

- ◆ Maximum quality standard modules
- ◆ High efficiency cells
- ◆ Generating power since 1981
- ◆ Strength and reliability
- ◆ Tested and certified by TÜV
- ◆



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## PHOTOVOLTAIC MODULES IS-210 / 215 / 220 / 225 / 230

### Monocrystalline solar modules



#### PHYSICAL CHARACTERISTICS

CELL	Si Monocrystalline, textured with antireflection layer, size 125 mm x 125 mm
CONTACTS	Redundant, multiple contacts in each cell
CELLS NUMBER PER MODULE	96 cells in serial
STRUCTURE	1) Tempered microstructured glass of high transmittance 2) Cells laminated with EVA (ethylene-vinyl acetate) 3) Back layer protected with several layers of Tedlar/Polyester
FRAME	Anodized Aluminium
GROUND	Yes
ANTITHEFT DRILL	Yes
INTERCONNECTION	Tinned copper ribbon
INTERCONNECTION BOXES	1 x IP 65 with bypass diode
CONNECTION TERMINALS	Screwable terminal block with soldering options
WIRES	1m (+); 1m (-); 4 mm <sup>2</sup> Multicontact MC4 or similar

#### TYPICAL VALUES FOR SYSTEM INTEGRATION

MAXIMUM VOLTAGE ALLOWED	1,000 V
REVERSE CURRENT OVERLOAD	2 h overload at 135% of maximum protection value
MAXIMUM MECHANICAL LOAD ALLOWED	2,400 Pa
OPERATION CONDITIONS	-40° C to 85° C
IMPACT RESISTANCE	25 mm hail, from 1 m of distance at 23 m/s

#### GENERAL CHARACTERISTICS

DIMENSIONS	1,600 x 1,047 x 40 mm
WEIGHT	18.5 Kg
PACKAGING CONDITIONS	25 modules per box (4 modules per box as option)
PACKING BOX SIZE FOR 25 units	1,650 x 1,110 x 1,220 mm (recyclable materials)



### PERFORMANCE AT STANDARD TEST CONDITIONS (STC)

	IS-210	IS-215	IS-220	IS-225	IS-230
MAXIMUM POWER RATING ( $P_{max}$ )	210	215	220	225	230
OPEN CIRCUIT VOLTAGE ( $V_{oc}$ )	59.1	59.1	59.1	59.1	59.1
MAXIMUM POWER VOLTAGE ( $V_{mpp}$ )	47.9	47.9	47.9	47.9	47.9
SHORT CIRCUIT CURRENT ( $I_{sc}$ )	4.77	4.89	5.00	5.11	5.23
MAXIMUM POWER CURRENT ( $I_{mpp}$ )	4.38	4.48	4.59	4.69	4.80
MODULE EFFICIENCY (%)	12.5%	12.8%	13.1%	13.4%	13.7%
OUTPUT TOLERANCE (% $P_{max}$ )	±3%	±3%	±3%	±3%	±3%

Measured in solar simulator Class A, according to IEC-60904-9 Ed.2, certified by TÜV Rheinland

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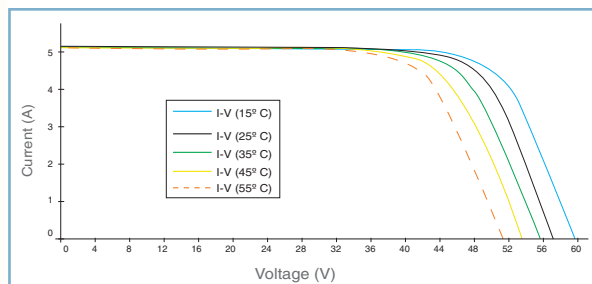
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### PERFORMANCE AT 800 W/m<sup>2</sup>, NOCT, AM 1.5

	IS-210	IS-215	IS-220	IS-225	IS-230
MAXIMUM POWER RATING ( $P_{max}$ )	150.3	153.8	157.4	161.0	164.6
OPEN CIRCUIT VOLTAGE ( $V_{oc}$ )	53.6	53.6	53.6	53.6	53.6
MAXIMUM POWER VOLTAGE ( $V_{mpp}$ )	42.6	42.7	42.6	42.7	42.6
SHORT CIRCUIT CURRENT ( $I_{sc}$ )	3.84	3.93	4.02	4.11	4.21
MAXIMUM POWER CURRENT ( $I_{mpp}$ )	3.52	3.60	3.69	3.77	3.86
OUTPUT TOLERANCE (% $P_{max}$ )	±3%	±3%	±3%	±3%	±3%

Reduction in efficiency from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> at 25° C, according to IEC-60904-1: 5% (+/-3%)

### I-V VARIATION OF IS-220 ACCORDING TO CELL'S TEMPERATURE



### TEMPERATURE COEFFICIENTS

T <sub>0</sub> NC	47°C + / - 2°C
TCC $I_{sc}$	0.0294 %/ K
TCC $V_{oc}$	-0.387 %/ K
TCC $P_{max}$	-0.48 %/ K

REMARKS: All specifications are subject to change without prior notification by ISOFOTON, S.A. This commercial sheet meets the requirements of EN 5038

### DIMENSIONS

