

PHOTOVOLTAIC MODULE

# e.Classic M

60 MONOCRISTALLINE CELLS



**e.ISP**  
PATENTED  
NR. 2517265



**HIGHEST  
EFFICIENCY  
UP TO 320 Wp**



**HIGHLY EFFICIENT  
12-BUSBAR-  
TECHNOLOGY**



**CLIMATE NEUTRAL  
MANUFACTURED  
IN AUSTRIA**

# Tradition. Innovation. Energetica. And that for over 20 years.

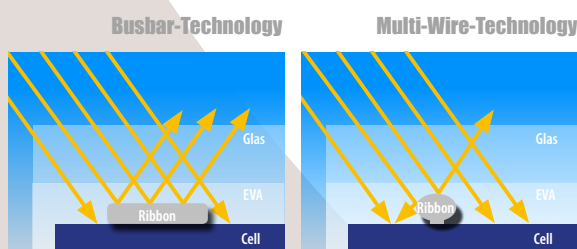
The Energetica story started with a grand vision in 1995. Today we are an independent, Austrian solar technology company with headquarters and production facility in Liebenfels, Carinthia.

The future of clean energy has been our goal for more than 20 years. Our mission 2030 is to shape it sustainably with our customers and partners.

We are focusing on our climate-neutral product portfolio which is developed, tested and produced in our state-of-the-art, Industry 4.0-compliant production facility.



## Trendsetting technologies.



The new e.Classic series uses 12-busbar technology. Here, the energy generated is conveyed via 12 extremely thin wires, instead of the previously wide busbars on the front of the cell. This optimises shading management and conserves precious resources in cell production. The result: the cell surface is used more effectively and the energy yield increases for the same module size. With the addition of Energetica's e.ISP Technology<sup>®</sup>, we have another key component for improved efficiency and optimised energy yield in both sun and shade.

1) For details, see the Energetica approved warranty terms of 97% of rated output in year one and at least 86% of rated output in year 25.

## e.Classic M

### Long-term performer with classic elegance.

Performance and design. Not a contradiction but a challenge. After all, you want to do something for the environment but still do things differently. Appreciate the useful, the durable and the stylish? We can understand that.

Specifically developed with private homeowners in mind, the e.Classic blends elegantly into its environment, enhancing any private residential building with a little bit of independence.

60 monocrystalline solar cells, 3.2 mm glass. Others can also compete up to this point. But then we come to what makes a true Energetica module: shapely, black aluminium, radiation-enhancing white backsheet with up to 320 Wp, the highest output and stability in its class.

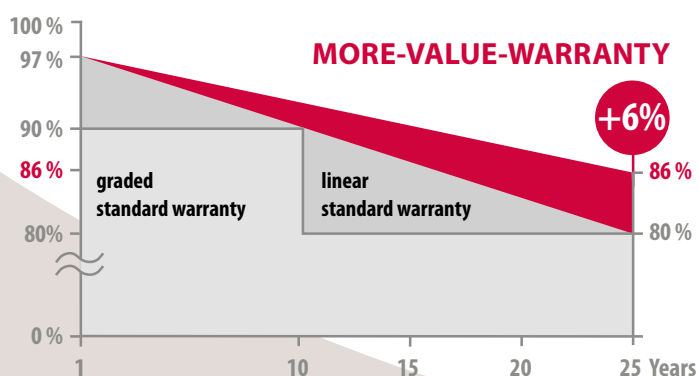
Standard Energetica features: maximised energy yield in real operation due to integrated e.ISP Technology<sup>®</sup>, low weight and proven durability. We rely on a highly robust stacking and packaging system developed by our engineers to ensure that our tested quality arrives with you safe and sound. So we transport our modules to their destination securely and with no micro-cracking stress, enabling us to guarantee the longest lifespan. This optimisation has allowed us to further reduce both weight and cost significantly.

Ultimately, this is also good news for your pocket because there's one thing we haven't skimped on and that's the quality of the components and workmanship.

### Guaranteed independence.

What makes a high-quality photovoltaic module? Maximum output? Longest lifespan? Of course. But we want more. More ideas per watt generated from sunlight. They ensure that the technology not only appeals to our minds but also our hearts.

Using our patented e.ISP Technology<sup>®</sup>, we are still increasing the energy yield compared to conventional modules even after many years of operation. As a result, we can offer you an honest performance warranty<sup>1)</sup> of 86% after 25 years with a clear conscience.



## WE PAY ATTENTION TO DETAIL



### e.ISP TECHNOLOGY®

Integrated Shadow Protection (ISP) for improved efficiency and optimised energy yield in sun and shade.

### 12BB TECHNOLOGY

For optimised shading, maximum efficiency and improved reliability due to shorter electron paths.

### CERTIFICATE OF PERFORMANCE

Certificate of weather resistance with QR code and barcode showing measured output, serial number and module type.

60 MONOCRISTALLINE CELLS

# e.Classic M



### AUSTRIAN ENGINEERING QUALITY

Developed and produced in Austria. Manufactured according to a patented production process and tested by independent institutes.



### 12-YEAR WARRANTY ON OUR PRODUCTS

More than 99.98% of all the solar power modules we have ever produced are still taking energy from the sky even now. Only quality creates confidence. Our Energetica approved warranty includes a 12-year guarantee on reliability, material and workmanship and an extended performance warranty of 86% even after 25 years.



### MAXIMUM OUTPUTS ON SUNNY DAYS

Thanks to the improved temperature coefficient, Energetica modules can produce more energy on hot, sunny days.



### CLIMATE-NEUTRAL PRODUCTION

Sustainability is our key corporate goal at Energetica. We therefore avoid CO<sub>2</sub> emissions in all areas. This includes using 100% clean energy in our production facilities, wood as a building material in our buildings and a fully electric fleet of vehicles for sales and technology. In addition to this, CO<sub>2</sub>-free transport logistics using the company's own rail connection is also 'on track' in the truest sense of the word.



### INTEGRATED SHADING MANAGEMENT (e.ISP TECHNOLOGY)

The integrated string shutdown in case of shading is only available in Energetica modules. The control elements incorporated in the laminate guarantee a higher power output than conventional modules in both sunlight and shade.



### TESTED AGAINST CHEMICAL INFLUENCES

Energetica modules are tested against chemical influences such as ammonia and salt spray. They are also ideally suited for agricultural areas and systems near the sea.



### LIGHTWEIGHT AND EASY TO HANDLE

Weight optimisation of the components reduces the cost of transport and installation. Much to the delight of logistics specialists and fitters.



### HIGH OUTPUT EVEN ON CLOUDY DAYS

The excellent low-light performance of our modules enables high energy yields even with cloudy skies.



### REDUCED WEAR

We test our products five times more stringently than specified by the standards and have successfully reduced annual degradation by 10%.



## Electrical Data (STC)

Type	310	315	320
Maximum Power ( $P_{Max}$ )	310 Wp	315 Wp	320 Wp
Open circuit voltage ( $V_{OC}$ )	40,30 V	40,50 V	40,66 V
MPP Voltage ( $V_{MPP}$ )	32,86 V	33,15 V	33,36 V
MPP Current ( $I_{MPP}$ )	9,45 A	9,50 A	9,60 A
Short Circuit Current ( $I_{SC}$ )	10,08 A	10,34 A	10,17 A
Module efficiency ( $\eta_{Modul}$ )	19,10 %	19,40 %	19,70 %
Performance sorting	-0/+5 Wp	-0/+5 Wp	-0/+5 Wp

This measurements are valid on standard test conditions STC. All electrical data  $\pm 10\%$ . Measurement tolerance:  $\pm 3\%$  (Airmass AM 1,5; radiation of 1000W/m<sup>2</sup>; cell temperature 25°C)

## Electrical Data (NMOT)

Type	310	315	320
Maximum Power ( $P_{Max}$ )	229 Wp	232 Wp	236 Wp
MPP Voltage ( $V_{MPP}$ )	30,41 V	30,68 V	30,87 V
MPP Current ( $I_{MPP}$ )	7,53 A	7,57 A	7,65 A
Open circuit voltage ( $V_{OC}$ )	37,21 V	37,40 V	37,55 V
Short Circuit Current ( $I_{SC}$ )	8,15 A	8,35 A	8,22 A

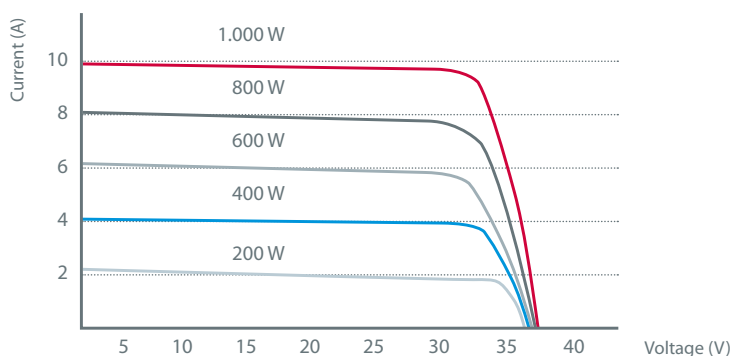
NMOT (Nominal Module Operating Temperature): Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, wind speed 1 m/s

## Permissible operating conditions

Temperature range	-40°C bis +90°C
Maximum system voltage	1.050 V, 1.500 V on request
Test load $I_{max}$ breaking load	examined according to IEC up to 5.4 kPa snow/2.4 kPa wind >6.0 kPa
Hail security	hailstone up to 25 mm $\varnothing$ at 165,6 km/h v <sub>impact</sub> hailstone up to 55 mm $\varnothing$ at 120,6 km/h v <sub>impact</sub>
Reverse current strength	20 A

## Temperature coefficient (Tc)

Tc short circuit current	0,05 %/K
Tc open circuit voltage	-0,30 %/K
Tc maximum power	-0,37 %/K
NOCT	42°C +/- 2



Your Specialist Partner::

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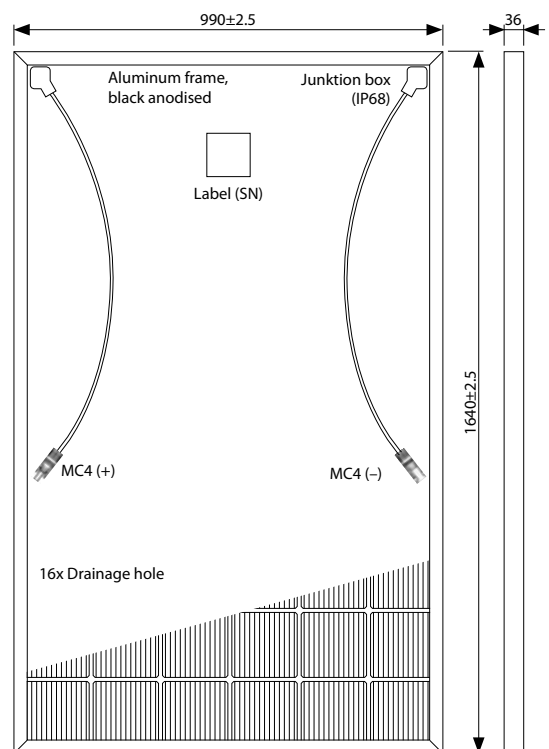
## Certifications and Warranties

Certifications	IEC 61215, IEC 61730-1/-2 IEC 62716 (Ammonia corrosion test) IEC 61701 (Salt mist corrosion test) ISO 9001, ISO 14001, OSHS 18001 Safety Class II
Module Fire Performance	Class C, Fire Class 1 (Italy)
Product Warranty	<b>12 years</b>
Output Warranty of $P_{MAX}$ (Measurement Tolerance $\pm 3\%$ )	<b>25 years linear</b> acc. warranty conditions

## Mechanical Data

Dimensions HxWxD	1640 x 990 x 36 mm
Weight	18 kg
Front cover	3,2 mm highly transparent tempered glass
Backsheet	co-extruded Polypropylen (PP)
Frame	black anodized aluminum
Cells	6 x 10 High efficiency solar cells (156,75 x 156,75 mm)
Cell type	monocrystalline, 12 Busbars
Bypass control	active electronics at string level
Module connection	6mm <sup>2</sup> solar cable, (+,-) 900 mm
Connectors	Multi-Contact MC4, IP68
Ancestry	Made in Austria

All indicated dimensions in mm



Energetica is certified according to the valid standards of ISO 9001, ISO 14001 and BS OHSAS 18001. Energetica is cooperation partner of the AIT (Austrian Institute of Technology).

All data in this data sheet comply with DIN EN 50380.

Energetica reserves the right to make production-related changes to this data sheet. The given data are without guarantee.

Stand 02/2019 Dokument: e.Classic\_M\_02/19\_03