

# Colour your life!

BISOL Spectrum Series



Solar company!





*"The client wasn't prepared to have Blue and Silver on the roof next to their beautiful Oast house. When I showed them the BISOL Spectrum range coupled with the 20 year warranty and better energy harvest from the micro inverters, the customer was very interested."*

*Richard Cromarty, Director JPS Renewable Energy*

## BISOL Spectrum Series

With respect for our natural surrounding and the architectural legacy in mind, we are introducing an exclusive BISOL Spectrum series of photovoltaic modules with coloured cells, whereby you no longer have to compromise aesthetics for efficiency when harnessing the endless power of the sun.

BISOL spectrum modules were designed not only to conform, but also to refine the architectural traits of buildings and roofs of various types and styles. Available in a wide palette of colours, BISOL Spectrum series PV modules can now really become an integral part of the building by either seamlessly blending into the historic character of the building in its natural setting, or by contributing in the manifestation of the building's modern design features. Their unique look allows discreet blending with the scenery, hence preserving the timeless beauty of diverse natural settings. Either way, BISOL Spectrum modules will undoubtedly add a timeless aesthetical value.












Rustic Red



*"And the needles of the pine trees, freshly washed to a deep, rich green, shimmered with droplets that blinked like clear crystals."*

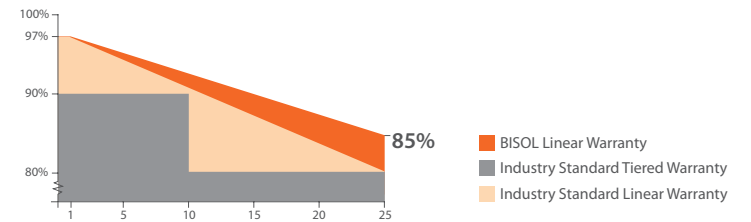
*Billie Letts*

**Advantages:**

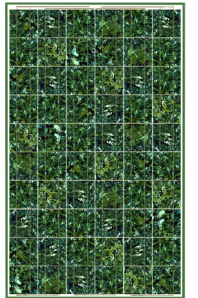
-  Made in EU
-  Available in variety of colours
-  A perfect colour match to your roof
-  On-roof or BIPV
-  Excellent low light performance
-  PID free
-  Module presorting for higher profitability
-  Double insulation
-  Supremely low degradation

**Warranties:**

-  Product warranty 15 years
-  Linear warranty 85% output in 25<sup>th</sup> year



Pine Green



Marble Green



*"The sky is already purple; the first few stars have appeared, suddenly, as if someone had thrown a handful of silver across the edge of the world."*  
 Alice Hoffman

### Electrical Specifications @ STC (AM1.5, 1,000 W/m<sup>2</sup>, 25 °C)

Module Type (BMU or BSU)		255	280*
Nominal Power	$P_{MPP}$ [W]	255	280
Short Circuit Current	$I_{SC}$ [A]	8.85	9.50
Open Circuit Voltage	$V_{OC}$ [V]	38.9	39.7
MPP Current	$I_{MPP}$ [A]	8.45	9.10
MPP Voltage	$V_{MPP}$ [V]	30.2	30.8
Solar Cell Efficiency	$\eta_c$ [%]	17.5	18.9
Module Efficiency	$\eta_M$ [%]	15.6	17.1
Power Output Tolerance		0+5W (Rustic Red) / $\pm 3\%$ (other colours)	
Maximum Reverse Current		18 A	
Maximum System Voltage		1,000 V (Application Class A)	

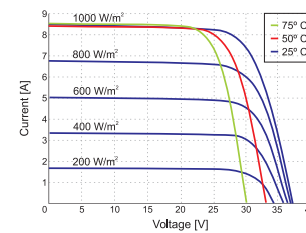
Power classes vary depending on colour. I Efficiency at irradiation 200 W/m<sup>2</sup>: 99.3 % of STC efficiency or higher. I Power measurement tolerance:  $\pm 3\%$ . I \*Available only for BISOL Spectrum Rustic Red.

### Electrical Specifications @ NOCT (AM1.5, 800 W/m<sup>2</sup>, 20 °C, wind: 1 m/s; Cell Temperature 44 °C):

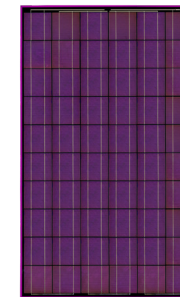
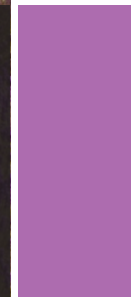
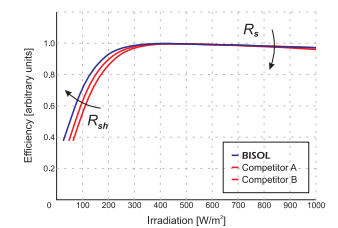
Module Type (BMU or BSU)		255	280*
Nominal Power	$P_{MPP}$ [W]	188	207
Short Circuit Current	$I_{SC}$ [A]	7.16	7.69
Open Circuit Voltage	$V_{OC}$ [V]	35.5	36.2
MPP Current	$I_{MPP}$ [A]	6.84	7.37
MPP Voltage	$V_{MPP}$ [V]	27.5	27.1

Power measurement tolerance:  $\pm 3\%$ .

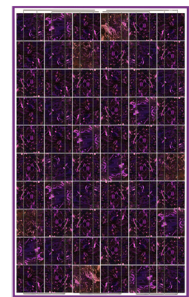
### I-V Curve



### Effective Efficiency



Charming Purple



Marble Pink



*"Autumn seemed to arrive suddenly that year. The morning of the first September was crisp and golden as an apple..."*

J.K. Rowling

### Thermal Specifications

Current Temperature Coefficient	$\alpha$	+ 0.049 %/K
Voltage Temperature Coefficient	$\beta$	- 0.31 %/K
Power Temperature Coefficient	$\gamma$	- 0.40 %/K
NOCT		44 °C
Temperature range		-40 °C to +85 °C

### Mechanical Specifications

Solar Cells	60 multi c-Si in series / 156 mm x 156 mm (6+")
Cell Colour Pattern	Single-shade or multi-shade (Marble)
Junction Box / Connectors	Three bypass diodes / MC4 compatible / IP 67
Frame	Standard frame (anodized AL with drainage holes and rigid anchored corners) or BIPV (Solrif®) frame
Frame Colour	Any RAL colour code, black or silver
Back Sheet Colour	Black, white or transparent
Glass	3.2 mm glass with anti-reflective coating / tempered / high-transparency / low-iron content
Impact resistance	Hailstone / $\Phi$ 25 mm / 83 km/h (51 mph)

### In compliance with:

**IEC** 61730 Ed.1 / 61215 Ed.2 | **IEC** 62804-1 | **IEC** 61701 | Salt water mist resistance | **IEC** 62716 | Ammonia resistance | **CE**

European Recycling Platform | **TUV**Rheinland | **certisolis** | **CRE3** | **V K F** | **A E A I** | **HW3** | **AS5033** compliant

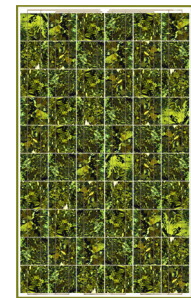
**BUREAU VERITAS** | **ISTITUTO GIORDANO** | **MCS** | **AIT** AUSTRIAN INSTITUTE OF TECHNOLOGY

ISO 9001 / ISO 14001 / OHSAS 18001 / **BUREAU VERITAS** Certification | **ISTITUTO GIORDANO** Qualità al Plurale. Fire resistant - Class 1 (UNI 9177)

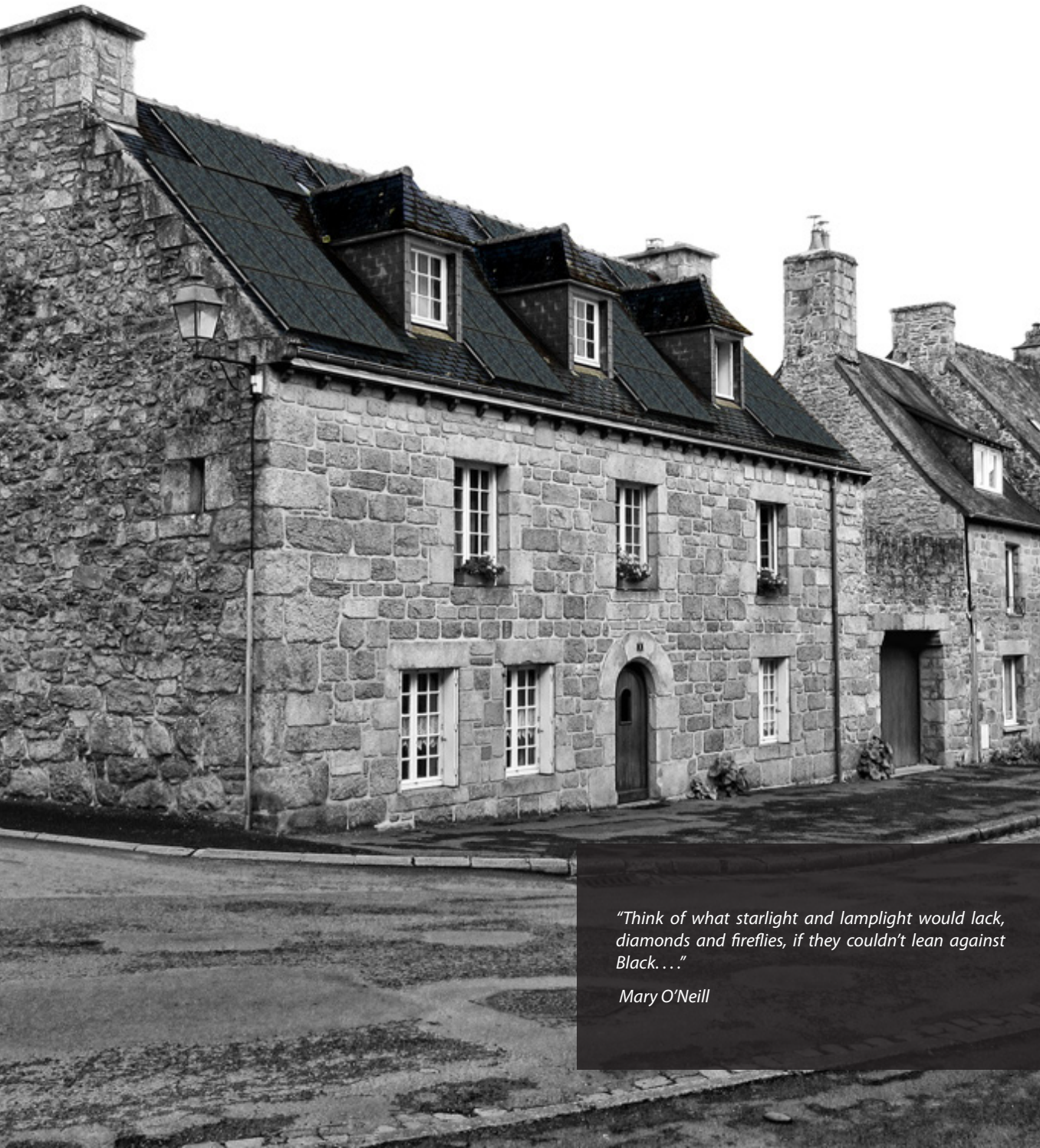
Certificates available upon special request. Additional charges may apply.



Olive Green


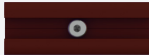






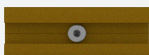

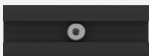







Marble Gold



*"Think of what starlight and lamplight would lack, diamonds and fireflies, if they couldn't lean against Black..."*  
 Mary O'Neill

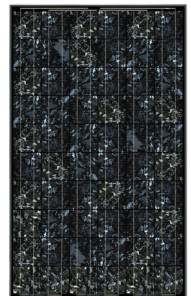
### Colour Availability

Solar Cells		Frames, BIPV Flashings, Middle and End Clamps	
	Rustic Red		RAL 8017
	Pine Green		RAL 6009
	Marble Green		
	Olive Green		RAL 6003
	Marble Gold		RAL 1036
	Charcoal Grey		RAL 7011
	Marble Grey		
	Charming Purple		RAL 4007
	Marble Pink		RAL 4004

The actual colour shades may vary from the images shown. Colour inconsistencies of solar cells in a module may appear due to the nature of this product.



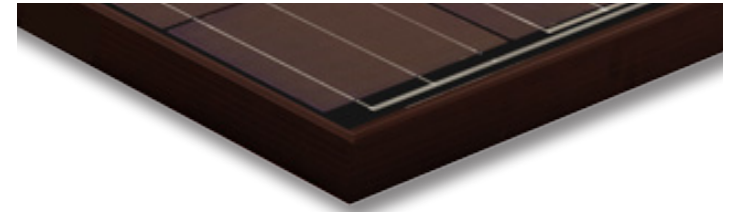
Charcoal Grey



Marble Grey



## On-Roof Solution

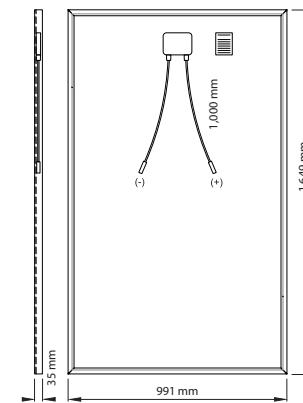


Detail of standard frame

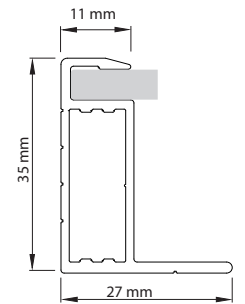
### Mechanical Specifications

Length x Width x Thickness	1,649 mm x 991 mm x 35 mm
Weight	18.3 kg
Frame	Standard frame (anodized AL with drainage holes and rigid anchored corners)
Glass	3.2 mm glass with anti-reflective coating / tempered / high-transparency / low-iron content
Packaging	30 modules per pallet / stackable 3 pallets high
Certified Nominal Load (snow/wind)	5,400 Pa / 2,400 Pa

### Dimensions



BISOL Spectrum module with standard frame



Cross section of standard frame

*"Happiness is a color that you can never run out of. You can paint a picture or an illusion with happiness. It's a color that you always pick, before actually choosing a color."*

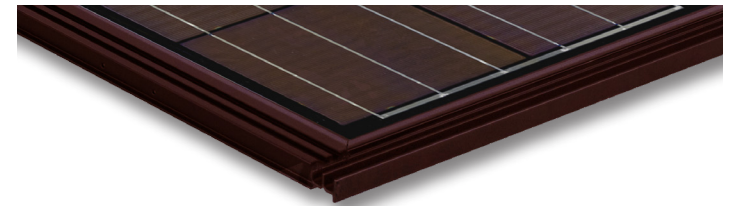
*Lionel Suggs*





## Roof-Integrated Solution

BISOL Spectrum PV modules are also available as a BIPV solution used in roof-integrated applications. The overlapping of the specially framed BIPV modules produces an elegant PV array which completely replaces the conventional roofing. Maximum visual conformity and an unobtrusive appearance of the PV system are achieved by fully matching the colour of the end flashings, making it especially appealing to the eye. Coloured PV modules teamed up with building-integrated trim allow the PV system to fully blend in with even the most particular roof types, offering new possibilities of applying photovoltaic to most delicate historic and listed buildings in conservation areas.

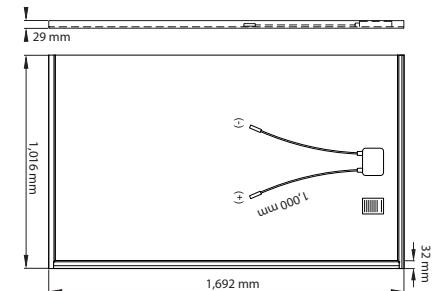


Detail of special BIPV (Solrif®) frame

### Mechanical Specifications

Length x Width x Thickness	1,692 mm x 1,016 mm x 29 mm
Weight	18.4 kg
Frame	Solrif®
Glass	3.2 mm glass with anti-reflective coating / tempered / high-transparency / low-iron content
Packaging	24 modules per pallet / Stackable 2 pallets high
Certified Nominal Load (snow/wind)	2,400 Pa / 2,400 Pa

### Dimensions



BISOL Spectrum module with BIPV frame

*"Mere color, unspoiled by meaning, and unallied with definite form, can speak to the soul in a thousand different ways."*

Oscar Wilde







*"Thanks to the BISOL Spectrum Series, we now have the possibility to please all our customer concerns. Some of them dislike solar panels because of their aesthetic appearance, while for the majority the return on investment (ROI) is of the highest importance. Now we have the solution that meets both needs – BISOL Spectrum Series!"*

*Zonnepanelen Volendam, the Netherlands*

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#### **Dealer information**

