



DOSPEL

Leader in Ventilation

-SINCE 1974-

Wind turbine - power generator

Dragon 1000+

Dragon 1500+

User manual, warranty card



NOTE! Before starting assembly and use, read the entire manual

SECURITY INFORMATION

The device contains mechanical components that generate electricity that may pose a threat to life.

Therefore, the following conditions must be observed:

NOTE! It is your responsibility to obtain all necessary permits and plans needed to determine the location of the mast and its assembly. Soil and wind conditions are variable and therefore the foundations of the mast must be individually selected for your location. The mast must be secured so that it cannot fall on inhabited buildings, power lines, etc. Climbing the mast is dangerous and may only be performed by experienced personnel using specialist equipment. The mast must be mounted at an appropriate distance from inhabited buildings and power lines.

WARNING! If a turbine on a mast appears unstable or makes unusual sounds, it must be repaired immediately. A damaged turbine or part of it may soon fail and fall down the mast, threatening lives. Never stand in line with a rotating rotor.

WARNING! The device must be protected from the possibility of unsuitable persons, especially children, climbing on it. Never allow unqualified persons or anyone without proper protection to climb on the mast.

WARNING! Always stop the propeller before climbing the mast. Both falling from the mast and contact with the rotating rotor can be fatal.

TECHNICAL SPECIFICATION

Turbine model	Dragon 1000+	Dragon 1500+
Turbine power:	1000W	1500W
Rotor diameter:	100cm	150cm
Turbine height:	170cm	240cm
Nominal voltage:	AC	
Generator:	three-phase (3f) with neodymium magnets	
Starting speed:	from 1.2 m/s	
Wings and arms:	The structure has been tested for durability in extreme conditions	
Brake:	in the regulator / in the braking controller	
Work system:	Off-grid, On-grid	
Noise level according to Standard PN-EN 61400-11:	<44dB at 8m/s	
Working temperature:	From -25°C to 45°C	
Types of masts:	Concrete and metal posts, trusses and roof bases	
Compliance with the standard:	CE, IEC 61400	

Table 17 point power curve for Dragon 1000+ wind turbine.

THRESHOLDS m/s	RPM No Load	DC [V]	AC [V]	Load [A]	Power [W]	RPM with load	Voltage [V]
1	19	13	7	0,73	7	18	10
2	39	27	19	0,96	21	37	22
3	60	41	30	1,19	39	55	33
4	79	52	41	1,36	61	74	45
5	99	62	52	1,59	89	93	56
6	119	73	62	1,84	123	112	67
7	139	84	73	2,07	164	130	79
8	159	95	84	2,3	205	148	89
9	179	106	95	2,53	253	166	100
10	197	116	106	2,77	307	184	111
11	219	127	116	2,99	362	202	121
12	238	137	127	3,33	440	220	132
13	258	148	137	3,43	487	238	142
14	278	159	148	3,65	555	256	152
15	298	169	159	3,86	629	274	163
16	318	181	169	4,3	787	310	183
17	332	232	181	4,51	866	327	192
18	358	257	191	4,65	930	337	200
19	379	289	202	4,89	1032	356	211

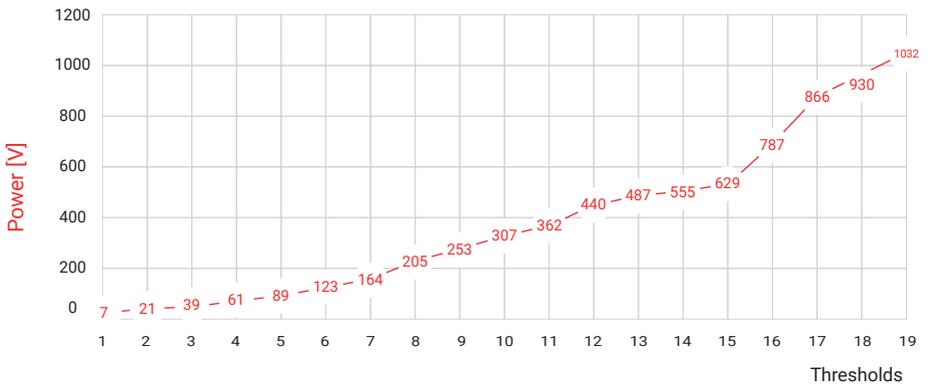
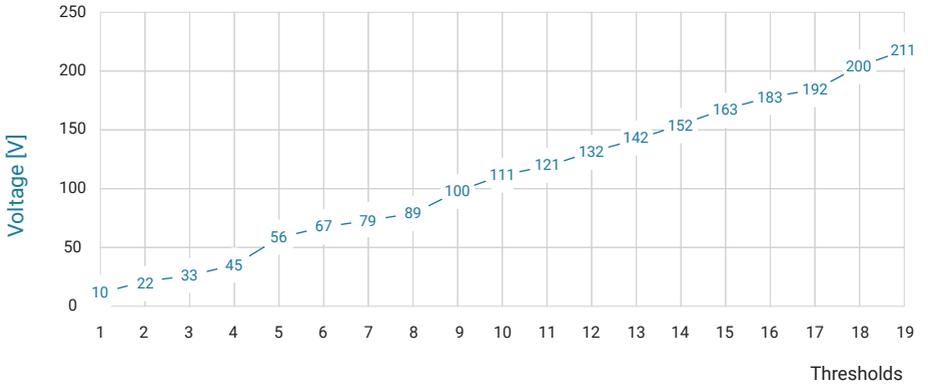
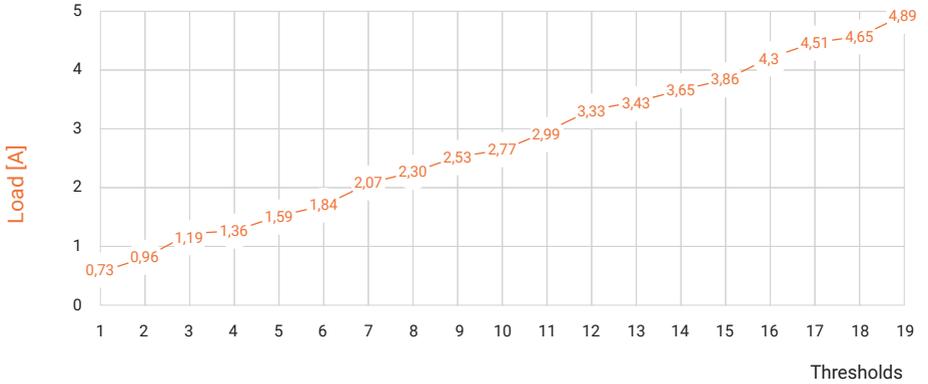
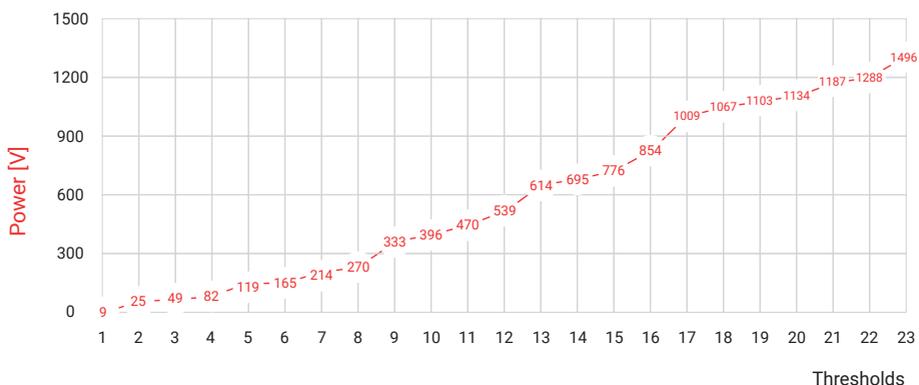
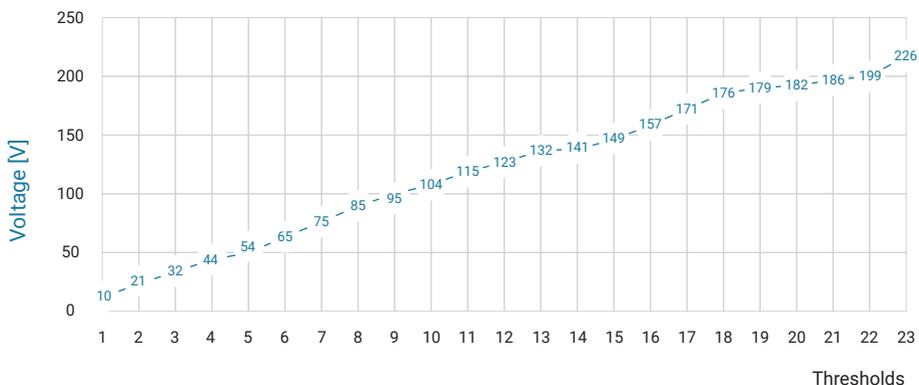
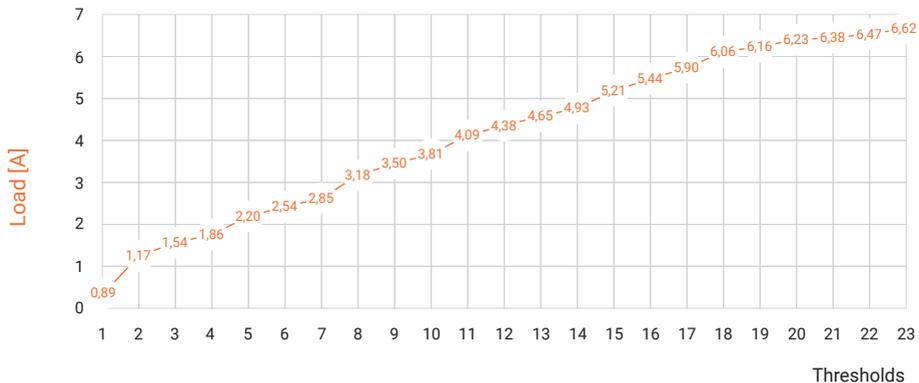


Table 17 point power curve for Dragon 1500+ wind turbine.

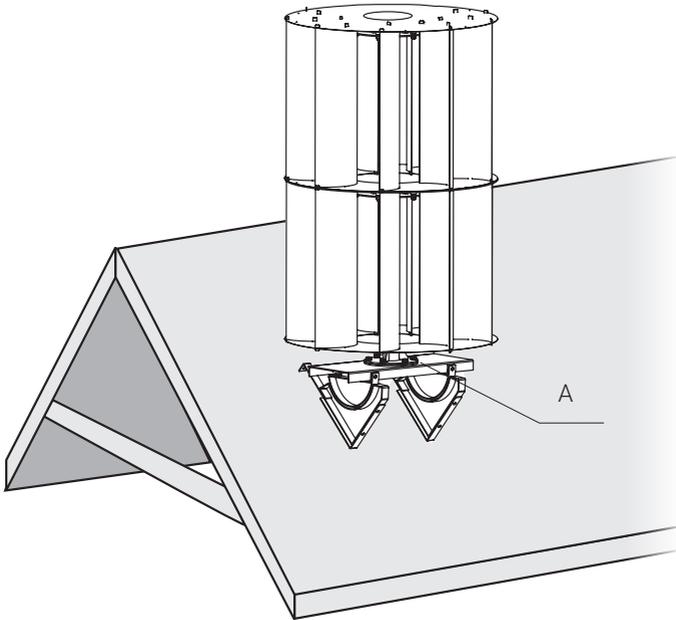
THRESHOLDS m/s	RPM No Load	DC [V]	AC [V]	Load [A]	Power [W]	RPM with load	Voltage [V]
1	19	13	7	0,89	9	18	10
2	39	27	19	1,17	25	34	21
3	60	41	30	1,54	49	53	32
4	79	52	41	1,86	82	70	44
5	99	62	52	2,2	119	88	54
6	119	73	62	2,54	165	104	65
7	139	84	73	2,85	214	121	75
8	159	95	84	3,18	270	137	85
9	179	106	95	3,5	333	152	95
10	197	116	106	3,81	396	168	104
11	219	127	116	4,09	470	184	115
12	238	137	127	4,38	539	199	123
13	258	148	137	4,65	614	214	132
14	278	159	148	4,93	695	228	141
15	298	169	159	5,21	776	240	149
16	318	181	169	5,44	854	254	157
17	332	232	181	5,9	1009	277	171
18	358	258	191	6,06	1067	286	176
19	378	272	201	6,16	1103	292	179
20				6,23	1134	295	182
21				6,38	1187	317	186
22				6,47	1288	330	199
23				6,62	1496	344	226



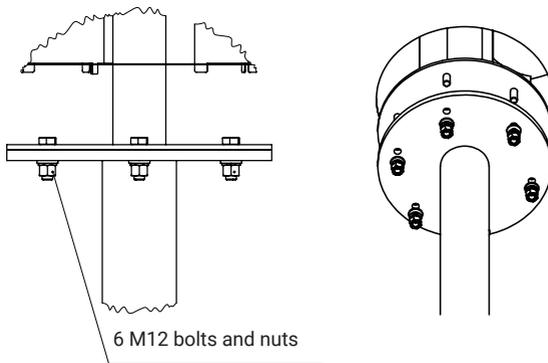
DRAGON WIND TURBINE

This is one of the most advanced wind battery charging devices in the world. It is ideal for OFF-Grid and ON-Grid installations. The device can supply energy to remote locations as well as to small farm buildings. The turbine is easy to install.

Installation on a pitched roof



Assembly detail - detail A



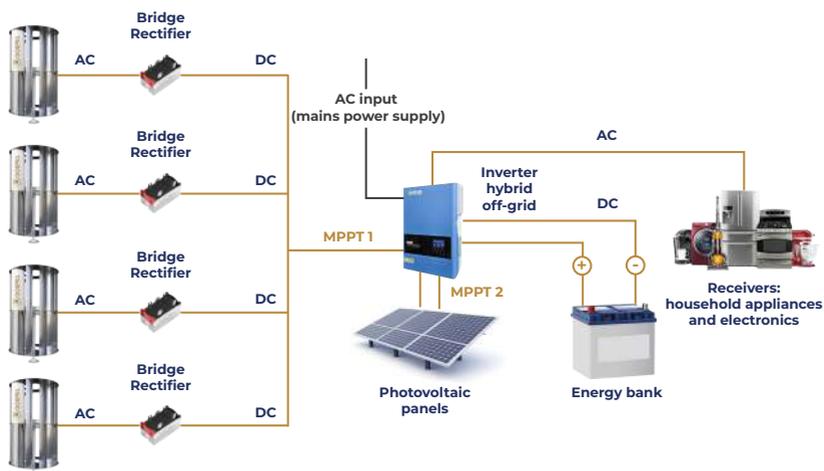
¹The presented installation options are only suggestions and do not replace the installation design.

ELECTRICAL TEST

In order to check the correct operation of the turbine, it should be performed before the turbine is mounted on the mast. This test confirms that the generator is operational and ready for installation on the mast. The work should be performed with a measuring device by the installer. When the cables are not in contact with each other, the test of the rotor generator rotation should be very easy to perform, without noticeable resistance. It should be checked for visible mechanical damage and whether the turbine is not making any disturbing sounds.

OFF-GRID HYBRID ELECTRICAL CONNECTION (sample diagram):

4x DRAGON 1000+

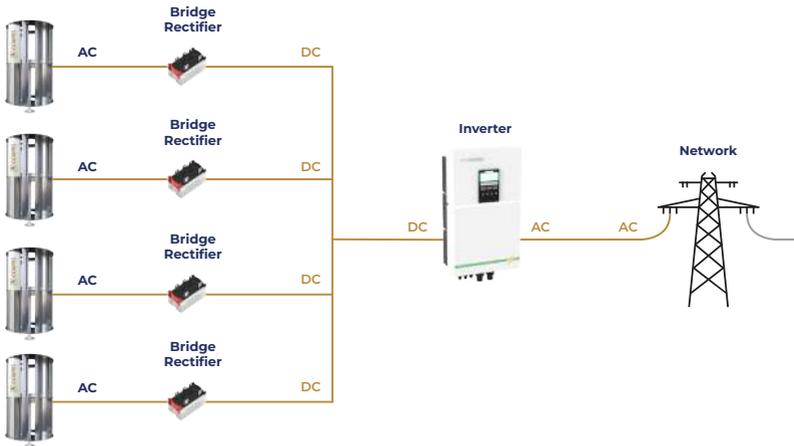


OFF-GRID ELECTRICAL CONNECTION: DRAGON 1000+

The DRAGON wind turbine generates three-phase alternating current, which should then be converted by a voltage regulator into direct current, which is needed to charge the batteries. (The regulator is not included in the set. It should be selected together with the batteries by the installer for installation at the installation site).

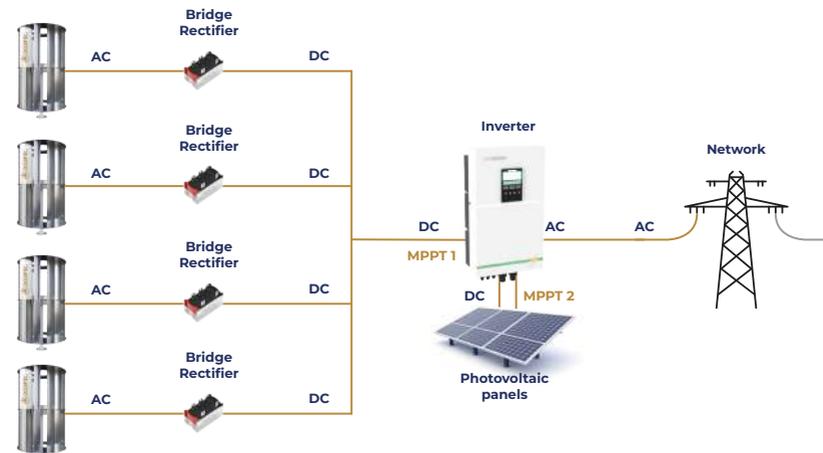
ON-GRID ELECTRICAL CONNECTION (sample diagram):

4x DRAGON 1000+

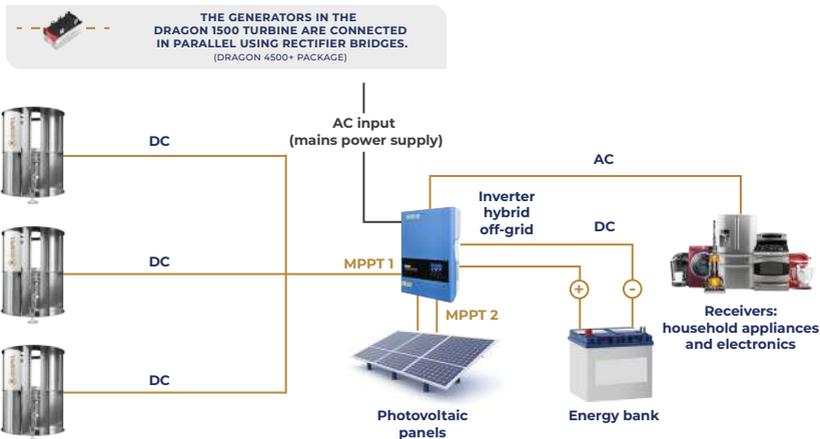


ELECTRICAL CONNECTION ON-GRID HYBRID (sample diagram):

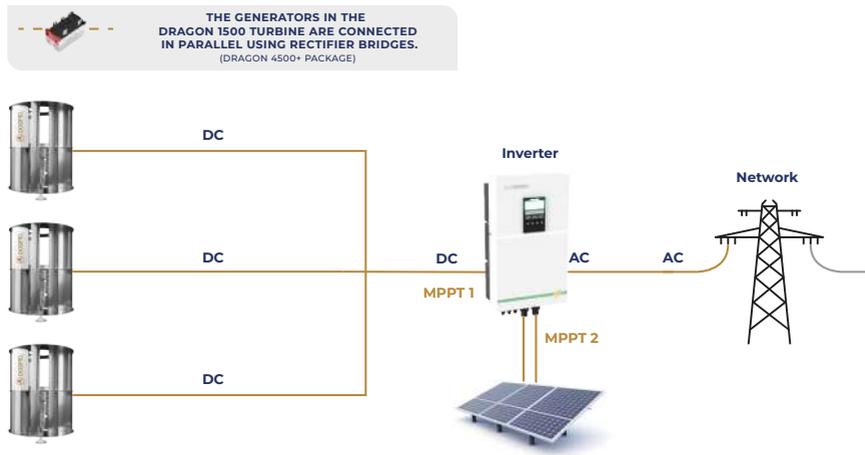
4x DRAGON 1000+



OFF-GRID HYBRID ELECTRICAL CONNECTION (sample diagram): 3x DRAGON 1500+

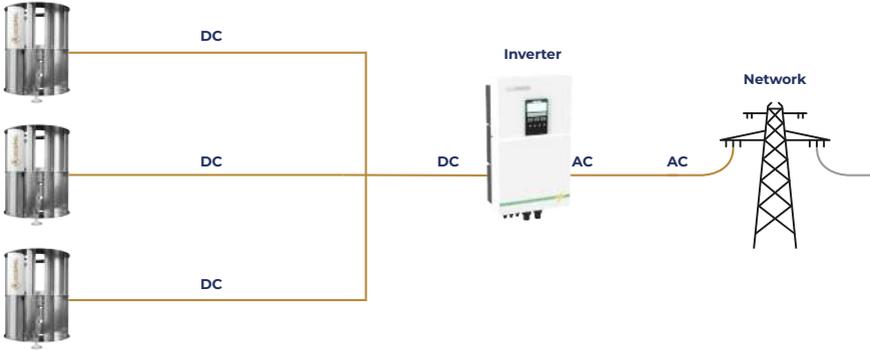


ELECTRICAL CONNECTION ON-GRID HYBRID (sample diagram): 3x DRAGON 1500+



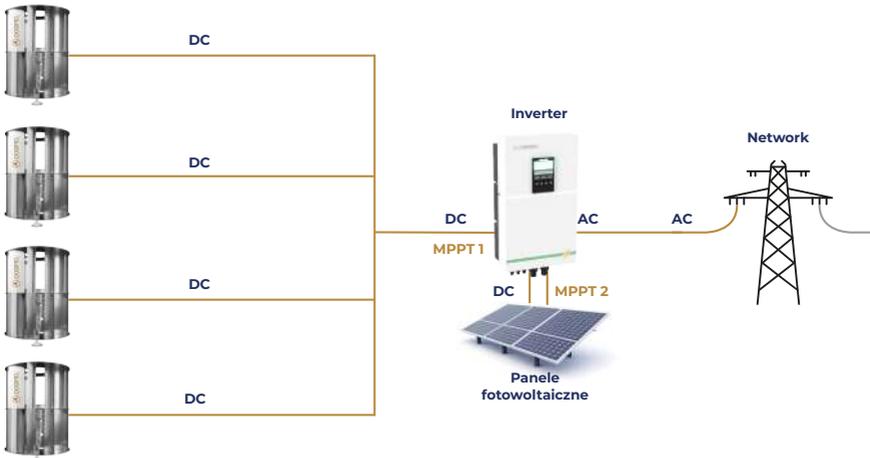
ON-GRID ELECTRICAL CONNECTION (sample diagram): 3x DRAGON 1500+

 THE GENERATORS IN THE DRAGON 1500 TURBINE ARE CONNECTED IN PARALLEL USING RECTIFIER BRIDGES. (DRAGON 4500+ PACKAGE)



ELECTRICAL CONNECTION ON-GRID HYBRID (sample diagram): 4x DRAGON 1500+

 THE GENERATORS IN THE DRAGON 1500 TURBINE ARE CONNECTED IN PARALLEL USING RECTIFIER BRIDGES. (DRAGON 6000+ PACKAGE)



SECURITY MEASURES

1. The DRAGON wind turbine generates life-threatening voltage.
2. Never allow the turbine to rotate without being connected to a suitable power receiver.
3. To avoid accidents, carefully plan the assembly and obtain assistance when erecting the device.
4. It is recommended to perform as much of the assembly work as possible on the ground.
5. If possible, choose a calm, dry day for assembly.
6. The turbine is equipped with high-performance, permanently attached magnets that can be destroyed by improper handling (e.g. dropping to the ground).
7. The device must be protected by fuses at all times during operation.
8. Never approach the rotor blades during operation, as this can cause serious physical injury.
9. Always stop the turbine and secure the rotor blades before performing maintenance.

OPERATION OF THE DEVICE

Normal Operation

The turbine rotor should start spinning when the wind speed reaches about 1 m/s. The battery should start charging shortly after the rotor starts. As the wind speed increases, the rotor will also spin faster and the turbine will produce more electricity.

The operation should be regulated by an appropriate regulator selected for the needs of the installation, which will ensure optimal operation and adjust the charging power to the capacity and power of the existing installation. Dragon turbines work with 24 or 48 V controllers. The controller should be selected appropriately, taking into account the wind force in a specific location.

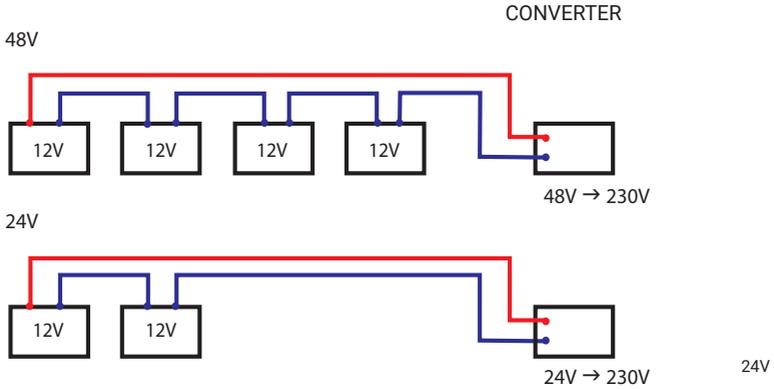
Below is a map with generalized wind force zones in Poland. In order to select the right controller, the average wind force in a given area must be precisely determined. Information on the precise determination of wind force for a specific location is available on the Internet.



Map of wind zones in Poland based on the average wind speed over the year

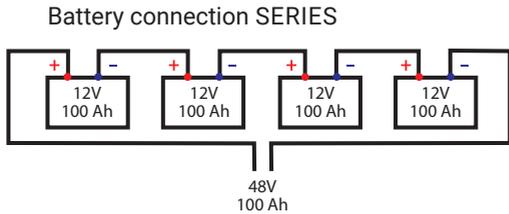
- Zone 2** Average wind speed: >6m/s
● Recommended 48V controller
- Zone 1** Average wind speed: 1-6m/s
● Recommended 24V controller

METHODS OF CONNECTING BATTERY IN SERIES

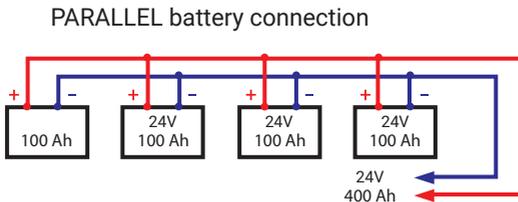


Examples of ways to connect batteries depending on the voltage we want to obtain in our installation.

METHODS OF CONNECTING ENERGY BANK BATTERIES



When connected in series, the voltage of the power bank increases

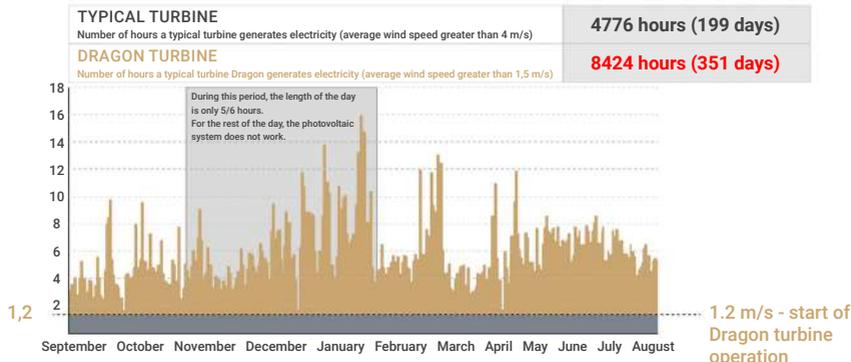


When connected in parallel, the capacity of the power bank increases

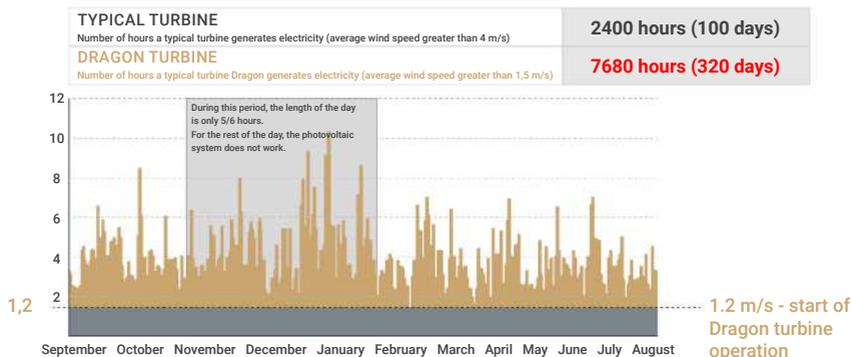
Example battery connection during power bank configuration. With the right connection, you can create an installation for different voltages and capacities.

EXAMPLE WIND SPEED CHARTS IN POLAND

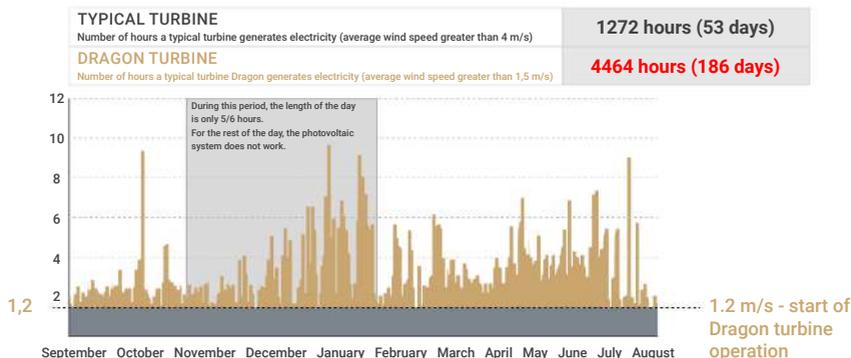
1. Average wind speed in Łeba 2022



2. Average wind speed in Warsaw 2022



3. Average wind speed in Jelenia Góra 2022



GUARANTEE

The DRAGON wind turbine has an 8-year manufacturer's warranty from DOSPEL.

WARRANTY MAINTENANCE CONDITIONS:

For the warranty to be valid for its entire duration, **the user of the DRAGON wind turbine is obliged to replace the bearings every 3 years**, from the date of turbine assembly.

Bearing replacement must be performed by an authorized Dospel service.

Documentation of any replacement must be presented in the event of a claim.

The perfect complement to a photovoltaic installation

It generates electricity both day and night, in summer and winter when photovoltaics do not work effectively.

Light, ergonomic power generator

The Dragon wind turbine - power generator does not require the use of a mast or obtaining permits.

Coreless generator

Located in the center of the turbine, which minimizes micro-vibrations and oscillations. It Generates electricity even at a wind speed of 1m/s. (average wind speed in Central Europe is 2.6 - 3.8 m/s)

Safe for people and the ecosystem

Unlike classic horizontal turbines, Dragon is a vertical low-speed turbine, which makes it failure-free and completely safe.

8 years producer's warranty

The manufacturer Dospel gives 8 years of warranty for all Dragons turbines. We offer service and guarantee access to all service parts.

Ready for self-assembly

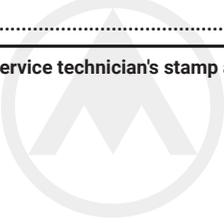
Dragon is delivered fully assembled, screwed to the pallet and ready for self-assembly.

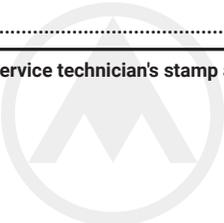
WARRANTY CARD NO.

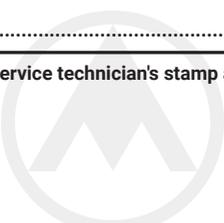
date of submission and order number	date of repair	specification of materials and repair activities	number fitter signature
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<p>MODEL:</p> <p>factory number: sale date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">seller's stamp</div> <p>warranty card is an attachment to account no. date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">signature and stamp of the repair shop</div>	<p>MODEL:</p> <p>factory number: sale date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">seller's stamp</div> <p>warranty card is an attachment to account no. date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">signature and stamp of the repair shop</div>	<p>MODEL:</p> <p>factory number: sale date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">seller's stamp</div> <p>warranty card is an attachment to account no. date:</p> <div style="border: 1px solid black; height: 60px; margin: 5px 0; text-align: center; font-size: 8px;">signature and stamp of the repair shop</div>
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BEARING SERVICE

Service date:	 DOSPTEL Leader in Ventilation - SINCE 1974 -
Service technician's stamp and signature:	

Service date:	 DOSPTEL Leader in Ventilation - SINCE 1974 -
Service technician's stamp and signature:	

Service date:	 DOSPTEL Leader in Ventilation - SINCE 1974 -
Service technician's stamp and signature:	

