

PRODUCT DOCUMENTATION

I-2000

User Manual

Essential information for safe installation, commissioning, operation, maintenance, and servicing of the wind turbine system.

DOCUMENT TYPE	PRODUCT SERIES	MODEL
Installation & Operation Manual	I-Series Wind Turbine	I-2000

READ BEFORE INSTALLATION

Keep this manual available throughout the complete service life of the system.

ORIGINAL INSTRUCTIONS
istaBreeze

WIND TURBINE SYSTEM

General Information

Important information regarding the safe installation, operation, and maintenance of your wind turbine system.

ABOUT THIS MANUAL

This manual contains important information regarding the safe installation, operation, and maintenance of your wind turbine system. Please read the entire manual carefully before installing or operating the equipment.

DOCUMENT INFORMATION

Revision Date 31.03.2023

Revision Number 00

BEFORE INSTALLATION

Before installing or operating the wind turbine system, please ensure that:

- The wind turbine has been installed by qualified personnel.
- All users have read and understood this manual.
- The complete system has been inspected before commissioning.
- The wind turbine and all electrical components are properly maintained.
- Local electrical and safety regulations are observed.

KEEP THIS MANUAL

Store this manual in a safe and easily accessible location. It should remain available to anyone responsible for the installation, operation, maintenance, or servicing of the wind turbine system.

SAFETY INFORMATION

Safety instructions throughout this manual are identified by signal words and warning symbols. Always follow these instructions carefully to prevent personal injury, equipment damage, or system malfunction.

**DANGER!****Immediate danger!**

Non-observance of the safety instructions will result in serious or fatal injury!

**WARNING!****Potentially dangerous situation!**

Non-observance of the safety instructions can result in serious or fatal injury!

**CAUTION!****Potentially dangerous situation!**

Non-observance of the safety instructions can result in minor or moderate injuries!

**IMPORTANT!****Potentially dangerous situation!**

Non-observance of the safety instructions can result in damage to property or pollution of the environment!

WIND TURBINE SYSTEM

Other Symbols Used

The following symbols are used in this translation of the original instructions as well as on the wind turbine system itself:

WARNING SIGNS

	General warning!
	Danger: High voltage!
	May start without warning!
	Environmental hazard!

Table 1 | Warning signs

MANDATORY SIGNS

	Read manual before operating!
	Isolate before opening!

Table 2 | Mandatory signs

NAME AND ADDRESS OF THE MANUFACTURER AND HIS AUTHORISED REPRESENTATIVE



For order creation and quotation requests, please contact help@fasttradingltd.net.

MANUFACTURER

	ALTINEL ENERJI DIS TIC. ELEK. ELEKTRONIK SAN.VE TIC. LTD. STI
	Gökevler Mah. 2331 Sk. No: 2/d - Esenyurt / Istanbul / TURKEY
	0090-212-8812235
	www.altinelenerji.com

AUTHORISED REPRESENTATIVE

	FastTrading Ltd
	UL.Stancionna No. 64 Et.2 - BG-8500 Aytos / BULGARIA
	+359 87 7819900
	help@fasttradingltd.net

WIND TURBINE SYSTEM

Warranty & Liability

WARRANTY

This product is covered by the manufacturer's General Terms and Conditions of Sale and Delivery. Warranty coverage applies only when the product is installed, operated, and maintained in accordance with the instructions provided in this manual.

The manufacturer accepts no liability for damage resulting from improper installation, misuse, unauthorized modifications, or failure to follow the operating instructions.

PRODUCT FEEDBACK

To help us continuously improve our products, please inform your supplier or authorized representative if you encounter any of the following:

- Product defects or malfunctions
- Safety concerns related to the wind turbine system
- Errors or unclear information in this manual
- Suggestions for improving the product or documentation

TECHNICAL DESCRIPTION

INTENDED USE

This wind turbine system is designed exclusively for generating electrical energy as a **Small Wind Turbine System (SWTS)** in accordance with **EN 61400-2**.

The system shall only be operated:

- Within the specified electrical ratings.
- Under the approved wind conditions stated in the technical specifications.
- In accordance with the installation, operation, maintenance, and safety instructions contained in this manual.

Failure to comply with these requirements may affect both system performance and warranty coverage.

IMPROPER USE

Any use outside the intended operating conditions is considered improper and may result in equipment damage or personal injury.

The manufacturer assumes no responsibility for damage resulting from:

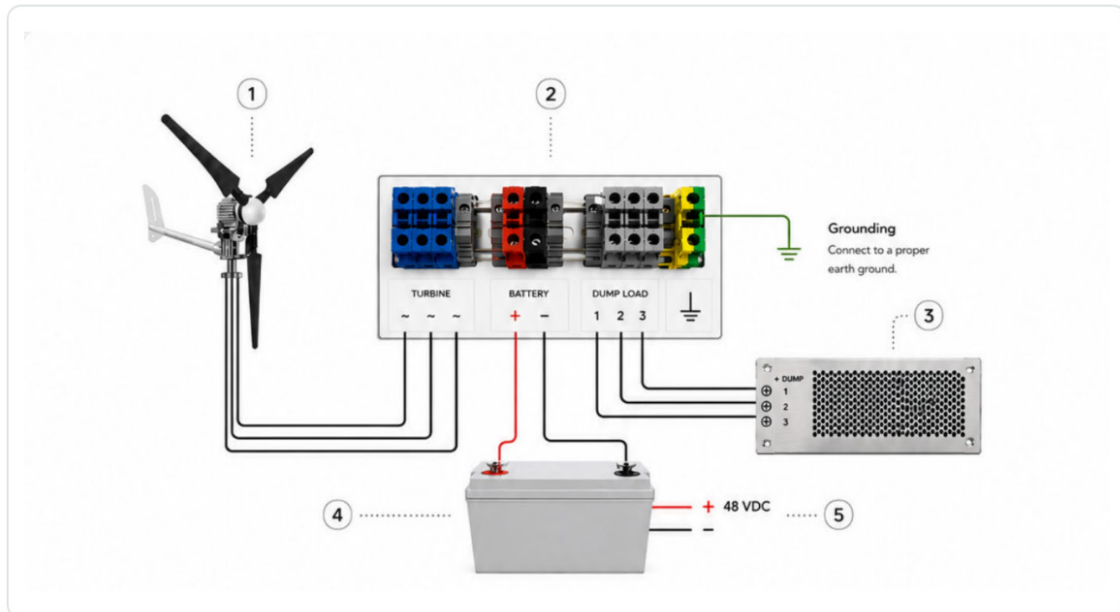
- Operation outside the specified technical limits.
- Unauthorized modifications to the wind turbine or its components.
- Installation of non-original ISTA Breeze spare parts or accessories.
- Failure to follow the installation, maintenance, or operating instructions.
- Operation under wind conditions exceeding the approved limits, including storms or wind speeds of 15 m/s or higher.
- Incorrect installation, commissioning, maintenance, or repair procedures.



Only original **ISTA Breeze** spare parts and accessories are approved for use with this product. The use of third-party components may reduce system reliability and void the manufacturer's warranty.

WIND TURBINE SYSTEM

Technical Description



TURBINE

AC Output (3 Phase)



BATTERY

12 or 24 or 48 VDC Battery

1 2 3

DUMP LOAD

Dump Load Resistor



GROUNDING

Connect to a proper earth ground.

1 Converts wind energy into electrical energy

2 Generates electrical voltage

3 Automatic Brake Load Resistor

4 Stores electrical energy

5 Convert 12 VDC / 24 VDC / 48 VDC to 220 VAC



RECOMMENDATION

Several batteries can be connected in series or series. Depending on which system voltage is used.



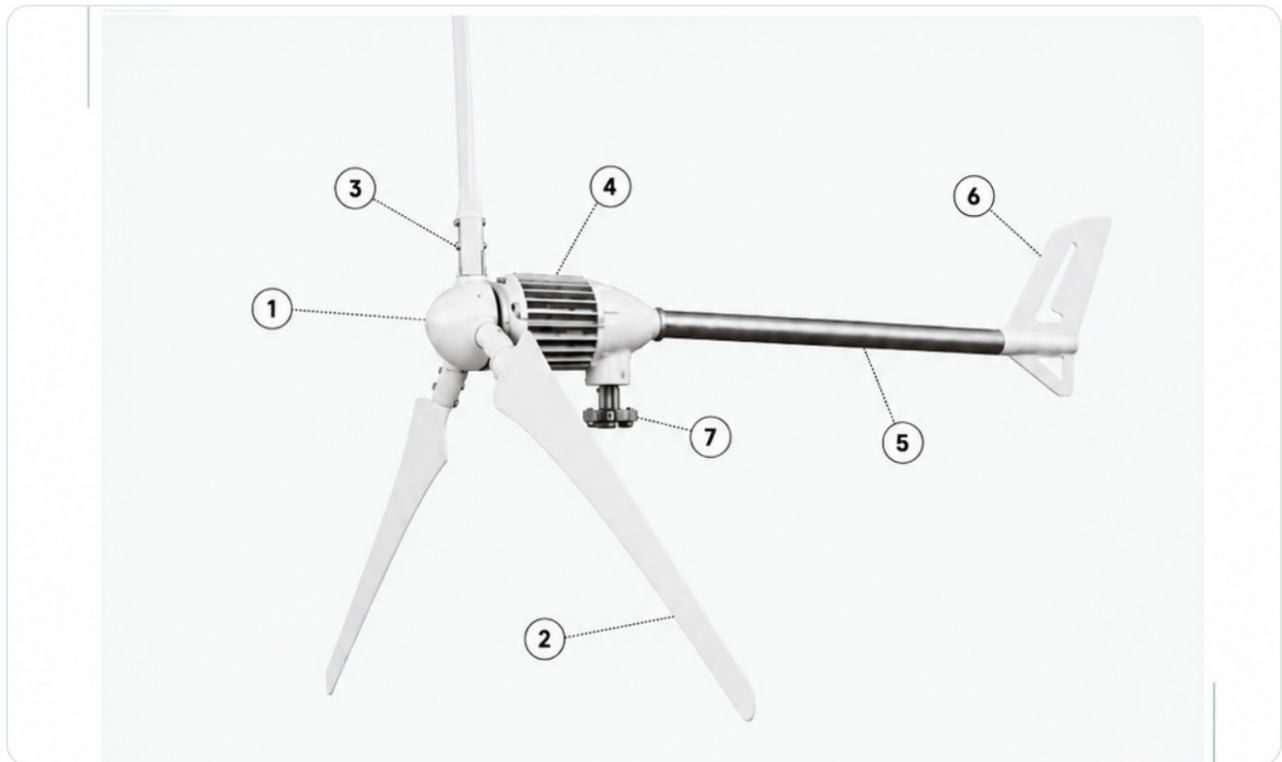
INFORMATION

The wiring diagram shown below is provided for illustrative purposes only and demonstrates a typical connection layout for the wind turbine system. Actual wiring may vary depending on the battery configuration, charge controller model, and system components.

Always follow the wiring instructions supplied with your equipment and ensure that all electrical connections are made by qualified personnel.

WIND TURBINE SYSTEM

Turbine Components



NO.	COMPONENT	QUANTITY
1	Nose	1
2	Rotor blade	3
3	Hub for holding the blades	1
4	Generator for producing electricity	1
5	Boom for wind direction flag	1
6	Tail vane for turning the blades into the wind	1
7	Mast Connection Flange	1

WIND TURBINE SYSTEM

Technical Specifications

DESIGNATION
Wind turbine model

I-2000

2 KW • 24 / 48 V • 3-PHASE AC

GENERATOR

01

Type	Permanent magnet rotor, brushless, gearless, maintenance-free	
Weight [kg]	24	
Max. power	24V 80A (Max 2000W)	48V 40A (Max 2000W)
Open circuit voltage [VAC]	[24V] 0 - 90	[48V] 0 - 200
Current	3-phase-AC	
Start of charging	Approx. 3 m/s (wind speed)	
Housing material	Aluminium	
Direction of rotation	Any	
Test standard	EN 61000-6-1 (electromagnetic compatibility - susceptibility) EN 61000-6-3 (electromagnetic compatibility - emissions)	

ROTOR BLADES

02

Hub flange	Cast Steel
Diameter, approx. [m]	2.20
Rotor Blades	3 pieces of composite or carbon
Approx. weight per rotor blade [g]	720
Blade Color	Black or White
Direction of Rotation	from the front in a clockwise direction
Max. Speed [rpm]	1000
Noise emissions [dB(A)]	40 (carbon blade) / 60 (composite blade)

WIND TURBINE SYSTEM

Safety Information

MODIFICATIONS BY THE USER

This wind turbine system complies with the requirements of the European Machinery Directive **2006/42/EC** when installed using original ISTA Breeze components and in accordance with the installation instructions provided in this manual.

Any unauthorized modifications, alterations, or the use of non-approved components may affect the safety, performance, and compliance of the system. Such changes may also void the Declaration of Conformity and the manufacturer's warranty.

RESIDUAL RISKS

Although the wind turbine system has been designed to operate safely, certain residual risks may remain during installation, operation, maintenance, or servicing.



These risks are addressed throughout this manual by appropriate safety instructions and warning notices. Always follow the recommended procedures and safety precautions before carrying out any work on the system.

PERSONNEL REQUIREMENTS

Installation, commissioning, inspection, maintenance, and repair work must be performed only by qualified and authorized personnel.

Personnel responsible for working on the system must:

- ✓ Be familiar with the operation of the wind turbine system.
- ✓ Understand all applicable safety regulations and local electrical codes.
- ✓ Read and fully understand this instruction manual before beginning any work.
- ✓ Use appropriate personal protective equipment (PPE) where required.
- ✓ Failure to comply with these requirements may result in equipment damage, personal injury, or unsafe system operation.



Authorised persons are defined as follows:

OPERATING MODE	NECESSARY QUALIFICATIONS
Erection	Suitably trained persons
Normal operation	Trained personnel
Cleaning	Trained personnel
Maintenance	Suitably trained persons
Repair	Manufacturer

WIND TURBINE SYSTEM

Preparing to Use the System



SHIPPING & DELIVERY

DELIVERY CONDITION

The wind turbine system is supplied partially assembled to ensure safe transportation and reduce the risk of damage during shipping. Final assembly must be completed according to the installation instructions provided in this manual.



PACKAGE CONTENTS

Please verify that all components listed in your order confirmation or packing list are included before beginning the installation. If any parts are missing or damaged during transport, contact your supplier immediately before installing the system.



INSTALLATION REQUIREMENTS

Before installing the wind turbine system, ensure that the installation location meets all technical and safety requirements. The selected site should provide:

- ✓ Adequate clearance from surrounding buildings, trees, and other obstacles.
- ✓ Sufficient space for safe installation and future maintenance.
- ✓ Compliance with the specified wind class and environmental conditions.
- ✓ A stable and suitable mounting structure capable of supporting the wind turbine safely.
- ✓ Compliance with all applicable local building and electrical regulations.

Proper site selection is essential for achieving maximum performance, safe operation, and long-term reliability of the wind turbine system.



WARNING!

Danger to life due to operation in non-approved wind classes!

- The wind turbine system may only be operated at Class III wind sites.



For information on local wind classes, please contact the responsible authorities or your nearest meteorological office.

FOOTPRINT AND MINIMUM CLEARANCES

The place of use must be free of obstacles; alternatively, the wind turbine must be erected with a sufficient height (refer to Fig. 3).

Obstacles are defined as houses, hedges, trees, hills, etc.

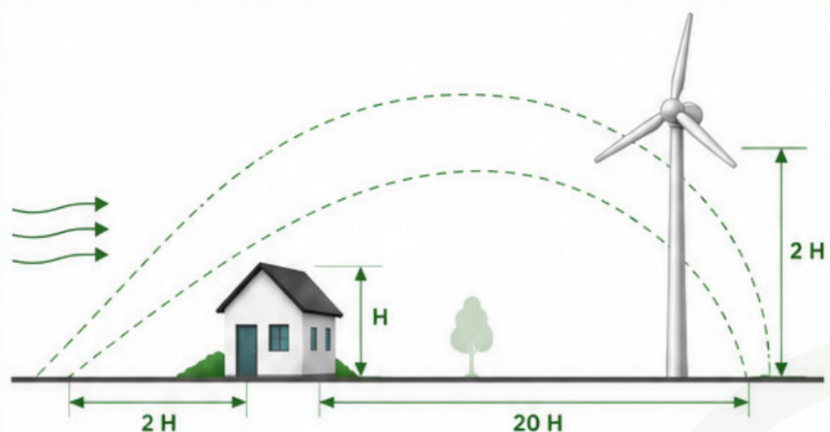


Fig. 3: Footprint and minimum clearances



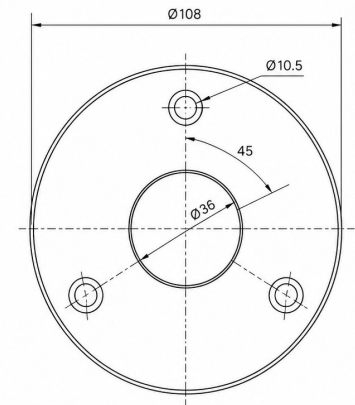
When choosing the place of use, make sure adequate room is available to tilt the tower and blades if necessary.

WIND TURBINE SYSTEM

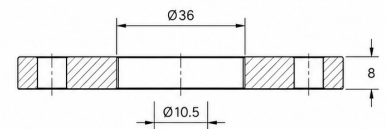
Compatible Mast Set

Important: The mast set shown in the installation illustration is for reference only and is not included in the standard wind turbine package.

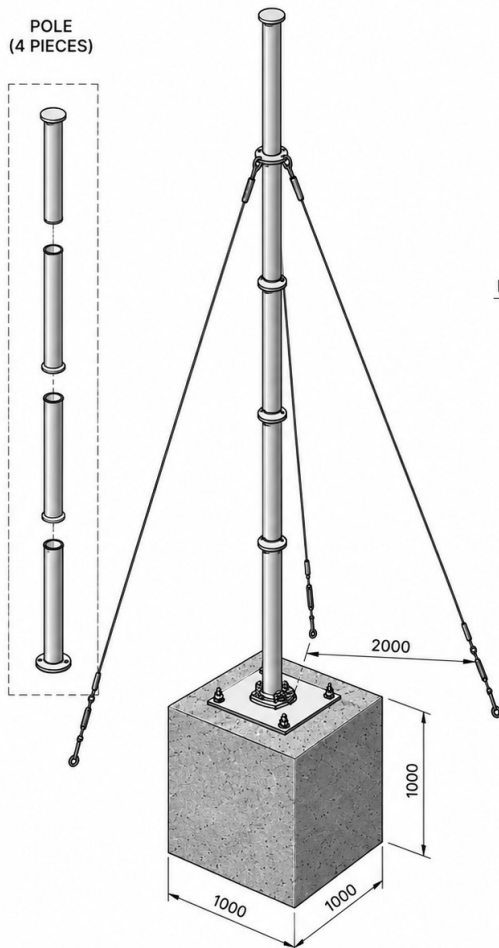
A compatible mast set may be purchased separately. Ensure that the selected mast complies with the installation and safety requirements in this manual.



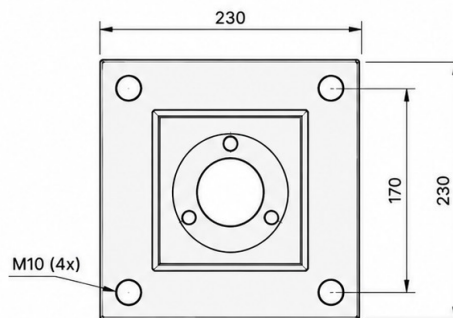
Ø OUTER DIAMETER	Ø108 mm
Ø CENTER HOLE	Ø36 mm
Ø MOUNTING HOLES (3x)	Ø10.5 mm
THICKNESS	8 mm



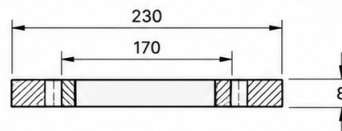
POLE
(4 PIECES)



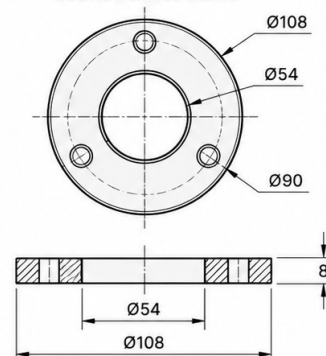
MOUNTING PLATE (TOP VIEW)



SECTION A-A
(MOUNTING PLATE)



ROUND FLANGE PLATE



WIND TURBINE SYSTEM

Preparing to Use the System

UNPACKING THE COMPONENTS

Before beginning the installation, carefully unpack all components and inspect them for any signs of transport damage.



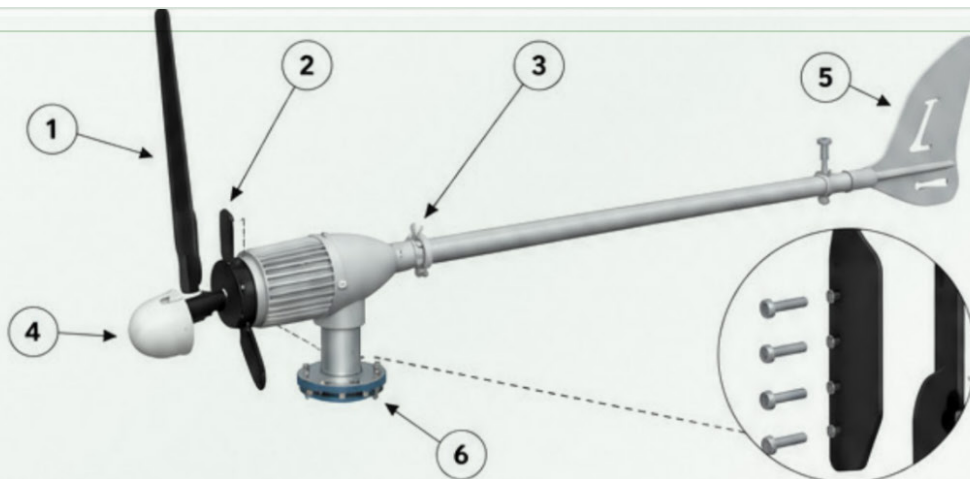
PLEASE FOLLOW THESE STEPS:

- ✓ Carefully open the packaging without damaging the components.
- ✓ Verify that all supplied parts are present using the packing list or order confirmation.
- ✓ Inspect each component for visible damage that may have occurred during transportation.
- ✓ If any components are missing or damaged, do not proceed with the installation. Contact your supplier immediately.
- ✓ Dispose of all packaging materials in accordance with local environmental regulations and recycling requirements.



Taking a few minutes to inspect the shipment before installation will help ensure a **safe, smooth, and trouble-free installation process.**

ASSEMBLING THE WIND TURBINE



FOLLOW THE ASSEMBLY STEPS BELOW:

- 1 Position each propeller blade (1) with the flat side facing the hub (2).
- 2 Secure each blade using the supplied M8 × 45 bolt, washer, and locking nut.
- 3 Tighten all blade mounting bolts evenly. Once all blades are correctly positioned, fully tighten them by hand before applying the final torque.
- 4 Attach the boom rod (3) to the alternator housing using the supplied M8 × 60 bolt.
- 5 Install the nose cone (4) onto the hub and secure it with the M8 × 75 screw.
- 6 Mount the wind vane (5) to the boom rod using the supplied M8 × 60 bolt. Secure the pole flange (6) to the mounting pole using appropriate fasteners suitable for the pole material and installation surface.



IMPORTANT: Before raising the wind turbine, verify that all bolts and fasteners are securely tightened and that every component is correctly installed.

WIND TURBINE SYSTEM

Rotor Balancing



Proper rotor balancing is essential for smooth operation, reduced vibration, and maximum service life of the wind turbine.

FOLLOW THE PROCEDURE BELOW TO CHECK THE ROTOR BALANCE:

- 1 Position the rotor in the "Y" orientation as shown in Figure 7.
- 2 Carefully release the rotor without applying any additional force.
- 3 Observe the direction in which the rotor rotates.
The heavier blade will naturally move downward.
- 4 Repeat this procedure for all three blade positions to identify any imbalance.
- 5 Adjust the balance until all blades remain evenly positioned without a preferred direction.
- 6 Tighten all blade mounting screws to 25 Nm.
- 7 Perform a final balance check after tightening.
- 8 Secure all screws using a suitable thread-locking compound.



IMPORTANT: An unbalanced rotor can cause excessive vibration, increased mechanical wear, reduced performance, and premature damage to the wind turbine. Always verify the rotor balance before commissioning the system.



NOTE: The propellers have already been tested for equal weight by the manufacturer.

WIND TURBINE SYSTEM

Electrical Connections

ELECTRICAL CONNECTIONS



DANGER!

Danger: High voltage!

- All work on electrical equipment must be carried out by a qualified electrician with the power switched off!



NOTE: To ensure proper operation, you must use an original ISTA Breeze charge controller.

To ensure safe and reliable operation, all electrical connections must be completed in accordance with the wiring diagrams and applicable electrical standards.



FOLLOW THE STEPS BELOW:

- 1 Connect a **three-core cable** with a suitable conductor cross-section according to the recommended cable specifications.
- 2 Make all electrical connections exactly as shown in the corresponding wiring diagram.
- 3 Connect the wind turbine, charge controller, and transformer according to the specified connection diagram.
- 4 Verify that all terminals are securely tightened and that the wiring polarity is correct before powering on the system.
- 5 After completing the installation, perform a final inspection of all electrical connections before commissioning.



Important: Incorrect wiring or cable sizing may result in equipment damage, reduced system performance, or safety hazards. All electrical work should be carried out by qualified personnel in accordance with local electrical regulations.

Distance between generator and charge controller or inverter [m]	< 11	11 – 18	18 – 29	29 – 44	44 – 70	61 – 113
Cable cross-section [mm²]	2.5	4	6	10	16	25



Cable cross-section with 12V/24V/48V Generator voltage.

WIND TURBINE SYSTEM

Generator Cable Connection

Correct cable routing and secure electrical connections are essential for the safe and reliable operation of the wind turbine.

**FOLLOW THE
PROCEDURE BELOW:**

- 1 Route the **three-core cable** through the inside of the tower up to the generator.
- 2 Provide adequate **strain relief** to prevent mechanical stress on the cable during operation.
- 3 Connect the cable to the generator terminals according to the wiring diagram.



CONNECTING THE GENERATOR CABLE

- 1 Temporarily **short-circuit all three generator phases** to activate the generator brake before performing any electrical work.
- 2 Slide an appropriately sized **heat-shrink tube** onto each conductor before making the electrical connections.
- 3 Twist and **solder** each cable conductor to the corresponding generator wire, ensuring a secure electrical connection.
- 4 Position the **heat-shrink tubing** over each soldered joint and apply heat until the insulation is fully sealed.
- 5 Wrap each insulated connection with high-quality electrical **insulating tape** for additional mechanical protection.
- 6 **Inspect** all connections carefully before completing the installation.



IMPORTANT: Always disconnect the system from the battery before performing electrical work. Ensure that all cable connections are secure, properly insulated, and protected against moisture to maintain safe and reliable operation.



Proper cable connection is key to the performance and longevity of your wind turbine system.

WIND TURBINE SYSTEM

Mounting and Raising the Wind Turbine

- 01** Carefully **attach** the wind turbine to the tower without damaging the generator cable.
- 02** **Secure** the generator assembly firmly to the mast using the specified mounting hardware.
- 03** **Raise** the mast slowly and carefully, following all applicable safety procedures.
- 04** **Ensure** the mast is perfectly vertical and properly aligned in all directions.
- 05** **Secure** the mast using the appropriate guy wires or support structure, if required.
- 06** **Remove** the temporary three-phase short circuit from the generator after the installation has been completed.



Important: Never raise the wind turbine during strong winds or adverse weather conditions. Ensure that the installation area is clear of people and obstacles before lifting the mast.



WARNING!

DANGER DUE TO UNSUITABLE TOWER CONSTRUCTIONS!

- ▶ Only use tested mast constructions or original ISTA Breeze masts.
- ▶ Choose a mast diameter <70 mm, so that the rotor blades are not pressed against the mast during a storm.

WIND TURBINE SYSTEM

Normal Operation



For information on operating the iSTA Breeze charge controller, refer to the separate instructions.

COMMISSIONING THE WIND TURBINE



Before placing the wind turbine into operation, ensure that the installation has been completed correctly and that all mechanical and electrical connections have been thoroughly inspected.

TO START THE SYSTEM:

- 1 Release the emergency stop switch or disengage the brake using the **iSTA Breeze Charge Controller**.
- 2 Verify that the brake has been fully released.
- 3 Confirm that the flashing red LED on the charge controller turns off.
- 4 Once the brake is released, the wind turbine will begin generating power automatically when sufficient wind is available.



IMPORTANT: Never release the brake until the installation has been fully completed and all safety checks have been performed.

RESTART AFTER AN EMERGENCY STOP



If the system has been stopped due to an emergency, perform the following steps before restarting:

- 1 Ensure that the cause of the emergency has been completely resolved.
- 2 Inspect the wind turbine, tower, and electrical connections for any damage.
- 3 Restart the wind turbine by following the commissioning procedure described above.



IMPORTANT: Do not restart the system until it is safe to do so. Operating a damaged or improperly installed wind turbine may result in equipment damage or personal injury.

WIND TURBINE SYSTEM

Shutting Down the Wind Turbine System

EMERGENCY SHUTDOWN

Use this procedure only in situations that require the wind turbine to stop immediately.

- 01 Press the **Emergency Stop** button located between the wind turbine and the charge controller.
- 02 The charge controller will automatically **short-circuit all three generator phases**.
- 03 The wind turbine will brake and come to a **complete stop**.



IMPORTANT: Do not restart the system until the cause of the emergency has been identified and corrected.

TEMPORARY SHUTDOWN

Use this procedure when the wind turbine needs to be stopped for a **short period**, such as during inspections or routine maintenance.

- 01 Press the **Charge Controller OFF** button on the **iSTA Breeze Charge Controller**.
- 02 Verify that the turbine has stopped operating safely.
- 03 The system will remain in **standby mode** until it is manually restarted.

EXTENDED SHUTDOWN

For long-term storage, transportation, or extended maintenance, follow these steps:

- 01 Press the **Charge Controller Brake OFF** button on the **iSTA Breeze Charge Controller** to activate the braking function.
- 02 Wait until the wind turbine has come to a **complete stop**.
- 03 **Secure the rotor** to prevent unintended movement caused by strong winds.
- 04 **Clean** the wind turbine and **inspect** all visible components before placing the system out of service.
- 05 If required, **disconnect the electrical system** according to the maintenance instructions in this manual.



IMPORTANT: Do not restart the system until it is safe to do so. Operating a damaged or improperly installed wind turbine may result in equipment damage or personal injury.



Proper cable connection is key to the performance and longevity of your wind turbine system.

WIND TURBINE SYSTEM

Maintenance System

SAFETY PRECAUTIONS

DURING MAINTENANCE WORK

- ▶ Shut down the wind turbine system.
- ▶ Carefully tilt the tower.

WARNING!**Risk of injury when carrying out maintenance work!**

- ▶ Shut down the wind turbine system prior to all maintenance work.
- ▶ Take steps to prevent the wind turbine system from being switched on again by unauthorised persons.

INSPECTION AND MAINTENANCE SCHEDULE

INTERVAL	PART / COMPONENT	ACTIVITY
DAILY	Wind turbine	▶ Check for abnormal noises
	Rotor blades	▶ Check that the blades turn freely
	Tower	▶ Inspect for damage
YEARLY / AT END OF WINTER OR AFTER EXTREME WEATHER EVENTS	Rotor blades	▶ Inspect for cracks / damage and if necessary replace ▶ Track anti-oxidation protection wax ▶ Are the rotor blades balanced?
	Tower	▶ Check for vibration ▶ Check the guy wires ▶ Is the tower still aligned vertically? ▶ Inspect for damage
	Wind turbine	▶ Check the bolts
	Electrical wiring	▶ Inspect the cables for damage

WARNING!**Danger due to damaged parts!**

- ▶ Shut down the wind turbine system immediately if the rotor blades or the electrical wiring are damaged.

MAINTENANCE & CLEANING

To maintain optimum performance and protect the wind turbine from environmental exposure:

- Clean the wind turbine and rotor blades regularly using a soft cloth.
- Apply a high-quality protective wax suitable for painted surfaces.

NOTE:

A protective wax coating helps protect the turbine from weather conditions and improves the aerodynamic efficiency of the rotor blades.

MAINTENANCE INTERVAL:

Inspect and clean the wind turbine **annually, or every 6 months in coastal areas.**

WIND TURBINE SYSTEM

Troubleshooting and Diagnostics

**ERRORS WITH LED**

Error messages are displayed on the iSTA Breeze charge controller. Refer to the separate instructions.

ERRORS WITHOUT LED

ERROR	POSSIBLE CAUSE	POSSIBLE ACTIONS
Wind turbine does not start up	Not enough wind	▶ None
	"Stop" switch pressed	▶ Release the "Stop" switch
Rotor turns too slowly	Rotor blades incorrectly attached	▶ Attach the rotor blades correctly
	Rotor blades not balanced	▶ Balance the rotor blades
	Bearing for wind alignment is stiff	▶ Replace the bearing
	Generator makes contact as it turns	▶ Send the generator in to the manufacturer
	Unfavourable location or tower too low	▶ Check and move to another location if necessary ▶ Increase the height of the tower
Wind turbine vibrates on tower	Rotor not balanced	▶ Balance the rotor
	Tower not aligned vertically	▶ Align the tower vertically
	Tower bends in the wind	▶ Design a more robust tower
	Tower foundation has too much clearance	▶ Reduce the clearance to a minimum
Wind turbine system produces too little power	Wind turbine or charge controller defective	▶ Contact the manufacturer or a specialist dealer
	Battery defective	▶ Replace the battery
	Battery too small	▶ Use a larger battery (at least 100 Ah)
	Cable cross-section does not match installed cable length	▶ Replace the fuse ▶ Check the electrical connections ▶ Match the cable cross-section correctly

FREQUENTLY ASKED QUESTIONS

1 What is the average / typical wind speed?

2 How high is the tower?

3 What are the characteristics of the countryside / built-up area in the vicinity of the wind turbine?

4 What is the voltage between phases (measured by a qualified electrician – this voltage should be roughly identical in identical wind conditions)?

5 What is the battery voltage? How old is the battery or batteries?

6 Which bolts are connected to the battery?

7 Are solar panels also connected to the charge controller? If so!

8 What is the no-load voltage? [VOC]

9 What is the power? [W]

WIND TURBINE SYSTEM

Removal from Service and Disposal

FINAL DECOMMISSIONING OF THE WIND TURBINE SYSTEM

⚠ WARNING!**Risk of injury due to unqualified dismantling, e.g.**

- Persons without suitable training
- Stored energy
- Breakage during dismantling

**Important note on dismantling and disposal:**

- The system must be dismantled in the proper way by a suitably qualified person.

DISMANTLING STEPS

- 1 Shut down the wind turbine system
- 2 Have the electrical systems and equipment removed from service by a qualified electrician.
- 3 Make sure all rotors are braked.
- 4 Carefully tilt the tower.
- 5 On the ground: Detach the rotor blades from the generator.
- 6 Detach the generator from the tower.
- 7 Disconnect the electrical wiring.

DISPOSAL OF THE WIND TURBINE SYSTEM AND COMPONENTS**Wind turbine system****Wiring, electrical components.**

Dispose of as electronic waste.

**Mechanical components.**

Segregate prior to disposal.

WIND TURBINE SYSTEM

Suitable Battery Capacities

WIND TURBINE CAPACITIES	SUITABLE BATTERY CAPACITIES
500W 12V	Min. 1800W - Max. 2400W
500W 24V	Min. 1800W - Max. 2400W
700W 12V	Min. 2400W - Max. 4800W
700W 24V	Min. 2400W - Max. 4800W
700W 48V	Min. 2400W - Max. 4800W
1000W 24V	Min. 3600W - Max. 7200W
1000W 48V	Min. 3600W - Max. 7200W
1500W 24V	Min. 4800W - Max. 9600W
1500W 48V	Min. 4800W - Max. 9600W
2000W 48V	Min. 7200W - Max. 14400W
4000W 48V	Min. 14400W - Max. 28800W

- ▶ The minimum battery values in the table are suitable for Turbine uses only.
- ▶ Maximum battery values are for hybrid (turbine + solar) systems.
- ▶ Also, in hybrid systems, wind turbine and solar panel should be used at equal capacities.

Example: 1kw 24v turbine + 1kw 24v solar = 7200W battery

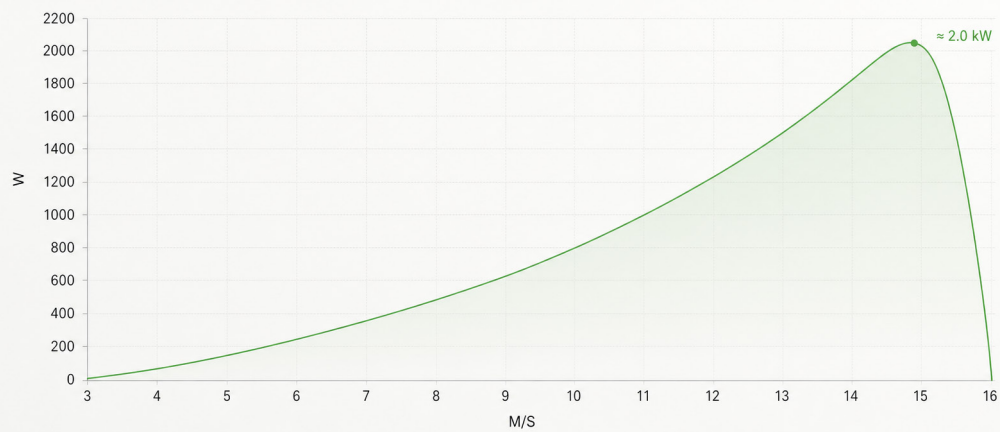
Example: 2kw 48v turbine + 2kw 48v solar = 14400W battery

WIND TURBINE SYSTEM

m/s Graph

PERFORMANCE

i-2000 Performance Curve



WIND TURBINE SYSTEM

Certificates



EC / EU Declaration of Conformity (Translation)

as defined by the Directives
2006/42/EC and 2014/30/EU

The manufacturer:

ALTINEL ENERJİ DIS TIC. ELEK. ELEKTRONİK SAN. VE TIC. LTD. STİ.
Mermerciler Sanayi Sitesi Merkezi 4 Cadde 3, TR – Beylikdüzü / İstanbul

declares under its own responsibility that the following product:

Product	Wind turbine system
Type designation	12 V - 200 W to 48 V - 4000 W
Serial No.	From date of signature

is in conformity with all provisions of the following EC / EU Directives:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1)
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)

The following harmonised standards were applied:

EN ISO 12100: 2011-03	Safety of machinery – General principles for design – Risk assessment and risk reduction
EN 60204-1: 2006/AC:2010	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
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EN 61000-6-1: 2007-10	Electromagnetic compatibility (EMC) – Immunity standard for residential, commercial and light-industrial environments
EN 61000-6-3: 2011-09 A1: 2012-11	Electromagnetic compatibility (EMC) – Emission standard for residential, commercial and light-industrial environments

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ALTINEL ENERJİ DIS TIC.
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Mermerciler San. Sit. A. Cd. No:3
Beylikdüzü / İSTANBUL
Beylikdüzü V.D. 062 039 7197

WIND TURBINE SYSTEM

Certificates

United States of America

United States Patent and Trademark Office

ISTABREEZE

Reg. No. 5,046,708**Registered Sep. 20, 2016****Int. Cl.: 7, 9****Trademark****Principal Register**

Altinenerji Ltd. (TURKEY LIMITED LIABILITY COMPANY)
4 cad. kat3
Mermerciler San. St. Laleli Is merkezi,
Istanbul-Beylikduzu TURKEY 34524

CLASS 7: Wind turbines, windmills, wind-powered electricity generators, propellers for
wind-powered electricity generators

FIRST USE 4-11-2013; IN COMMERCE 4-11-2013

CLASS 9: Electrical transformers, current rectifiers, electrical controllers, wind turbine
controllers

FIRST USE 4-11-2013; IN COMMERCE 4-11-2013

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY
PARTICULAR FONT STYLE, SIZE OR COLOR.

SER. NO. 86-694,244, FILED 07-17-2015
KRISTIN M DAHLING, EXAMINING ATTORNEY

*Michelle K. Lee*

Director of the United States
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WIND TURBINE SYSTEM

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by review of IA2.007835 numbered report for the scope

**Production and Sales of Wind Turbines, Solar
Panels, Controllers and Their Spare Parts**

to certify that a quality management system in accordance with
standard's clauses is established and being implemented

DIN EN ISO 9001:2015

Certificate No : QMS 0118 007835
Original Certification Date : 2018 - 01 - 17
Issue / Revised Date : 2018 - 01 - 17
Expiry Date : 2019 - 01 - 16
Certificate Period : 3 Years (1st Year)

 **DAkkS**
Deutsche
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