

MÓDULOS CONERGY E 165P Y E 175P

Características de la célula

Tipo de célula	Policristalina
Tamaño de célula	156 x 156 mm
Número de células	50

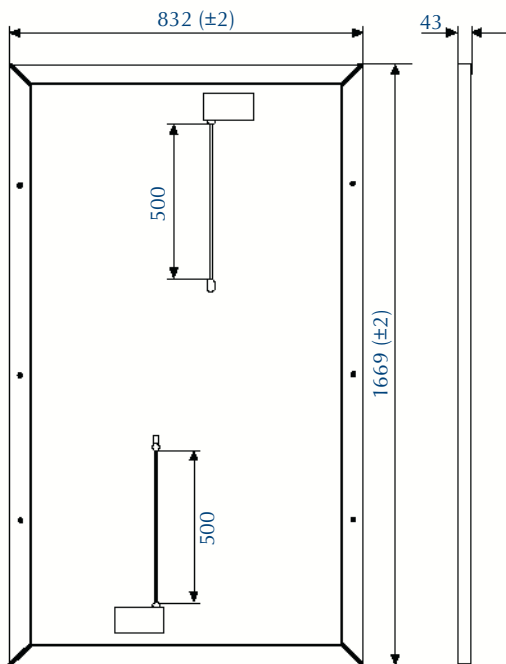
Características del módulo

a 1000 W / m² ; 25°C ; AM 1,5

	E 165P	E 175P
Potencia Pico	165 Wp	175 Wp
Tolerancia	± 3 %	± 3 %
Corriente cortocircuito I _{sc}	7,50 A	7,80 A
Tensión circuito abierto Voc	30,20 V	30,70 V
Voltaje potencia máxima U _{mpp}	23,80 V	24,30 V
Corriente potencia máxima I _{mpp}	6,94 A	7,21 A
Máximo voltaje de sistema	1.000 V	1.000 V
Coefficiente de temperatura (%)	-0,34 %/°C	-0,34 %/°C
Eficiencia de módulo	11,88 %	12,60 %

Dimensiones

Alto	1669 (±2) mm
Ancho	832 (±2) mm
Fondo	43 mm
Peso	19 kg



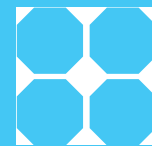
Dimensiones expresadas en mm



Garantía y certificaciones

- Certificado de seguridad TÜV clase II
- Certificado IEC 61215
- Garantía del producto 5 años
- Garantía: 90% de P_{min} 10 años
- Garantía: 80% de P_{min} 25 años





CONERGY WR

La nueva generación de inversores

La serie WR de Conergy es potente, cómoda para el usuario y altamente fiable. Los diferentes tipos de convertidores se pueden combinar como se desee y se pueden equipar, de forma ilimitada, en instalaciones de todos los tamaños. El control del procesador perfeccionado, en combinación con el potente transformador de alta frecuencia, consiguen, con todo tipo de módulos, la máxima generación de energía.

Características

Más rendimiento gracias a la división del trabajo. La combinación de dos etapas de potencia en el concepto MIX™ es el procedimiento Master/Slave optimizado. En el área de carga parcial, trabaja sólo una de las dos etapas, a plena carga, trabajan las dos a la vez.

Las ventajas para Ud. son: aumento perceptible del rendimiento con reducción simultánea de las horas de servicio.

El máximo rendimiento en el mínimo espacio.

El circuito de potencia de todos los convertidores WR está diseñado en base a la tecnología de alta frecuencia (HF). Las ventajas son evidentes: Extremadamente pequeño, ligero y con la máxima potencia. Además, es altamente seguro gracias al perfecto aislamiento galvánico. En combinación con el proceso de cambio de fases, que permite la reducción de las pérdidas por conmutación, han creado un grupo de energía integrado, caracterizado por el mejor rendimiento de energía y la máxima flexibilidad de aplicación.

El control inteligente del Module-Manager™, disponible de serie, se encarga de encontrar rápida y eficazmente el punto de máxima potencia [MPP].

La pantalla informativa

Los usuarios de energía solar disponen siempre de datos actualizados, gracias a la pantalla de diseño, altamente informativa y fácil de manejar.



Con unas pocas pulsaciones de las teclas, se pueden leer, claramente, los valores más importantes de la instalación. Además, se pueden consultar más de 20 parámetros diferentes, como, por ejemplo, la reducción de CO2, la potencia, la energía acumulada, el rendimiento, así como la temperatura ambiente y del módulo y la irradiación solar (en combinación con el Sensor Box/Card).

Además, en caso de irregularidades en el funcionamiento del sistema fotovoltaico, la pantalla muestra códigos de servicio que son altamente informativos, lo que permite realizar un análisis rápido y fiable de la instalación.

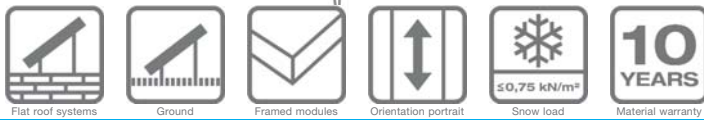
Análisis y visualización de datos

El inversor Conergy WR permite instalar, también, una estación meteorológica con sensores de irradiación, temperatura, digitales y de viento. Para la visualización clara de los parámetros deseados, mediante el cómodo principio Plug & Play, un gran pantalla externa. La obtención profesional de energía no tendrá impedimentos.

CONERGY WR

La nueva generación de inversores

	WR 1700	WR 2300	WR 3300	WR 4600	WR 5900E
DATOS DE ENTRADA					
Potencia de conexión (Wp)	1300-2000	1800-2700	2500-3600	3500-5500	4600-6700
Margen de tensión MPP (V)	150-400	150-400	150-400	150-400	150-400
Tensión máx. de entrada (V) (a 1000W/m ² ; 10°C en vacío)	500	500	500	500	530
Corriente máx. de entrada (A)	10,8	14,3	19	29,4	35,8
DATOS DE SALIDA					
Potencia nominal de salida (kW)	1,3	1,8	2,5	3,5	5
Potencia máx. de salida (kW)	1,5	2,05	2,65	4,1	5
Tensión nominal de red	230 V, +10 / -15%			230 V, +10 / -15%	
Corriente nominal de red (A)	5,7	7,8	10,9	20	20
Frecuencia nominal	50 ± 0,2 Hz				
Coefficiente de distorsión	< 3,5 %				
Coefficiente de potencia	1				
DATOS GENERALES					
Rendimiento máximo (%)	94,2	94,3	94,3	94,3	94,3
Rendimiento Euro (%)	91,4	91,6	92,7	93,5	93,5
Consumo propio de noche	0 W (con ENS)			0 W (con ENS)	
Consumo propio en funcionamiento (W)	7	7	7	12	12
Refrigeración	Ventilación forzada regulada			Ventilación forzada regulada	
Clase de protección	IP 21			IP 21	
Dimensiones L x A x F (mm)	366 x 344 x 220			610 x 344 x 220	
Peso (kg)	9			16	
Temperatura ambiental admitida (con 95% humedad relativa)	De -20 a 50°C			De -20 a 50°C	
DISPOSITIVOS DE PROTECCIÓN					
Medición de aislamiento DC	Aviso con RISO < 500 KOHM				
Protección de sobretensión DC	Integrada				
Protección de inversión de polaridad	Integrada				
Comportamiento con sobrecarga DC	Desplazamiento de punto de funcionamiento dinámico				



SolarFamulus

Professional
installation
instructions



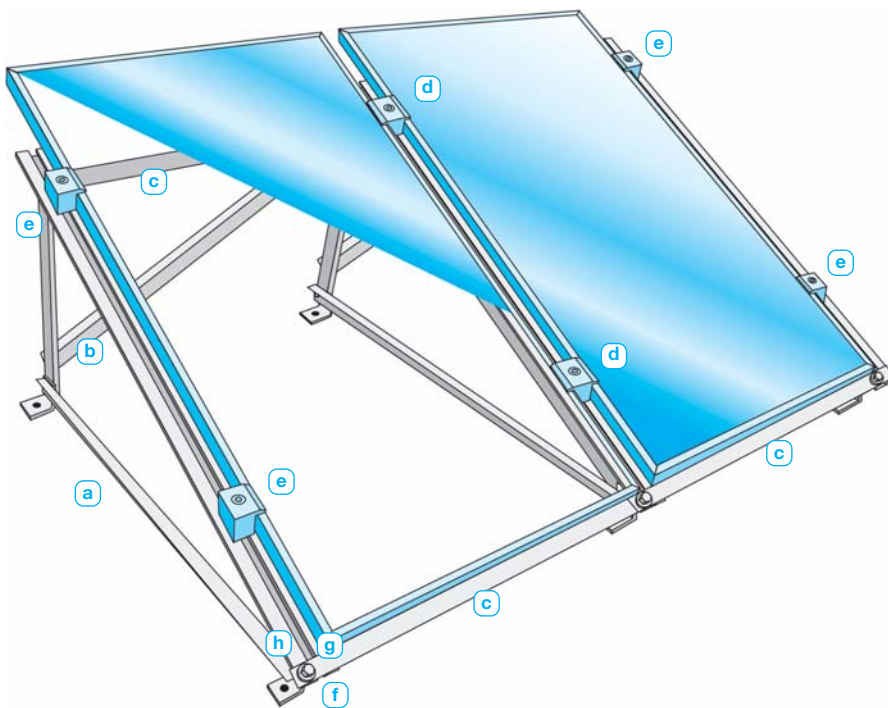
1. PREPARATION FOR FITTING

Thank you

for choosing SolarFamulus, the side-by-side mounting frame for installing PV modules on flat roofs and open terrain. Before you begin installation, please carefully read through these installation instructions. Please read the "Important Information" on page 5. Then familiarise yourself with the system components. During installation, especially when working on the roof, please observe the applicable safety at work regulations.

Overview of system components

- (a) Preassembled frame triangle
- (b) Diagonal connecting strut
- (c) Transverse connecting strut
- (d) Inter-module clamp
- (e) End clamp
- (f) Stainless steel hexagonal bolts M8 x 25 mm
- (g) Stainless steel nuts M8
- (h) Stainless steel washers 18 mm
- (i) Spring washer

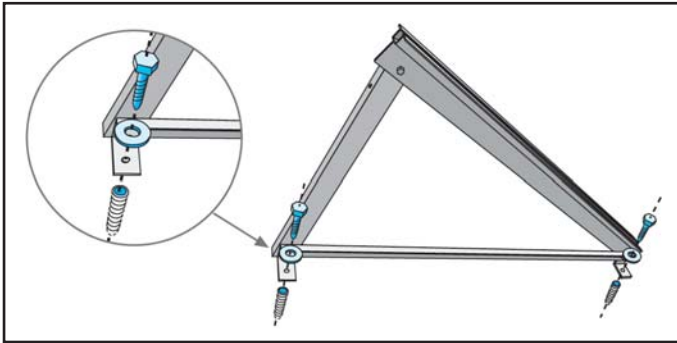


Overview of required tools

- | Cordless screwdriver with 13 mm hexagonal bit
- | 13 mm open-ended or ring spanner
- | 6 mm allen key
- | Material and tools for securing the frame to its base

2. INSTALLING SOLARFAMULUS

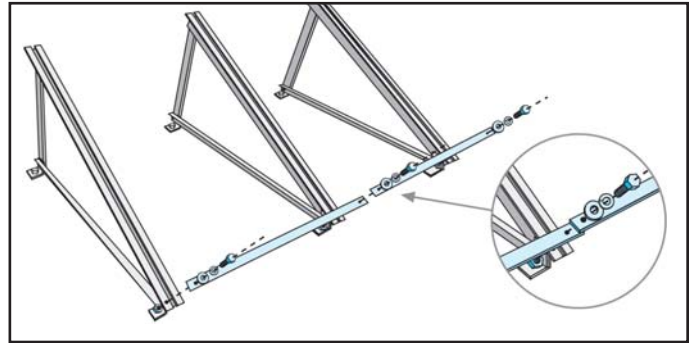
1.



Secure the frame triangle to the base (to be provided by the customer), e.g. concrete sleepers. Position the frame triangles at intervals of the distance between the centres of the supporting profiles (module width + 19 mm).

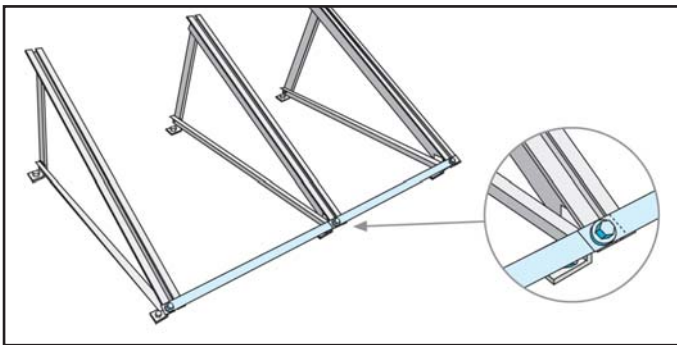
Note: The material for securing the frames to the base is not included in the delivery.

2.



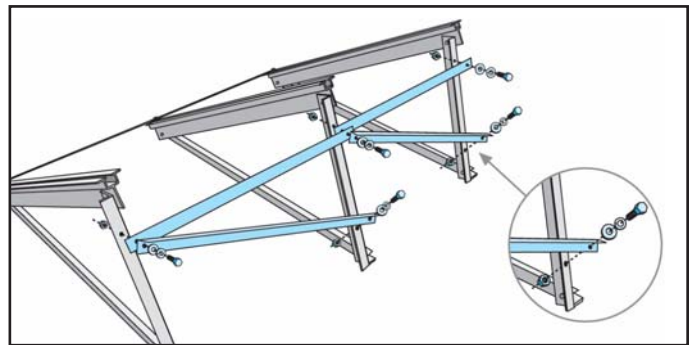
Fit the lower transverse connecting struts to the frame triangles using the supplied installation material, as shown in the illustration.

3.



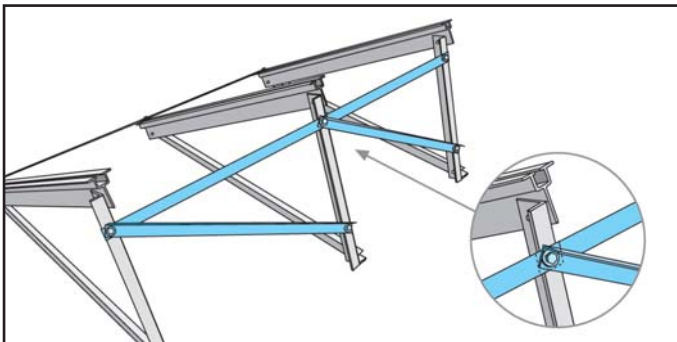
View of correctly fitted lower transverse connecting struts.

4.



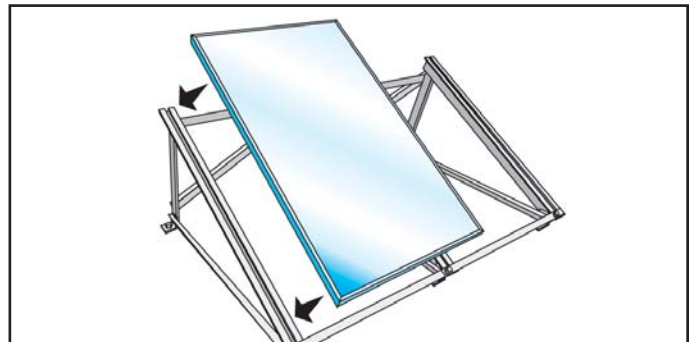
Fit the upper transverse and diagonal connecting struts to the frame triangles using the supplied installation material, as shown in the illustration.

5.



View of correctly fitted upper transverse and diagonal connecting struts.

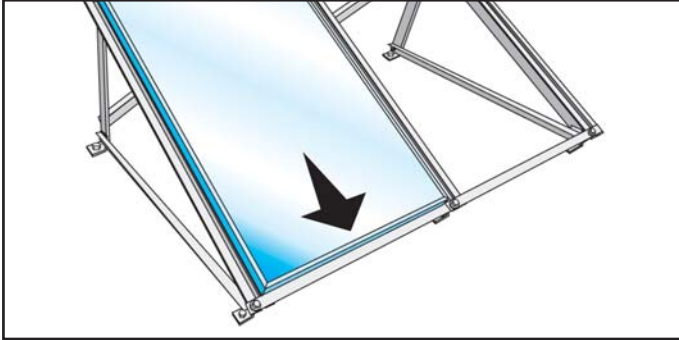
6.



Place the first module centrally on the system rails between two mounting frames.

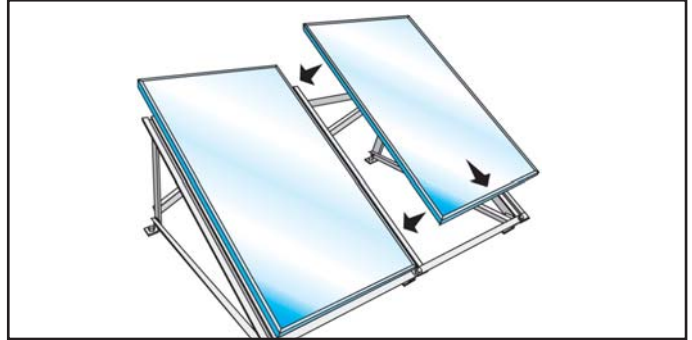
2. INSTALLING SOLARFAMULUS

7.



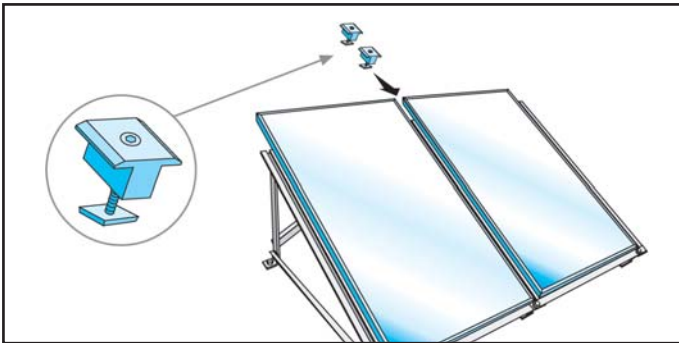
Line up the first module with the lower transverse connecting strut.

8.



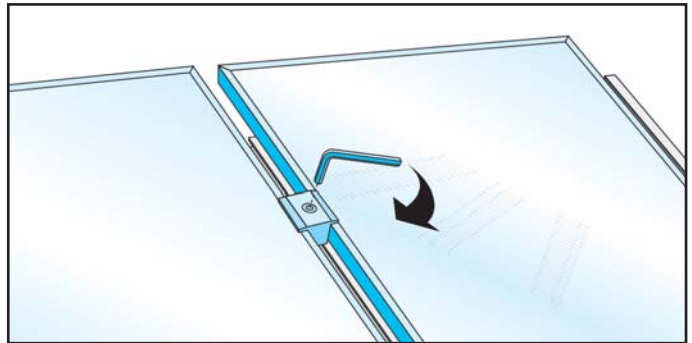
Place the additional modules in the row centrally on the system rails, in each case between two mounting frames. Align these modules with the lower transverse connecting struts.

9.



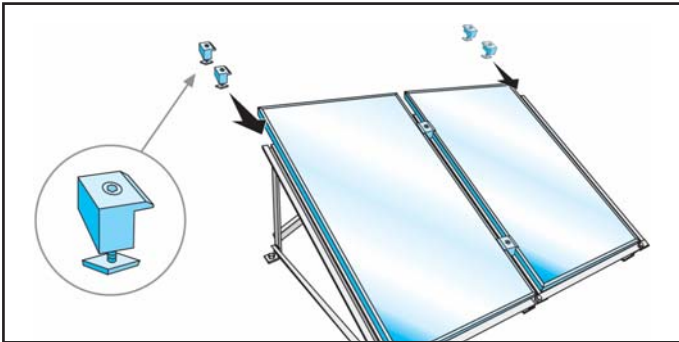
Slide two inter-module clamps into each central system rail between the modules. Position the inter-module clamps at a distance of 10 to 15 cm from the top and bottom ends of the system rails.

10.



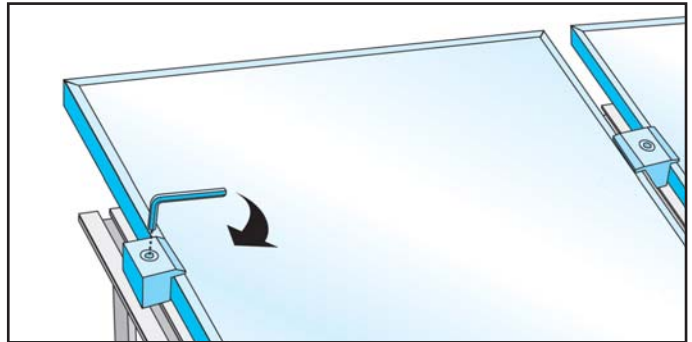
Tighten the inter-module clamps (torque 8 Nm). Please also take note of figure 16.

11.



Push two end clamps from above into the system rails of the module row and position these at a distance of 10 to 15 cm from the top and bottom ends of the system rails.

12.

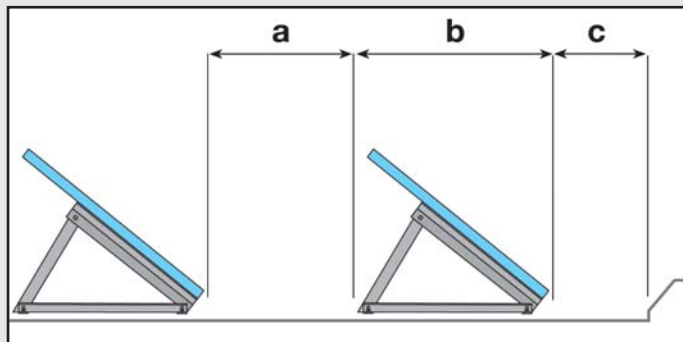


Tighten the end clamps (torque 8 Nm). Please also take note of figure 16.

3. IMPORTANT INFORMATION

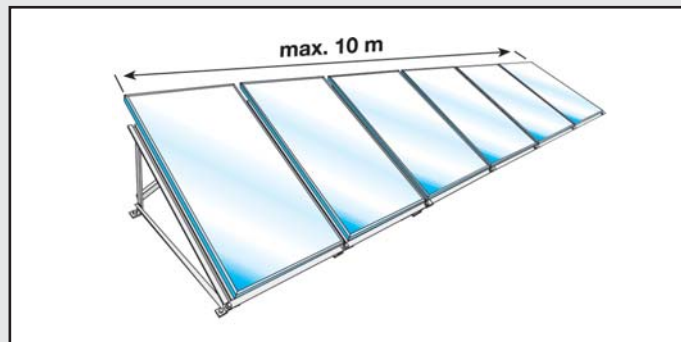
Planning the module area

13.



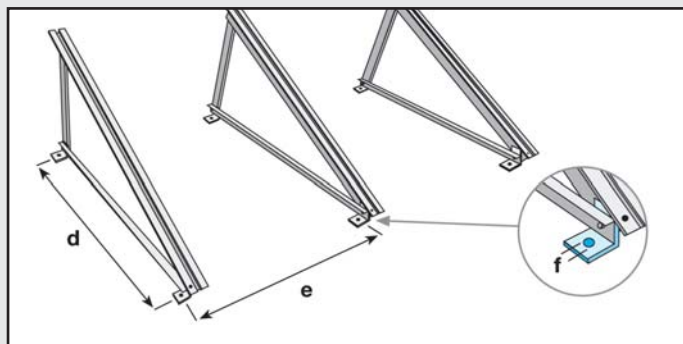
- a: Distance between the module rows $> 1.45 \times$ module length so that there will be no shadowing with a solar angle of incidence $> 19^\circ$
- b: Depth of the module row = $(0.866 \times \text{module length}) + 3 \text{ cm}$
- c: Distance from edge of roof $> 1 \text{ m}$

14.



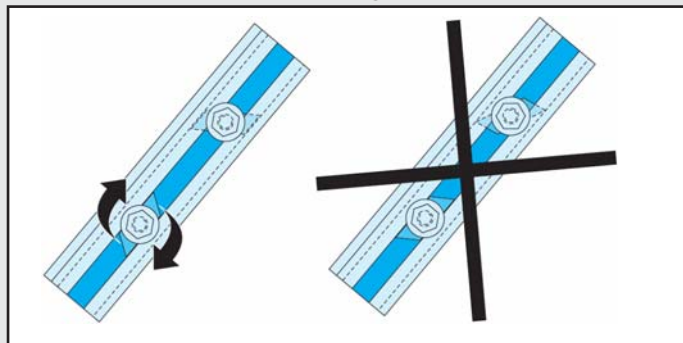
We recommend stopping each row after a maximum of 10 m and starting a new row. This should be taken into account when ordering materials.

15.



- d: Base bracket spacing for each mounting frame for
Module length $< 1317 \text{ mm}$, $d = 1 \text{ m}$
Module length $> 1316 \text{ mm}$ and $< 1801 \text{ mm}$, $d = 1.3 \text{ m}$
Module length $> 1800 \text{ mm}$, $d = 1.5 \text{ m}$
- e: Distance between two mounting frames = module width + 19 mm
- f: Diameter of the base bracket hole = 11 mm*

16. Please note the following:



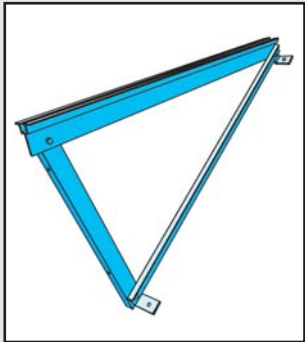
Make sure that the threaded plates of the inter-module and end clamps are fitted correctly. After rotation in the direction of tightening, these must be positioned with the short edge flush against the edge of the rail.

The method of securing the mounting system to the roof, e.g. drilling through the roof skin or securing to load-bearing elements, must be selected according to the location and the building structure and is therefore a matter for the customer. In order to eliminate any doubts, contact a roofing specialist or stress analyst.

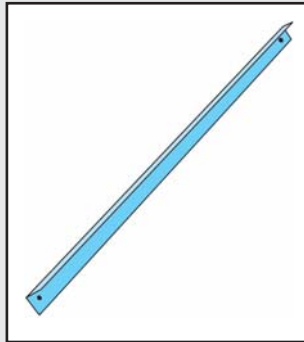
* The material for securing the frames to the base is not included in the delivery.

3. IMPORTANT INFORMATION

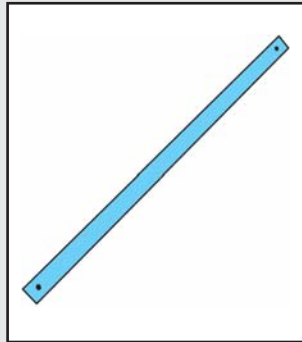
Overview of system components



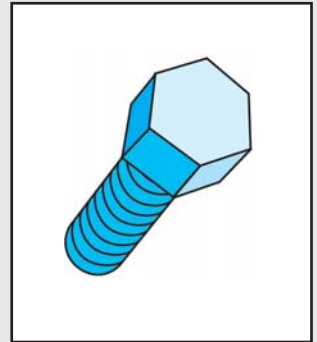
Frame triangle



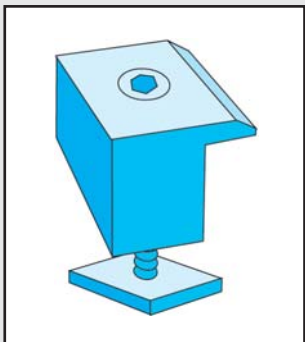
Diagonal connecting strut



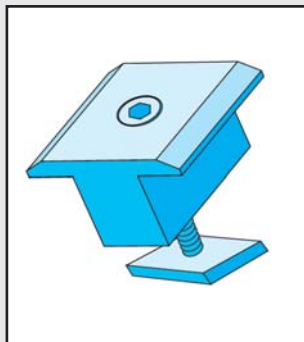
Transverse connecting strut



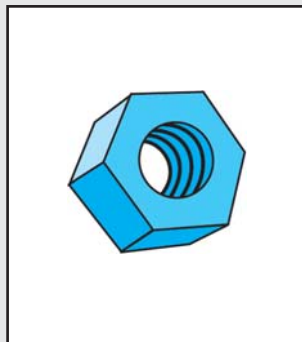
Stainless steel hexagonal bolt M8 x 25 mm



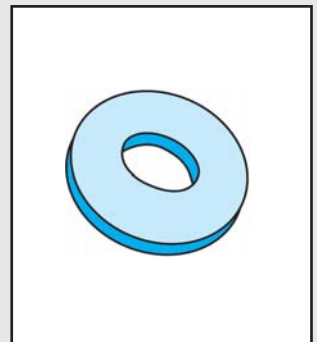
End clamp



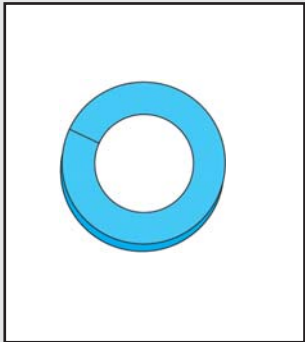
Inter-module clamp



Stainless steel nut M8



Stainless steel washer 18 mm



Spring washer

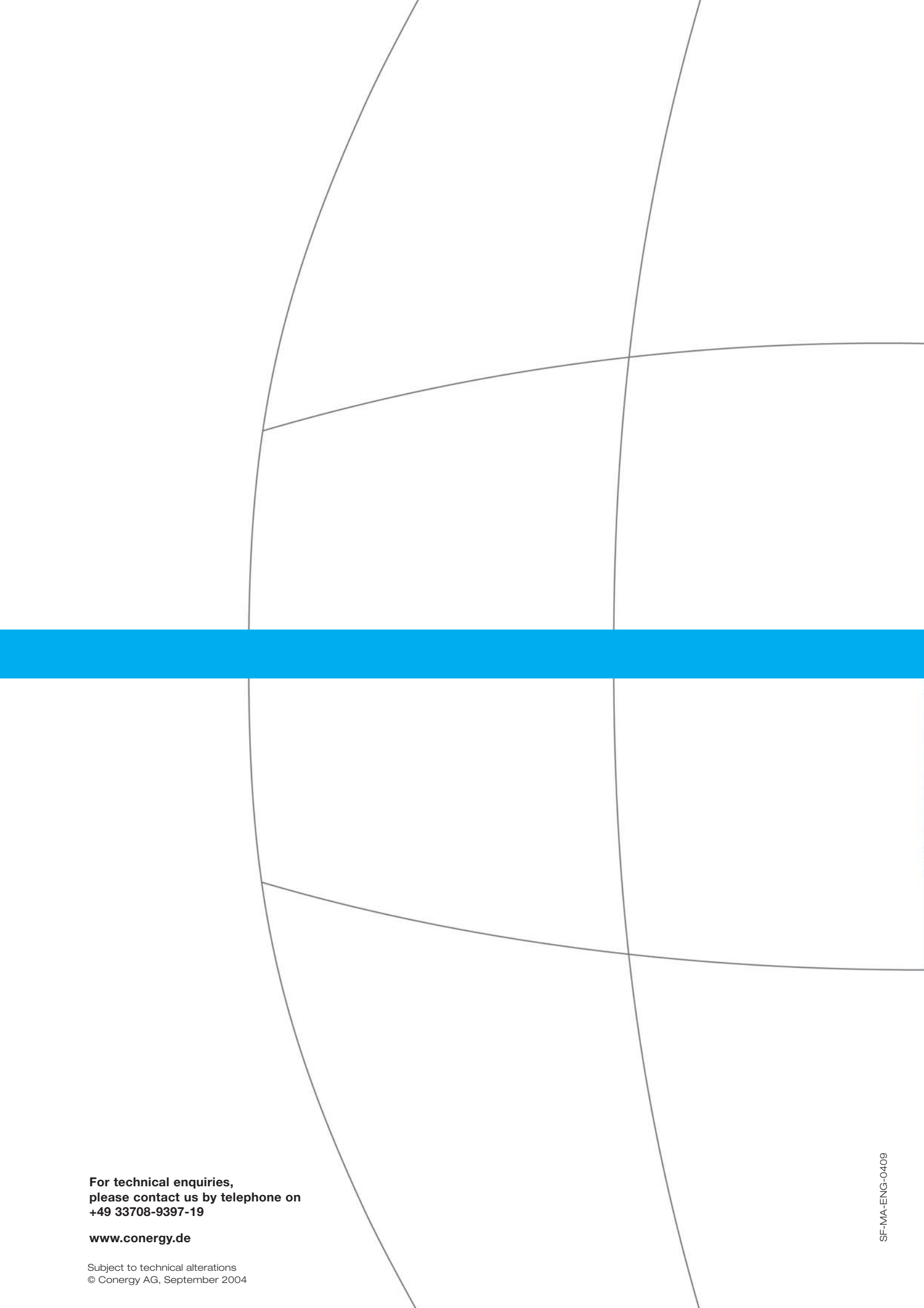
Basic kit

- 2 Frame triangles
- 1 Diagonal connecting strut
- 2 Transverse connecting struts
- 4 End clamps
- 8 Stainless steel hexagonal bolts M8 x 25 mm*
- 8 Stainless steel nuts M8*
- 8 Stainless steel washers 18 mm*
- 8 Spring washers*

Extension kit

- 1 Frame triangle
- 1 Diagonal connecting strut
- 2 Transverse connecting struts
- 2 Inter-module clamps
- 3 Stainless steel hexagonal bolts M8 x 25 mm
- 3 Stainless steel nuts M8
- 3 Stainless steel washers 18 mm
- 3 Spring washers

* 5 each are required + 3 extra as spares



**For technical enquiries,
please contact us by telephone on
+49 33708-9397-19**

www.conergy.de

Subject to technical alterations
© Conergy AG, September 2004



CONERGY

Photovoltaic mounting systems | Technical Data

Conergy SolarFamulus

The Conergy SolarFamulus has been specifically designed for use on flat roofs¹ or on open terrain. Its design allows up to 10 modules to be mounted side by side in one row. The

framed modules are installed in portrait mode. Short installation times and a minimum of tools make this universal system particularly practical and easy to install.



Flexible application. The Conergy SolarFamulus allows framed photovoltaic modules to be installed on flat roofs¹ of new and old buildings as well as on open terrain. The Conergy SolarFamulus creates a pitch of 30°.

Rapid mounting. The simple installation system ensures rapid assembly with a minimum of time and equipment

Proven system. Conergy Conergy SolarFamulus has been used for installation of photovoltaic arrays worldwide. This product can be used in A, B and W wind regions as specified in AS/NSZ 1170.2:2002. Structural assessment of loading capacity of this product is available from Conergy. This product is not suitable for use in cyclonic areas of Australia.

High module compatibility. Conergy SolarFamulus can be ordered for nearly all types of framed modules from different manufacturers².

Maximum service life. All components are made of either aluminium or stainless steel. Their high resistance to corrosion guarantees maximum service life.

Guaranteed durability. Conergy provides a 10-year warranty on the durability of all materials.

¹ The Conergy SolarFamulus can be placed on almost all flat roofs. However, stress on the building must, in any case, be subject to individual, on-site analysis. For detailed information, please contact us during the planning stages of your project.

² For detailed information, please contact us during the planning stages of your project.

PHOTOVOLTAICS



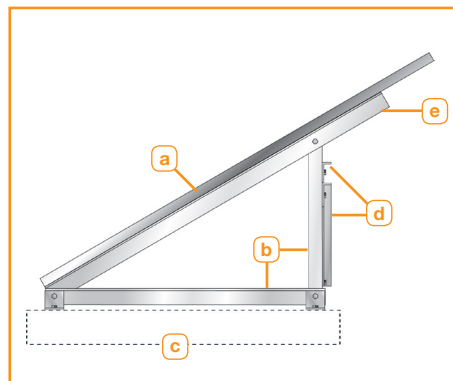
CONERGY

Photovoltaic mounting systems | Technical Data

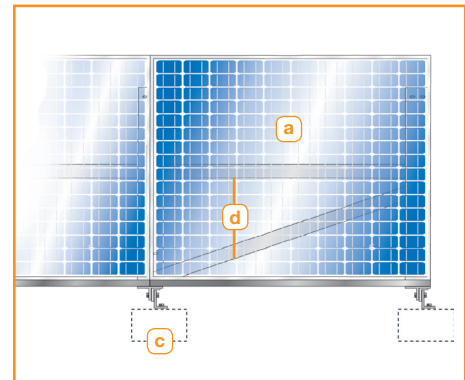
Conergy SolarFamulus

Overview

- a** Framed PV module
- b** L-Bars
- c** Heavyweight plates¹
- d** Horizontal and diagonal bracing
- e** Supporting bar



Side view



Front view

Range of application	Flat roofs ² or ground
Pitch	30°
Roof load	According to clearance by structural engineer
Height of Building	Arbitrary, depends on heavyweight plates ¹
Snow load	Up to 0.75 kN/m ²
PV modules	Framed
Module configuration	Serial (up to approx. 10 m per frame unit)
Module orientation	Portrait
Size of module field	Any size possible
Positioning on the roof	No special requirements ³
Distance between lower edges of module and roof surface	8 to 10 cm (Further upon request)
Standards	Corresponds to the German DIN 1055, official stress calculation upon request ⁴

Supporting bars	Extruded aluminium (ENAW 6060/6063)
Small parts	Stainless steel (V2A)
Colour	Natural
Lightening protection	Optional with surcharge
Warranty	10 years on the durability of the material

¹ Not included in delivery.

² On-site stress calculation necessary.

³ Please note: Wind loads can be considerably increased when installing in edge and corner-areas of the roof. For detailed information, please contact us during the planning stages of your project.

⁴ With surcharge (please specify when ordering).

Your specialist supplier:

CERTIFICADO

Conergy AG
Anckelmannsplatz 1
20537 Hamburg

Certifica que los inversores fotovoltaicos para conexión a red

| **Conergy WR 1700**
| **Conergy WR 2300**
| **Conergy WR 3300**
| **Conergy WR 4600**
| **Conergy WR 5900**
| **Conergy WR 5900E**

proporcionan una separación galvánica entre la red de distribución de baja tensión y la instalación fotovoltaica (de acuerdo a lo especificado en el artículo 12 del Real Decreto 1663/2000 sobre conexión de instalaciones fotovoltaicas a la red de baja tensión), mediante la incorporación de un transformador de aislamiento.

Hamburg, 2004-06-21

Conergy AG



Hans-Martin Rüter
Presidente del Comité de dirección, CEO

Certificate

Registration No.: Q 60009980

Page 1

Report No.: 21202366

License Holder:
Conergy AG

Ankelmannsplatz 1
20537 Hamburg
Germany

Product:

PV Modules

Types: E 165P, E 175P

Manufacturing Plant:

753108
ScanModule AB

Basis:

- IEC 61215: 04.1993**
"Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval"

- Factory Inspection**
To document the consistent quality of the product factory inspections are performed periodically.

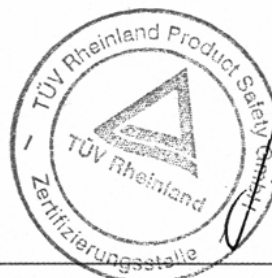
Remarks:

Details of the factory inspection are documented in report no. 435/123908-02

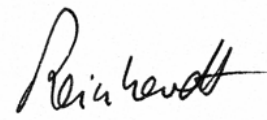
Conditions:

The product test is voluntarily according to technical regulations. Any change of the design, materials, components or processing may require the repetition of some of the qualification tests in order to retain type approval.

The certificate has a validity of 5 years counting from date of issue.



Certification body



Dipl.-Ing. J. Reinhardt

Cologne, 11. November 2004

Declaración de Conformidad - CE

Directiva 89/336/EEC (Directiva de Compatibilidad Electromagnética)

Directiva 73/23/EEC y 93/68/EEC (Directiva de Baja Tensión)

Conergy AG
Anckelmannsplatz 1
20537 Hamburg, Germany

DECLARA bajo su responsabilidad que los productos (paneles solares fotovoltaicos)

- | Conergy E 165P
- | Conergy E 170P
- | Conergy E 175P
- | Conergy E 180P
- | Conergy E 185P

cumplen los requisitos de la normativa vigente

- | EN 61000-6-1
- | EN 61000-6-3
- | EN 50178-(1998)
- | IEC 61140 (2002)
- | IEC 60664 (2003)

y por tanto las disposiciones de las directivas CE 89/336/EEC, 73/23/EEC y 93/68/EEC.

Hamburgo, Mayo 2005



Hans-Martin Rüter
Presidente del consejo de administración
Conergy AG



CONERGY

PRODUCT AND PERFORMANCE GUARANTEE FOR SOLAR MODULES

Conergy AG (hereinafter referred to as Conergy) has the highest quality standards for its products. They are manufactured according to stringent quality regulations. This allows us to offer the guarantees below to customers purchasing the following solar modules:

- | Conergy E 165P
- | Conergy E 170P
- | Conergy E 175P
- | Conergy E 180P
- | Conergy E 185P

1. Product guarantee

Conergy guarantees that the solar modules shall remain free of material or manufacturing defects for a period of five (5) years from delivery from the factory. The guarantee applies when the defects cause disruption to operation which significantly impairs or prevents use of the product. Should a guarantee claim arise, Conergy shall decide whether to offer the customer repairs, a replacement or a pro rata refund of the purchase price. The customer shall be liable to prove that the disruption to operation is due exclusively to material or manufacturing defects.

2. Performance guarantee

a. Conergy guarantees that the product shall have no material or manufacturing defects which lead to the product functioning at below 90% of its minimum performance (the so-called lower tolerance value) for a period of ten (10) years from delivery from the factory, or at below 80% of its minimum performance (the so-called lower tolerance value) for a period of twenty-five (25) years from delivery from the factory. The aforementioned conditions must have been assessed in an authorised testing process conducted by a testing body authorised by Conergy. Any decision as to the existence of a material or manufacturing defect shall be made at Conergy's discretion. The minimum performance (so-called tolerance value) is calculated by subtracting the set performance tolerance from the nominal maximum performance P_{max} (conforming to the nominal performance P_{nom}) as measured under standard test conditions (at 1,000 W/m², 1.5 AM and a cell temperature of 25 °C)

b. In the case of a claim, the customer has the right to repairs, a replacement, or further components such that the guaranteed percentage of the minimum performance is reached as detailed above, or a refund of the reduced value (percentage proportion of the current market value of the module taking effected depreciation into consideration), or a pro rata refund of the purchase price taking into consideration an annual reduction in the purchase price of five per cent (5%). In the event of further components being supplied, a price shall be calculated for them which takes into account the period of use of the defective module on a pro rata temporis basis. The choice of restitution offered is made entirely at the discretion of Conergy. The restitution options detailed here are exclusive.

c. The aforementioned solar modules are supplied with a performance tolerance of +/- 2.5 W.

3. Exclusion and limitation of liability

a. Conergy provides no explicit or implied guarantees apart from those expressly made here.

b. The guarantee does not cover material, manufacturing or product defects or any other damage to connecting cables.

c. The guarantee does not cover any indirect damage, especially collateral or consequential damage, including personal injury and damage to property, lost profit, damage to reputation, data loss, advertising or manufacturing charges, overheads, loss of custom, and costs incurred due to interruption of business, removal and/or reinstallation or replacement.

d. For the guarantee to remain valid, the module in question must have been used in a proper fashion. This only applies for stationary use on the mainland. Mobile and maritime use in particular are not covered by the guarantee.

e. The guarantee is not valid if the module has been altered from the state in which it was delivered due to neglect, improper use, installation, operation, storage, transport, equipment surrounding the product, the foundations on which the product is fixed, connections to modules from other manufacturers, incidents which could not have been prevented by technology available at the time of purchase, or in any other manner, including during repairs. The guarantee is also invalid if the product is altered/damaged by acts of God (storms, hail, fire, power cuts, lightning, flooding, insect and pest infestation, pollution, etc.) or vandalism or comparable damage incurred by a third party. The guarantee is also invalid if the module is damaged by misuse, an accident or alteration work, or if it is repaired by third parties who have not been authorised by Conergy. Any decision as to the existence of the aforementioned conditions shall be made at Conergy's discretion.

f. Conergy's liability is limited to the purchase price of the defective product.

g. The guarantee is only valid for modules procured from a company belonging to the Conergy Group. The provisions of the guarantee cannot be transferred to third parties.

4. General information

a. The guarantee does not extend to supplying new or as-new products. Conergy retains the right to use new, overhauled or specially manufactured parts or products. Each module replaced becomes the property of Conergy. If the modules in question are no longer produced, Conergy is entitled to supply a different type of module.

b. Conergy's voluntary guarantee covers neither the costs of any work carried out on site nor the costs of installing, dismantling, inspecting, testing, reinstalling, transporting or disposing of the product or individual components of the product.

c. Claims granted on the guarantee cause neither a new guarantee period to be started nor the guarantee to be extended. Furthermore, the guarantee does not include any changes to the contractual or legal guarantee regulations or to the contractual agreements with the customer, including his/her general conditions of contract, which this guarantee may affect. Once the guarantee has expired, repairs, replacements or further components can only be supplied at the customer's expense.

d. Should these terms of guarantee differ from the information supplied in the data sheet, these terms of guarantee take precedence.

5. Assertion of a guarantee claim

All guarantee cases shall be communicated immediately to the dealer or to Conergy AG, Anckelmannsplatz 1, 20537 Hamburg, Germany. For a claim to be made, the original dealer invoice and this guarantee certificate should be sent to Conergy or the dealer with details of the module type, the module serial number, the date of delivery and the defects which have arisen. The customer is only entitled to return modules with prior permission from Conergy. Guarantee claims will be checked by Conergy or its representative if the materials or work which has been deemed defective can be inspected and analysed in an economically viable manner.

Claims from this guarantee must be made within the valid term of guarantee and within a year of the cause for the claim arising. Delayed claims will not be considered. For claims to be valid, they must be received within the term of guarantee.

6. Severability clause

Should any provision of the aforementioned conditions be or become invalid in full or in part, the validity of the remainder shall not be affected. Insofar as binding legal regulations exist in the country in which the product was purchased, this guarantee should be construed as limiting the statutory guarantee rights to the extent permitted by these legal regulations.