

You shape the future of wind energy
We support you with individual components
Let's connect.

Individually assembled enclosure solutions



You have strict requirements
Our individual concepts will impress you
Let's connect.



Dear readers,

the electrical components of a wind turbine are subject to high demands. Vibration, heat, cold, changing humidity or even lightning strikes can seriously affect the reliability and service life of individual components. At the same time, the market increasingly demands more cost-effective systems which can deliver maximum power and efficiency with low operating costs. To succeed in the market, therefore, the correct choice and combination of electrical components is vitally important.

For cost reasons alone, ready assembled enclosure units are now widely used in the production of wind turbines. This is why we offer individually assembled enclosure solutions as functional modules, which we create on the basis of our many years of experience in the sector and assemble with suitable components from the Weidmüller catalogue. Our services range from the adaptation of existing solutions to the development of all-new products and concepts tailored to your individual needs.

You will receive ready assembled enclosures, optimised for use in your wind turbines which guarantee secure and trouble-free system operation under the prevailing environmental conditions – tested and approved in accordance with national and international standards and regulations.

Take the decisive step and move ahead of the competition. Let yourself be impressed by the many advantages of our individual enclosure solutions. Let's connect.

- 4 Weidmüller – experienced partner in the wind energy sector**
- 6 Your route to individual enclosure solutions**
- 8 Competence from the original idea to the finished product**
- 10 Individual solutions for tower, nacelle and hub**
- 12 Adapted to different environmental conditions and markets**
- 14 Development, production and service of the highest quality**
- 16 Available for you worldwide**
- 18 Component selection based on IP protection classes**

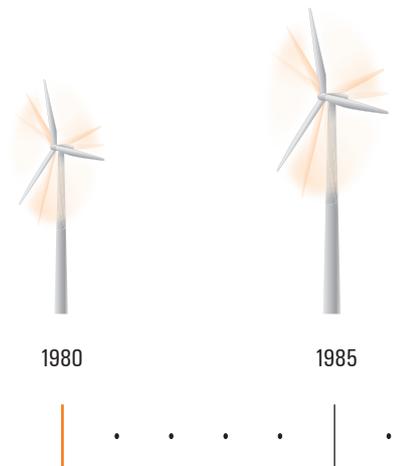
You want to be successful in the wind energy sector

You can count on our experience

Wind energy has developed into an important international economic factor since the 1990s. The market for wind turbines is growing and is characterised by rapid innovation. Ever larger and more powerful wind turbines serve the increasingly growing demand for energy, and remarkable advances in turbine technology have increased their average power output tenfold since 1990.

Anyone wishing to be a step ahead as a manufacturer or supplier with this rapid pace of development must offer real competitive advantages – and operate as cost-effectively as possible.

Here at Weidmüller we have been involved in wind turbine development right from the start and are able to offer you the benefit of our entire experience in the implementation of innovative ideas and solutions in wind turbine construction. Our products and components are characterised by excellent quality, reliability and cost-effectiveness and meet the highest safety standards. This is confirmed by international certificates and approvals as well as country- and application-specific test certificates, and much more. Become acquainted with us as a reliable partner in the field of wind energy and take advantage of our comprehensive service.



Power rating (in kW)	30	80
Rotor diameter (in m)	15	20
Rotor sweep (in m)	177	314
Hub height (in m)	30	40
Annual energy yield (in MWh)	35	95

Development of wind turbines since 1990: modern wind turbines are not only bigger and more powerful, they also generate electricity much more efficiently than earlier generations of turbines. They also produce lower noise emissions and have better grid compatibility (Source: DEWI GmbH). Weidmüller has been a part of this development right from the start, providing ever more powerful components and innovative ideas.



Pioneering work

Weidmüller supplies the company Jas with products for assembling wind turbines. Howden in Glasgow, one of the pioneers in the mass production of modern wind turbines.



1990

1995

2000

2005

2010



250	600	1,500	3,000	7,500
30	46	70	90	126
707	1,662	3,848	6,362	12,469
50	78	100	105	135
400	1,250	3,500	6,900	ca. 20,000

Let's connect. →



Ambitious project

As early as 1990, Weidmüller supported an energy supply concept for the island of Helgoland with a 100 meter high wind turbine which stood in its centre.



Know-how for China

The wind energy market is also booming in China. The Chinese manufacturer Dongfang relies on Weidmüller's heavy duty connectors from its Rockstar® series for its pitch systems for wind turbines.



You are thinking of your competitive advantage

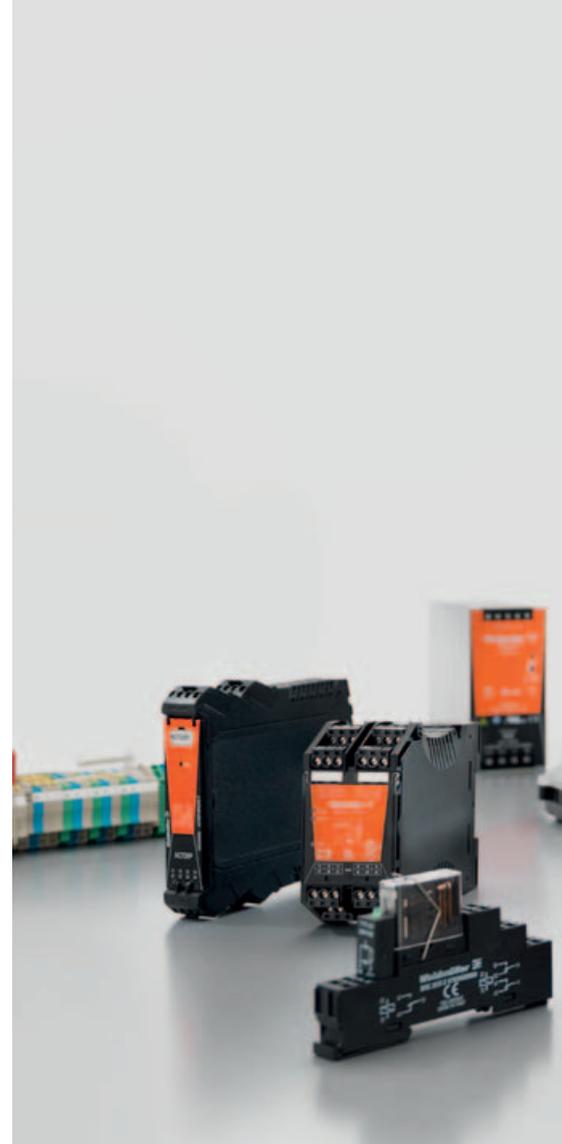
We include it in the package

Achieving high system availability for the lowest possible operation and maintenance costs is one of the key factors of success for power plant manufacturers and operators. This is a goal we can happily help our wind energy customers to achieve: by providing assembled enclosure solutions, individually tailored to the requirements of your systems.

The benefits of assembled enclosures are obvious: the powerful functional modules they contain are optimally matched and therefore provide extremely reliable interoperability. This is how we ensure that your wind turbines achieve optimum performance and create added value.

From the original idea to delivery of the finished product: we are the partner by your side, offering advice at every turn. This begins with the joint definition of the tasks involved. Later in the process we work together to create a requirements profile and develop the first ideas regarding layout and assembly. If you wish, we can even create a prototype to make your individual assembling solution crystal clear.

At the end of the development process we will choose for you the ideal components for your applications from our extensive product line, which will then be merged to create your perfectly matched solution. Fast, flexible and cost-effective.



Assembled enclosure solutions are tailored precisely to the specific requirements of your system thanks to individual equipment options. The benefits over our competitors' products can be systematically supported, helping to maximise the success of your wind turbines on the market.



Your path to achieving a project-specific solution

Defining the task

- Support right from the start:
- Analysis of the current situation
 - Project definition

Advice

- Individual project support:
- Over the phone and on site
 - Selection of products
 - Intensive dialogue

Application-specific development

- Development of an application-specific solution:
- Individualised configuration
 - Production of prototypes on request

Production, logistics and documentation

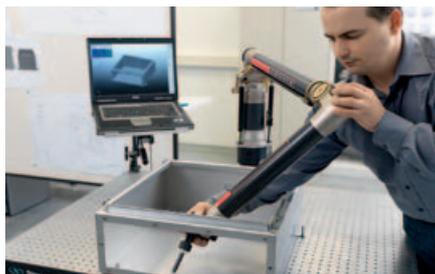
- Everything from a single source:
- Cutting-edge production technology
 - Intelligent inventory management
 - Comprehensive project documentation

From the initial idea through to delivery

Individual solutions from a single source

The smart combination of consultation, application expertise and industry know-how is our key to finding a custom-fit solution for your application. Our end-products, developed and crafted exclusively for you, are assembled from high quality individual components from the Weidmüller catalogue. This offers you numerous advantages: you unlock new potential for reducing costs and increasing efficiency, and at the same time simplify your quality management, as the high production quality from a single source makes arrangements with different component suppliers unnecessary. You will also make savings in terms of development and production in addition to reducing your storage and logistics costs. All of this makes our assembled enclosures a guarantee of your success.





Application centres around the globe

Take advantage of the expertise of our application engineers, who will offer you comprehensive advice backed by a sound understanding of your application and work out real value-added solutions.

Production of prototypes

The realistic basis for discussing production planning and implementation: Samples can be produced within a short time.

Reduce costs, increase efficiency

Development of individual products and solutions to increase efficiency and open up new potential for reducing costs.

Optimised quality management

High production quality from a single source. Agreements with different components suppliers are rendered not necessary.

Simplified ordering process and warehousing

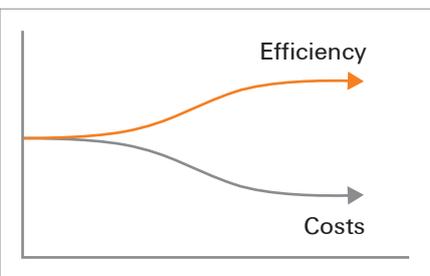
One solution, one order number! Individual components no longer need to be procured, product range and inventories are reduced.

Professional assembly

The individual components are fully assembled. Your installation costs will be reduced, saving you both time and money.

Modern processing of enclosures

With our CNC machining centres we are able to adapt enclosures individually to your specific solution.



Advice from applications engineers

You benefit from the expertise of our application engineers, who provide comprehensive advice with a deep understanding of the application, and come up with genuine value-added solutions.



Competence of the highest level

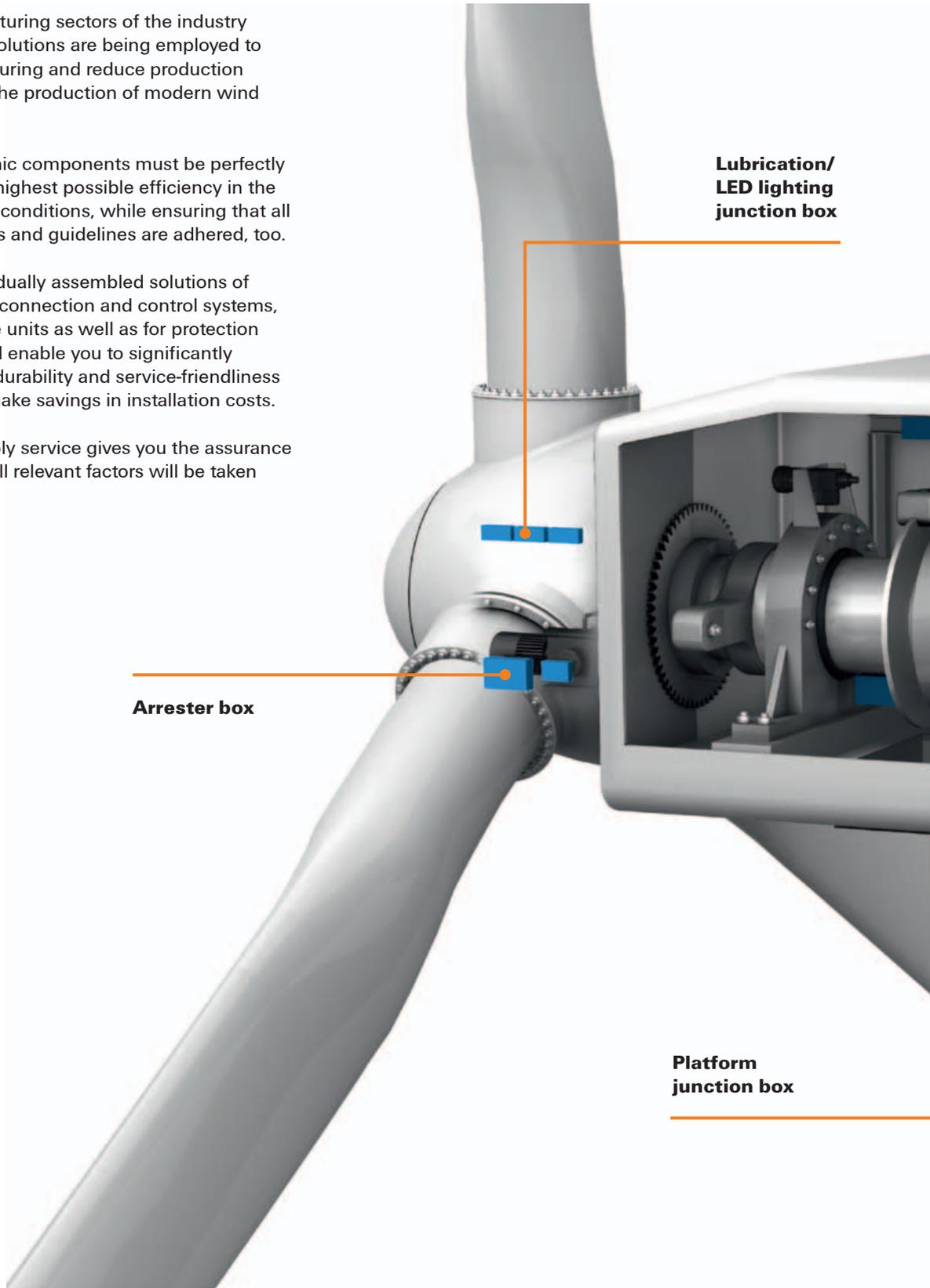
Solutions for tower, nacelle and hub

In more and more manufacturing sectors of the industry our assembled enclosure solutions are being employed to minimise vertical manufacturing and reduce production costs. This also applies to the production of modern wind turbines.

Your electrical and electronic components must be perfectly matched to guarantee the highest possible efficiency in the most varied environmental conditions, while ensuring that all standards, laws, regulations and guidelines are adhered, too.

We provide you with individually assembled solutions of the highest quality for grid connection and control systems, the various test and service units as well as for protection and safety devices. This will enable you to significantly improve the performance, durability and service-friendliness of your systems and also make savings in installation costs.

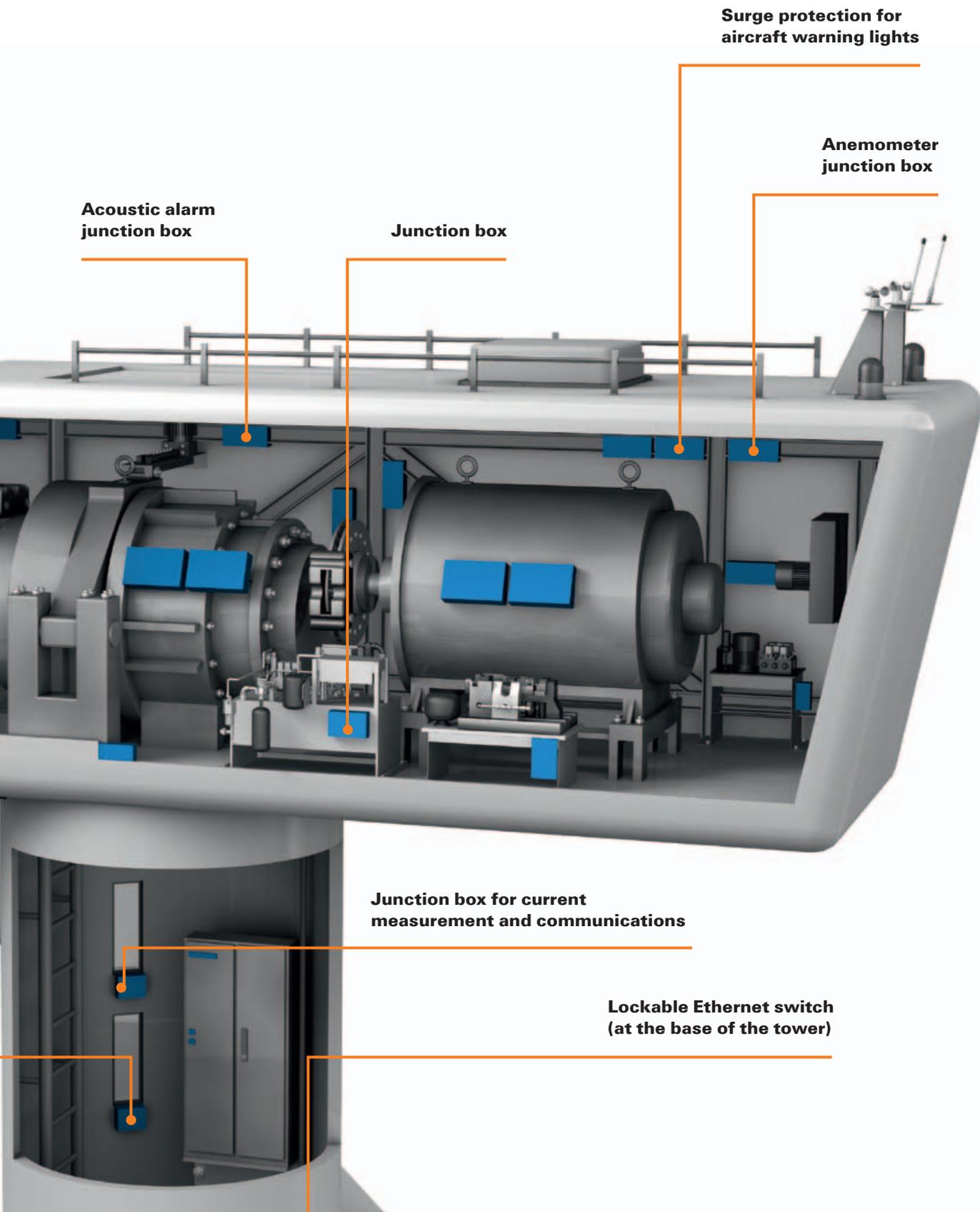
And best of all: our assembly service gives you the assurance right from the outset that all relevant factors will be taken into consideration.



**Lubrication/
LED lighting
junction box**

Arrester box

**Platform
junction box**



Surge protection for aircraft warning lights

Anemometer junction box

Acoustic alarm junction box

Junction box

Junction box for current measurement and communications

Lockable Ethernet switch (at the base of the tower)

Tailored to your requirements

Application-specific solutions for different environmental conditions and markets



Nacelle

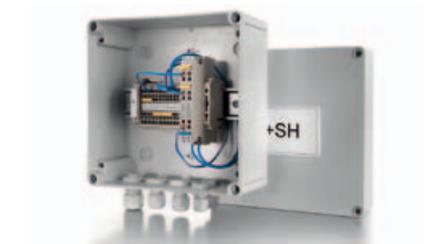
Surge protection for aircraft warning lights

Multifunctional junction box for the nacelle, with surge protection modules and relay modules to protect the unit during lightning strikes and transmits digital status signals of the aircraft warning lights.



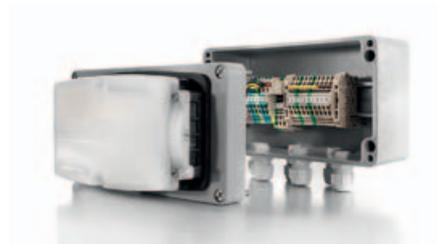
Acoustic alarm junction box

Safety device in the nacelle emits an acoustic alarm if anyone tries to access the rotor hub without all the necessary safety provisions having been met.



Lubrication/LED lighting junction box

For connecting the signal lines for the central lubrication in the hub area. The enclosure cover has been fitted with a Fieldpower LED to illuminate the hub during service.



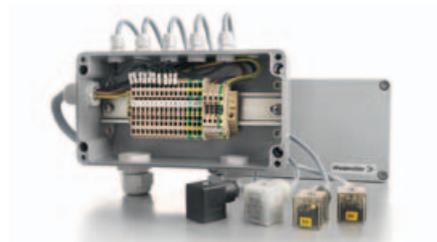
Arrester box

Surge protection for the slip ring transmission for power, data and signals.



Junction box

For the wiring of the electromagnetic valves of the hybrid pumps.

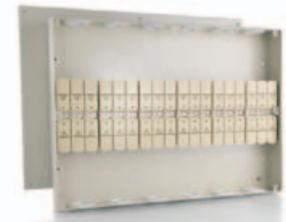




Tower

Platform junction box

Custom-assembled sheet steel enclosure for connecting electrical wiring along the tower easily and securely.



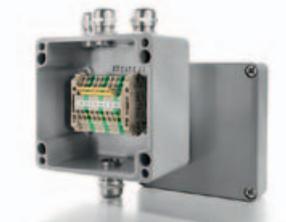
Junction box for current measurements

For easy and error-free current and voltage measurements on live conductors in the tower, positioned after the U/I converter.



Communications junction box

Junction box for connecting the cables of communication systems along the tower simply and securely.



Lockable Ethernet switch

Safety device in the tower for reliably preventing the accidental activation of the turbine during service.



Hub



Anemometer junction box

For connecting the power supply and signal transmission lines to the anemometer. An additional built-in surge protection module protects the downstream of electrical components in the event of a lightning strike.



You demand perfection

We take care of every detail

To compete internationally, your plants need to satisfy high standards of safety, quality and performance. These targets can be achieved with our products and services. Thanks to years of experience, we know precisely which combinations of electrical components are suitable for your specific type of plant and in which countries and under what conditions they are permitted. We can also help you bring to fruition new ideas for providing customers around the world with real added value in the operation of their power plants. This is also what we understand by service.



Our own laboratory

In the early stages of product development we test in our laboratory exactly which components, materials and systems are suitable for your application. This ensures that our solutions work with absolute reliability, are perfectly tailored to your requirements and can be used internationally. Satisfied customers around the world attest to the high quality of our work and trust the expert advice of our staff when it comes to the implementation of individual solutions.



Competent enclosure production

Enclosures from Weidmüller are synonymous with competence and quality in enclosure construction. Either for the usage in standard applications, in hazardous areas or with weather protection features, in each field of application we offer you a suitable enclosure solution in metal or plastic. Precisely manufactured, with special coatings as required, and assembled ready for connection.



Rapid prototyping

Sometimes you need to touch something to be able to understand its special characteristics and advantages. This is where rapid prototyping comes in. In a very short period of time we can produce a prototype, which serves as a basis for discussing the subsequent implementation.



Fast delivery

Even for individually assembled products, we guarantee fast, quality-oriented production and product availability as ordered. From small quantities to the provision of complete sites: everything is where it is needed in no time at all.

You operate internationally

We have connections all over the world

As an international company, we have at our disposal a network of development, production and service sites, sales companies and representatives in more than 80 countries around the globe. Wherever we are located we always employ competent employees who are completely familiar with the national standards and guidelines of their country and capable of handling every situation on site. Development and manufacturing utilise the latest technologies and maintain the highest quality standards. This is how we sustain the competitiveness of your products and underpin your success.

Detmold, Germany

Head Quarter | Development | Production

Barcelona, Spain

Development | Production | Service

São Paulo, Brazil

Development | Production | Service

Shanghai, China

Development | Production | Service

Sydney, Australia

Development | Production | Service

Richmond, USA

Development | Production | Service

Johannesburg, South Africa

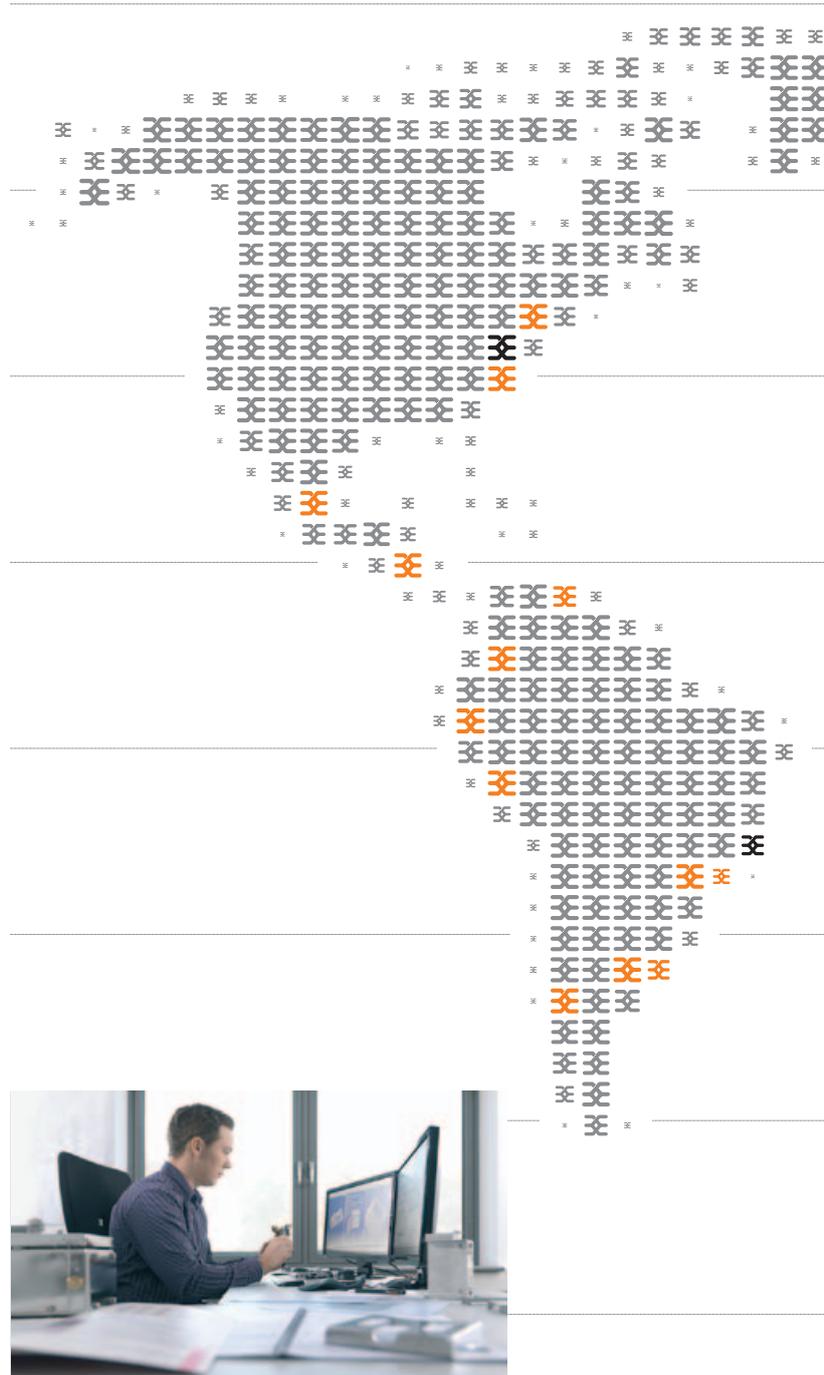
Production | Service

Sharjah, United Arab Emirates

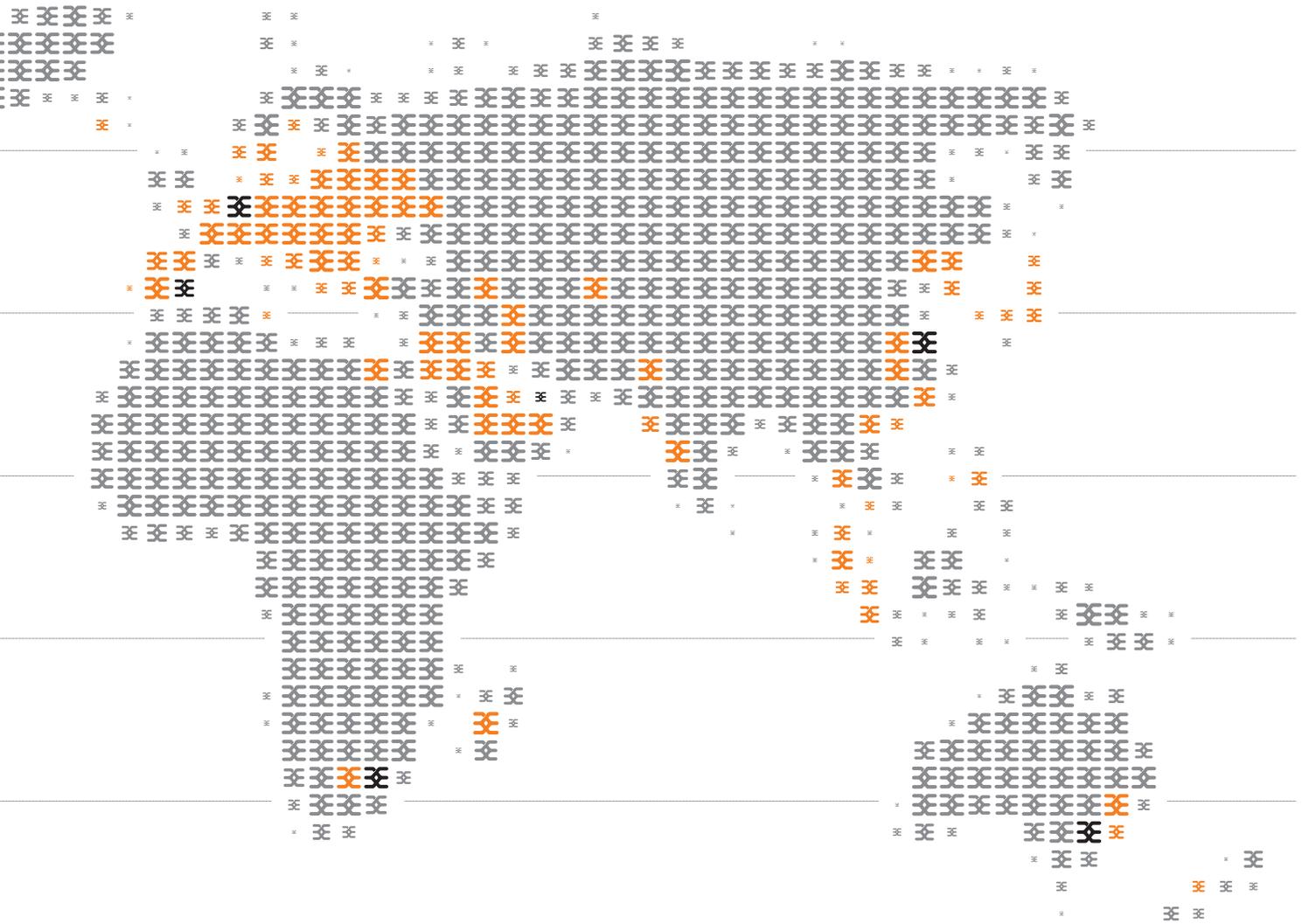
Production



Development, production and service sites



Advanced engineering with the latest CAD



Production in accordance with the highest quality standards



Individual, requirement-specific assembly

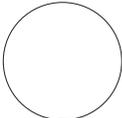
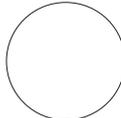
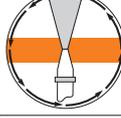
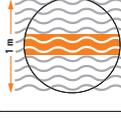
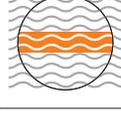
Component selection for IP protection classes

Technical annex

IP protection classes according to DIN EN 60529

The protection classes are indicated by a code consisting of the two letters IP and two digits representing the degree of protection.

Example: **IP65**
 2nd number: protection against water
 1st number: protection against solid bodies

1st number (degree of protection against solid foreign matter)		2nd number (protection against water)	
0	 Not protected	0	 Not protected
1	 Protected against solid foreign matter, 50 mm diameter and larger. Protected against access to hazardous parts with the back of the hand.	1	 Vertically falling drops may have no damaging effect.
2	 Protected against solid foreign matter, 12.5 mm diameter and larger. Protected against access to hazardous parts with a finger.	2	 Vertically falling drops may have no damaging effect when the enclosure is inclined by an angle of up to 15° from the vertical.
3	 Protected against solid foreign matter, 2.5 mm diameter and larger. Protected against access to hazardous parts with a tool.	3	 Water that is sprayed at an angle of up to 60° on both sides of the vertical may not have any damaging effects.
4	 Protected against solid foreign objects, 1 mm diameter and larger. Protected against access to hazardous parts with a wire.	4	 Water that is splashing from every direction against the enclosure may not have any damaging effects.
5	 Dust-proof: penetration of dust is not completely prevented, but dust may not penetrate to such an extent that the satisfactory operation of the device or its safety is impaired.	5	 Water that is directed as a jet from any direction against the enclosure may not have any damaging effects.
6	 Dust proof: no penetration of dust.	6	 Water that is directed from every direction as strong jets against the enclosure may not have any damaging effects.
		7	 Water may not enter in quantities which cause harmful effects when the enclosure is temporarily immersed in water under standardised conditions of pressure and time.
		8	 Water may not enter in quantities that cause damaging effects when the enclosure is continuously immersed in water under conditions agreed between the manufacturer and the user. However, these conditions must be more stringent than for Code 7.

Proven quality Certificates

Our products satisfy the highest international standards, guidelines and requirements. This is attested by recognised seals of approval, certification and approvals for many countries in the world.



Weidmüller – Your partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 16
32758 Detmold, Germany
T +49 5231 14-0
F +49 5231 14-292083
info@weidmueller.com
www.weidmueller.com

Your local Weidmüller partner can
be found on our website:
www.weidmueller.com/countries

Made in Germany



Bestellnummer: 1504680000/01/2014/SMDM