	$I_{MPP}$	[A]	8.67	8.83	9.00	9.18
Open-circuit voltage	$V_{OC}$	[V]	31.3	31.3	31.4	31.4
Short circuit current	$I_{SC}$	[A]	9.56	9.62	9.69	9.76
Efficiency	$\eta$	[%]	16.1	16.5	16.9	17.3

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-48MN215	SI-48M220	SI-48M225	SI-48M230
Power	$P_{MPP}$	[W]	156	160	163	167
Voltage	$V_{MPP}$	[V]	22.4	22.5	22.5	22.6
Current	$I_{MPP}$	[A]	6.98	7.10	7.24	7.39
Open-circuit voltage	$V_{OC}$	[V]	28.6	28.6	28.7	28.7
Short-circuit current	$I_{SC}$	[A]	7.73	7.78	7.84	7.90
Efficiency	$\eta$	[%]	14.6	15.0	15.3	15.7

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<2
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	20

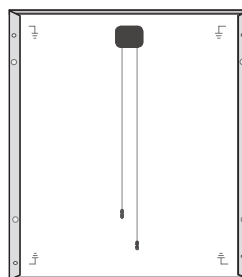
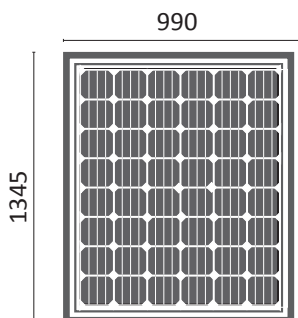
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.30
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1345 x 990 x 50
Weight	[kg]	16
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet black
Frame material		Al alloy black

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.



# PV Solar Panel SI-60M260 to SI-60M290

Electrical data (STC)			SI-60M260	SI-60M265	SI-60M270	SI-60M275	SI-60M280	SI-60M285	SI-60M290
Rated Power	$P_{MPP}$	[W]	260	265	270	275	280	285	290
Rated voltage	$V_{MPP}$	[V]	31.4	31.5	31.6	31.6	31.2	31.3	31.3
Rated current	$I_{MPP}$	[A]	8.44	8.57	8.71	8.85	8.97	9.10	9.25
Open-circuit voltage	$V_{OC}$	[V]	38.3	38.3	38.4	38.5	39.2	39.2	39.3
Short circuit current	$I_{SC}$	[A]	8.91	9.05	9.20	9.34	9.67	9.73	9.80
Efficiency	$\eta$	[%]	16.1	16.4	16.7	17.0	17.0	17.3	17.6

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-60M260	SI-60M265	SI-60M270	SI-60M275	SI-60M280	SI-60M285	SI-60M290
Power	$P_{MPP}$	[W]	193	196	200	203	205	208	212
Voltage	$V_{MPP}$	[V]	28.5	28.5	28.6	28.7	28.4	28.4	28.4
Current	$I_{MPP}$	[A]	6.76	6.88	6.99	7.10	7.21	7.33	7.45
Open-circuit voltage	$V_{OC}$	[V]	35.2	35.3	35.3	35.4	36.1	36.1	36.2
Short-circuit current	$I_{SC}$	[A]	7.17	7.29	7.41	7.52	7.82	7.87	7.93
Efficiency	$\eta$	[%]	14.6	14.9	15.2	15.5	15.6	15.8	16.1

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<2
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	20

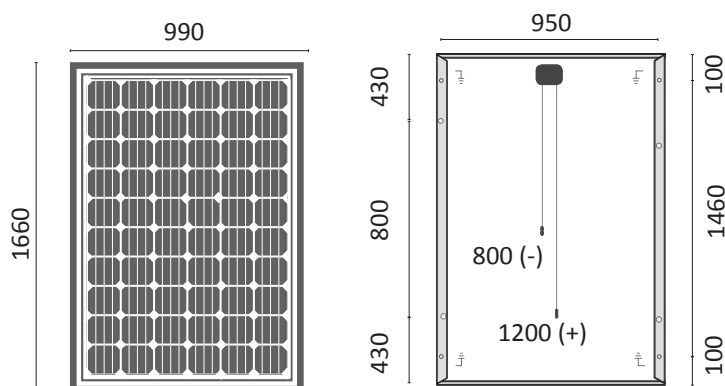
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.30
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1660 x 990 x 50 /1704 x 1016 x 36 /1640 x 992 x 38
Weight	[kg]	20
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .



# PV Solar Panel SI-60MN275 to SI-MN285

Electrical data (STC)			SI-60MN275	SI-60MN280	SI-60MN285
Rated Power	$P_{MPP}$	[W]	275	280	285
Rated voltage	$V_{MPP}$	[V]	31.1	31.2	31.3
Rated current	$I_{MPP}$	[A]	8.83	8.97	9.10
Open-circuit voltage	$V_{OC}$	[V]	39.1	39.2	39.2
Short circuit current	$I_{SC}$	[A]	9.62	9.67	9.73
Efficiency	$\eta$	[%]	16.7	17.0	17.3

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-60MN275	SI-60MN280	SI-60MN285
Power	$P_{MPP}$	[W]	200	20	207
Voltage	$V_{MPP}$	[V]	28.2	28.2	28.3
Current	$I_{MPP}$	[A]	7.10	7.21	7.33
Open-circuit voltage	$V_{OC}$	[V]	35.9	35.9	36.0
Short-circuit current	$I_{SC}$	[A]	7.78	7.83	7.88
Efficiency	$\eta$	[%]	15.2	15.5	15.8

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<2
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	20

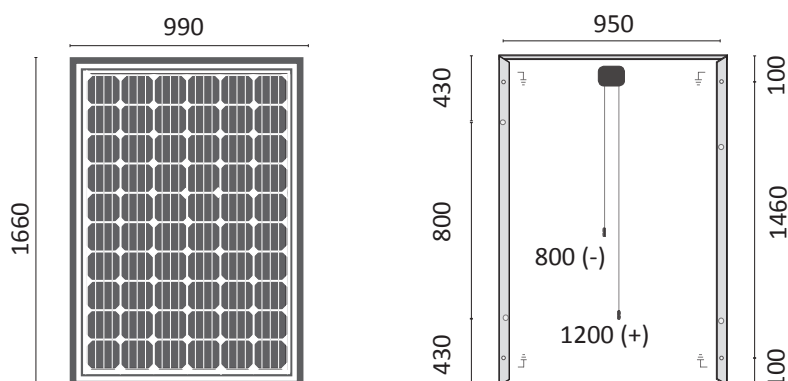
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.30
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1660 x 990 x 50
Weight	[kg]	20
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet black
Frame material		Al alloy black

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.



# PV Solar Panel SI-60MP280 to SI-MP300

Electrical data (STC)			SI-60MP280	SI-60MP285	SI-60MP290	SI-60MP295	SI-60MP300
Rated Power	$P_{MPP}$	[W]	280	285	290	295	300
Rated voltage	$V_{MPP}$	[V]	31.2	31.3	31.3	31.3	31.3
Rated current	$I_{MPP}$	[A]	8.97	9.10	9.25	9.42	9.55
Open-circuit voltage	$V_{OC}$	[V]	39.2	39.2	39.3	39.3	39.3
Short circuit current	$I_{SC}$	[A]	9.67	9.73	9.80	9.87	9.95
Efficiency	$\eta$	[%]	17.0	17.3	17.6	18.0	18.3

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup> ; 25°C; AM 1.5

Electrical data (NOCT)			SI-60MP280	SI-60MP285	SI-60MP290	SI-60MP295	SI-60MP300
Power	$P_{MPP}$	[W]	205	208	212	215	218
Voltage	$V_{MPP}$	[V]	28.4	28.4	28.4	28.4	28.4
Current	$I_{MPP}$	[A]	7.21	7.33	7.45	7.59	7.72
Open-circuit voltage	$V_{OC}$	[V]	36.1	36.1	36.2	36.2	36.2
Short-circuit current	$I_{SC}$	[A]	7.82	7.87	7.93	7.99	8.05
Efficiency	$\eta$	[%]	15.6	15.8	16.1	16.4	16.7

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 48°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	0
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	20

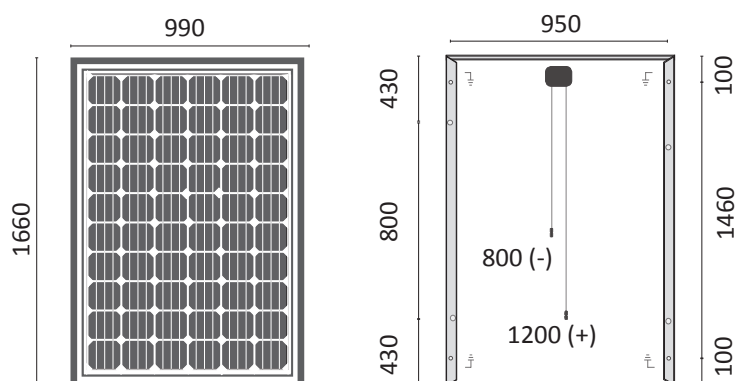
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.05
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.30
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1660 x 990 x 50
Weight	[kg]	20
Number of cells		60
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC  $\pm 3\%$ . Accuracy of other electrical values  $\pm 10\%$ .





# PV Solar Panel SI-72M305 to SI-72M325

Electrical data (STC)			SI-72M305	SI-72M310	SI-72M315	SI-72M320	SI-72M325
Rated Power	$P_{MPP}$	[W]	305	310	315	320	325
Rated voltage	$V_{MPP}$	[V]	36.2	36.4	36.6	36.8	37.0
Rated current	$I_{MPP}$	[A]	8.43	8.52	8.61	8.70	8.78
Open-circuit voltage	$V_{OC}$	[V]	45.5	45.8	46.1	46.4	46.7
Short circuit current	$I_{SC}$	[A]	8.88	8.96	9.04	9.12	9.20
Efficiency	$\eta$	[%]	15.7	16.0	16.2	16.5	16.7

Electrical values measures under standard test conditions (STC): 1000 W/m<sup>2</sup>; 25°C; AM 1.5

Electrical data (NOCT)			SI-72M305	SI-72M310	SI-72M315	SI-72M320	SI-72M325
Power	$P_{MPP}$	[W]	223	226	230	234	248
Voltage	$V_{MPP}$	[V]	32.5	32.7	32.9	33.1	33.3
Current	$I_{MPP}$	[A]	6.67	6.81	6.88	6.96	7.02
Open-circuit voltage	$V_{OC}$	[V]	40.9	41.22	41.5	41.7	42.0
Short-circuit current	$I_{SC}$	[A]	7.10	7.16	7.23	7.29	7.36
Efficiency	$\eta$	[%]	14.1	14.4	14.5	14.8	15.0

Electrical values measures under operating conditions of cells: 800 W/m<sup>2</sup>; 20°C; AM 1.5; wind 1 m/s  
NOCT: 45°C (nominal operating cell temperature)

Additional electrical data		
Reduction of STC efficiency from 1000 W/m <sup>2</sup> to 200 W/m <sup>2</sup>	[%] rel.	<4
Classification range (positive classification)	[W]	0/+4.99

Loads		
Max. panel pressure load	[Pa]	5400
Max. panel suction load	[Pa]	5400
Max. system voltage	[V <sub>DC</sub> ]	1000
Reverse current load $I_R$	[A]	15

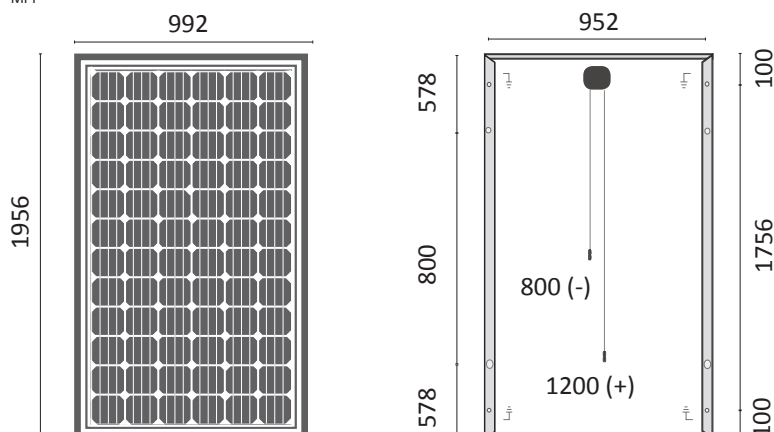
Mechanical load acc. to IEC/EN 61215

Temperature coefficients			
Temperature coefficient $I_{SC}$	$\alpha(I_{SC})$	[%/k]	+0.04
Temperature coefficient $V_{OC}$	$\beta(V_{OC})$	[%/k]	-0.31
Temperature coefficient $P_{MPP}$	$\gamma(P_{MPP})$	[%/k]	-0.43

Basic panels data		
Length x width x height	[mm <sup>2</sup> ]	1956 x 992 x 40
Weight	[kg]	22
Number of cells		72
Cell size	[mm <sup>2</sup> ]	156 x 156
Cell material		Polycrystalline Si
Front sheet		Solar glass (TSG)
Back sheet		Polymer sheet
Frame material		Al alloy

Basic data junction box		
Length x width x height	[mm <sup>2</sup> ]	148 x 123 x 28
IP class		IP65
Cable length	[mm]	1200 (+), 800 (-)
Connectors		PV-JM601
Bypass diodes		3

Measurement tolerance of  $P_{MPP}$  under STC ±3%. Accuracy of other electrical values ±10%.





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