



## 25 years of know-how dedicated to photovoltaic energy development

Full controlling of the assembly process and using technical know-how gained from **25 years of worldwide photovoltaic experience** Photowatt International continually improves the quality and efficiency of its modules.

Part of the worldwide leaders, Photowatt International SA is the **first vertically integrated French manufacturer** of photovoltaic wafers, cells and modules. Using this **competitive advantage**, Photowatt is able to strategically offer its customers the best products in terms of **price, technology and delivery**.

Integrated to the ATS (Automation Tooling Systems Inc) group of Canada, Photowatt meets market evolutions with **complete turnkey systems** and **solutions** suited to your project, from case study to installation.

### Reliability

Photowatt modules are manufactured with **selected materials** following a technological process that guaranties **performances of 25 years\***.

\* According to general warranty conditions. Contact us for marine and tropical environments.

### Innovation

**R&D** is an integral part of the process and ensures a continuous advancement of the **technical level** and **efficiency** of our modules, positioned as the best on the market.

### Choice

Photowatt provides a **full range** of products from **12 W to 230 W**. Reliability and strength can be enhanced using **double-glass (PWX)** technology. This product line is well suited for **marine and tropical environments**.

September 2003 - EDIP Touchant - RC Verme B 693 680 894 - Cover: IMTEK Imaging - Photo: C. Piedrotti. The characteristics in this document are representations of the products and have no contractual value. Subject to product improvements, Photowatt reserves the right to modify the characteristics without prior notification.

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INTERNATIONAL S.A.

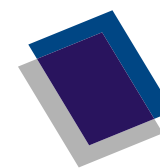
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**MODULES**

English Version



**PHOTOWATT**  
INTERNATIONAL S.A.

Solutions for natural power

6 inch range

MODULES		PW6-230	PW6-123	PW6-110
<b>Encapsulation</b>		Glass/Tedlar		
Size of cells	mm	150 x150		
Number of cells	pcs	72		
<b>Typical power</b>	<b>W</b>	<b>230</b>	<b>123</b>	<b>110</b>
Minimum power	W	223	119	106
Nominal battery voltage	V	24 (12 optional)	12	12
Voltage at typical power	V	34,9	17,6	17,2
Current at typical power	A	6,6	7	6,4
Open circuit voltage	V	43,6	21,9	21,7
Short circuit current	A	7,2	7,6	6,9
Noct (0,8 kW/m <sup>2</sup> , 20 °C, 1 m/s)	°C	45	45	45
Connection		Cable or JBox		
Diodes		4 By-Pass		
FRAME	Length	1889	1439	1439
	Width	988	657	657
	Depth	38	38	38
Depth with JBox	mm	45	45	45
Weight (net)	Kg	25,5	13	13
Operational & Storage Temperature	°C	-40 / +85		

Power +5/-3 %

Power ±3 %



# 4, 5 and 6 inch range: performance, reliability and ease of use

- Made with the latest generation of high efficiency multicrystalline cells.
- A solution for every application, from small remote areas, to grid connected power plants, with three ranges of modules from 12 to 230 W.
- A 25-year\* performance warranty and a 5-year product warranty.
- A reinforced, anodized aluminium frame providing for high mechanical reliability.
- Power tolerance: ± 3%.

6 inch range: discover our new generation of high efficiency modules



- Power plant
- Grid connected large scale systems...

5 inch range

MODULES		PW 850 PWX 850			PW 1250			PW 1650			
<b>Encapsulation</b>		Glass/Tedlar or double-Glass			Glass/Tedlar			Glass/Tedlar			
Size of cells	mm	125,50 x 125,50			125,50 x 125,50			125,50 x 125,50			
Number of cells	pcs	36			54			72			
<b>Typical power</b>	<b>W</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>115</b>	<b>125</b>	<b>135</b>	<b>155</b>	<b>165</b>	<b>175</b>	
Minimum power	W	70,1	75,1	80,1	110	120	130	150	160	170	
Nominal battery voltage	V	12	12	12	18	18	18	24 (12/24 optional)			
Voltage at typical power	V	17	17,3	17,6	25,4	25,9	26,4	34	34,4	35	
Current at typical power	A	4,4	4,6	4,8	4,5	4,8	5,1	4,6	4,8	5	
Open circuit voltage	V	21,5	21,6	21,6	31,9	32,3	32,4	43	43,2	43,2	
Short circuit current	A	4,7	5	5,2	4,7	5	5,3	4,8	5,1	5,3	
Noct (0,8 kW/m <sup>2</sup> , 20 °C, 1 m/s)	°C	45			45			45			
Connection		JBox			Cable or JBox			Cable or JBox			
Diodes		2 By-Pass			3 By-Pass			4 By-Pass			
FRAME	Length	1237	1272		1237	1237			1237		
	Width	556	556		822	1082			1082		
	Depth	24,5	39		38	38			38		
Depth with JBox	mm	45			45			45			
Weight (net)	Kg	7,8	13		12,5	18			18		
Operational & Storage Temperature	°C	-40 / +85			-40 / +85			-40 / +85			

Power ±5 Wp

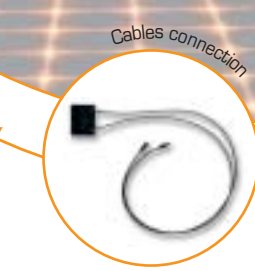
Power ±3 %

4 inch range

MODULES		PW 100 PWX 100		PW 200 PWX 200		PW 500 PWX 500			PW 1000		
<b>Encapsulation</b>		Glass/Tedlar or double-Glass		Glass/Tedlar or double-Glass		Glass/Tedlar or double-Glass			Glass/Tedlar		
Size of cells	mm	50,6 x 50,6		101,25 x 50,6		101,25 x 101,25			101,25 x 101,25		
Number of cells	pcs	36		36		36			72		
<b>Typical power</b>	<b>W</b>	<b>12</b>		<b>22</b>		<b>45</b>	<b>50</b>	<b>55</b>	<b>100</b>	<b>105</b>	<b>110</b>
Minimum power	W	10		18		40,1	45,1	50,1	95,1	100,1	105,1
Nominal battery voltage	V	12		12		12	12	12	24 (12/24 optional)		
Voltage at typical power	V	17		17		16,9	17,2	17,3	34,4	34,6	34,8
Current at typical power	A	0,65		1,3		2,65	2,9	3,2	2,9	3,05	3,15
Open circuit voltage	V	21,5		21,5		21,6	21,6	21,7	43,2	43,2	43,4
Short circuit current	A	0,72		1,44		2,95	3,1	3,45	3	3,15	3,4
Noct (0,8 kW/m <sup>2</sup> , 20 °C, 1 m/s)	°C	45		45		45			45		
Connection		Cable or JBox	JBox	Cable or JBox	JBox	JBox			JBox		
Diodes		no		no		2 By-Pass optional			3 By-Pass (4 optional)		
FRAME	Length	546	582	551	720	1007	1007	1042	1335	1335	1335
	Width	256	262	462	370	462	462	462	673	673	673
	Depth	24,5	39	24,5	39	24,5	24,5	39	24,5	24,5	24,5
Depth with JBox	mm	-	45	-	45	45			45		
Weight (net)	Kg	2,2	3,4	3,4	5,2	5,5	5,5	9,2	10,5		
Operational & Storage Temperature	°C	-40 / +85		-40 / +85		-40 / +85			-40 / +85		



- Remote areas
- Rural electrification
- Telecommunication
- Traffic signs
- Public lighting...



- Grid connected systems
- Building integration
- Water pumping...

**SIN Technology** This anti-reflective coating (silicon nitride) deposit process is now used for all the 4, 5 and 6-inch cells based modules. Together with the BSF technology (aluminium coating on back side of cells), it enables a **15 % efficiency**.