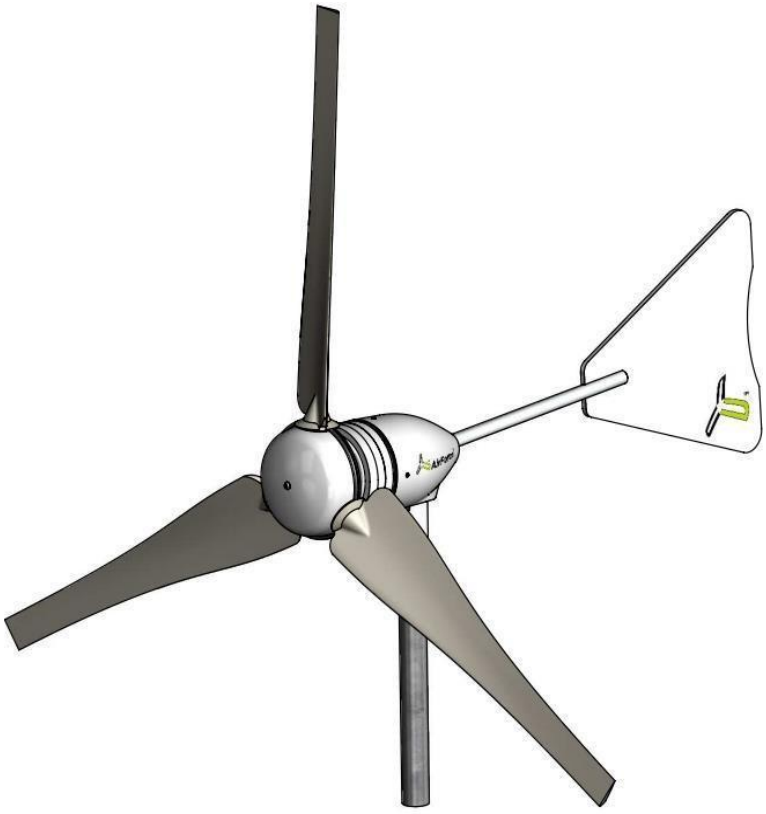
H1 Turbine & Controller Installation Manual

Suitable for 24v or 48v Generators



Revision Index

Revision	Description	Released By	Authorised By	Date
SM0348-01	Initial release as a Britwind document	J Castle	N Phillips	10/06/2025

Contents

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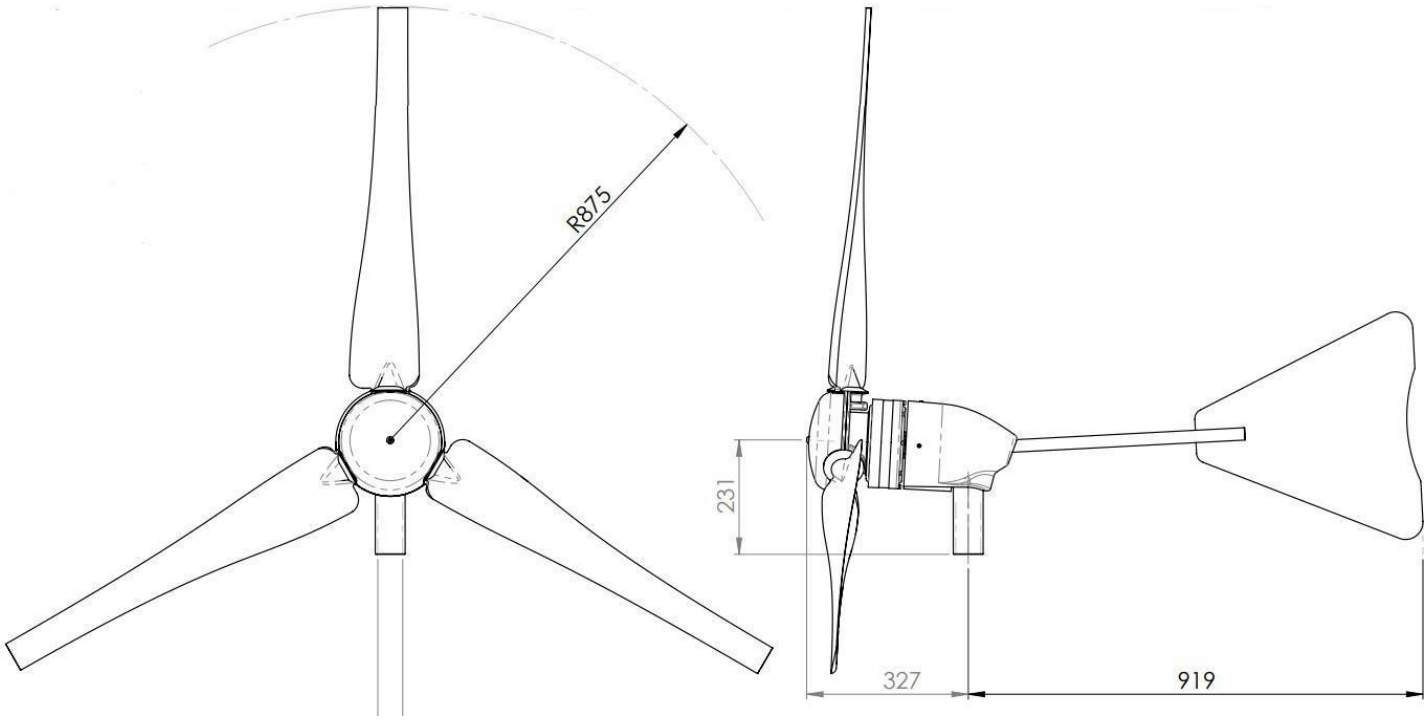
1. Dimensions



2. Specification

Nominal power output:	All versions 1000W
Start-up wind speed:	3.5m/s
Rated wind speed:	12m/s
Survival wind speed:	52m/s
Total weight:	18kg
Number of blades:	3
Rotor diameter:	1.75m
Rotor speed {RPM}:	400 - 560
Generator type:	3-Phase Permanent Magnet
Output type:	3-Phase AC
Turbine mounting: Noise:	50mm tube to accept 48.3mm standard scaffold tube

3. Package Contents

Turbine Box Set

51cm x 45cm x 24cm

18kg

BRI-0001-AA-00131	H1 48V Turbine Box Set	
BRI-0001-BJ-00130	H1 48V Turbine Base Assy (Yaw Box & Slip Ring)	1
BRI-0001-BG-00089	TailFin 9mm Polypropylene (modified)	1
BRI-0001-BG-00087	Turbine cover, P0377-TYPE-3 REV D 3mm Material	1
BRI-0001-BC-00103	1kW Turbine Distance Tube (TUB01)	1
BRI-0001-BG-00088	Front Nose Cone 3 blade (White)	1
BRI-0001-BH-00018	4mm Push Rivet, White Nylon	5
BRI-0001-BH-00016	M10x80 Button Head Bolt, St'Stl	1
BRI-0001-BH-00017	M10 Form A Flat Washer, St'Stl	1
BRI-0001-BH-00009	M6 Form A Flat Washer, St'Stl	2
BRI-0150-BH-00524	M6 Nyloc SS Nut	2
BRI-0001-BH-00015	M6x35 Button Head Bolt S/S	2
BRI-0001-BK-00039	Box For Main Turbine - Type 2	1
BRI-0001-BK-00040	Amended insert form for 1kW turbine body box	2
BRI-0001-BK-00033	1kW Turbine Body Decal	2
BRI-0001-BK-00034	1kW Turbine TailFin Decal	1
BRI-0001-AC-00122	H1 Turbine Controller	1
BRI-0001-AC-00123	3-Phase Manual Stop Switch	1

BRI-0001-AA-00247	H1 24V Turbine Box Set	
BRI-0001-BJ-00246	H1 24V Turbine Base Assy (Yaw Box & Slip Ring)	1
BRI-0001-BG-00089	TailFin 9mm Polypropylene (modified)	1
BRI-0001-BG-00087	Turbine cover, P0377-TYPE-3 REV D 3mm Material	1
BRI-0001-BC-00103	1kW Turbine Distance Tube (TUB01)	1
BRI-0001-BG-00088	Front Nose Cone 3 blade (White)	1
BRI-0001-BH-00018	4mm Push Rivet, White Nylon	5
BRI-0001-BH-00016	M10x80 Button Head Bolt, St'Stl	1
BRI-0001-BH-00017	M10 Form A Flat Washer, St'Stl	1
BRI-0001-BH-00009	M6 Form A Flat Washer, St'Stl	2
BRI-0150-BH-00524	M6 Nyloc SS Nut	2
BRI-0001-BH-00015	M6x35 Button Head Bolt S/S	2
BRI-0001-BK-00039	Box For Main Turbine - Type 2	1
BRI-0001-BK-00040	Amended insert form for 1kW turbine body box	2
BRI-0001-BK-00033	1kW Turbine Body Decal	2
BRI-0001-BK-00034	1kW Turbine TailFin Decal	1
BRI-0001-AC-00122	H1 Turbine Controller	1
BRI-0001-AC-00123	3-Phase Manual Stop Switch	1

Blade Box Set

111cm x 39cm x 21cm

7.5kg

BRI-0001-BA-00124	**H1 Blade Box Set**	
BRI-0001-BA-00101	1Kw Turbine 3-Blade Hub, Aluminium	1
BRI-0001-BK-00041	Box for Hub and 3 Blades	1
BRI-0001-BK-00086	Installation Manual H1 1kW	1
BRI-0001-BA-00032	1Kw Turbine Blade, Single Grey	3
BRI-0001-BB-00090	1Kw Turbine Pitch Pin, 28Deg	3
BRI-0150-BH-00524	M6 Nyloc SS Nut	11
BRI-0001-BH-00009	M6 Form A Flat Washer, St'Stl	11
BRI-0001-BH-00019	M6x25 Socket Cap Head Bolt, St'Stl	5
BRI-0210-BH-00640	M6x20 Socket Cap Head Bolt, St'Stl	6
BRI-0001-BE-00102	1kW Turbine Straight Tail Shaft 1Mtr	1
BRI-0001-AH-00080	Davis Anemometer 6410	1

4. Turbine Body & Tail Assembly

Tools Required

- 4mm Hex Key
- 10mm Socket & Ratchet
- Torque Wrench (10Nm)

Parts Required

- Turbine Body Assembly
- Turbine Cover
- Tail Bar
- Tail Fin
- Plastic Rivets x4
- M6 x 35 set screws s/s, M6 Washers s/s & M6 Nyloc Nuts s/s x2

4.1 Fit the tail fin to the tail bar, aligning the screw holes and secure using the M6 x 35 set screws s/s, M6 Washers s/s & M6 Nyloc Nuts s/s (x2). Torque tighten to 10Nm.

4.2 Pass the tail bar through the turbine cover (the rear hole in the cover may need filing to ensure the cover fits easily to the rivet mounting holes).

4.3 Secure the tail bar to the turbine chassis (yaw box) by equally tightening the 2x clamping M6 lock nuts fitted to the U-Bolts. Ensure the 2x legs on the U-Bolts are of equal length after tightening.

4.4 Slide the turbine cover over the body and tower mounting shaft, carefully prising apart where necessary, and push over the 4x location lugs. Secure into position using the 5x plastic push in rivets. Insert the rivets in the following order: - Top, Bottom (2x rivets), Left then Right. *The cover hole and metal bracket may need slightly drilling out to ensure the rivets can be inserted easily.*

5. Blade Set Assembly

Tools Required

- 5mm Hex Key
- 10mm Socket & Ratchet
- Torque Wrench (10Nm)

Parts Required

- Blades x3
- Blade Pitch Pins x3
- Rotor Hub Plates (Pair)
- M6 x 20 socket cap bolts s/s, M6 Washers s/s & M6 Nyloc Nuts s/s x6

5.1 Insert a pitch pin into the recess of each blade. Ensure they are orientated correctly; the angle markings should be visible once fitted.

5.2 Place a rotor hub plate on a flat surface with the blade cups facing upwards.

5.3 Place the blades in the hub plate, ensuring the ‘windward facing’ sticker is facing upwards.

5.4 Ensure the blades are correctly located within the hub and secure the 2x hubs using the M6 x 20 socket cap bolts s/s, M6 Washers s/s & M6 Nyloc Nuts s/s x6. Torque tighten to 10Nm. ***When correctly tightened, a small gap will be visible between the 2x hubs (as per below picture). Overtightening can cause irreparable damage to the hub assembly.***

5.5 Check once again that all 3 blades have the sticker facing forwards of the turbine *(shown below with the nose cover fitted for clarity).*

6. Blade Set & Turbine Body Assembly

Tools Required

- 6mm Hex Key
- 6mm Hex Key Socket & Ratchet
- Torque Wrench (15Nm)

Parts Required

- Nose Cone Cover
- PMG Assembly
- Blade & Hub Assembly
- M6 x 25 socket cap bolts s/s, M6 Washers s/s & M6 Nyloc Nuts s/s x5
- M10 x 80 button head bolt s/s & M10 flat washer form A s/s
- Turbine Distance Tube

6.1 With the stickers on the blades facing forwards, offer up the rotor to the turbine rotor hub plate and secure using the M6 x 25 socket cap bolts s/s, M6 Washers s/s & M6 Nyloc Nuts s/s x5. Torque tighten to 10Nm.

6.2 Push the M10 x 80 button head bolt s/s through the front nose cone cover and slide over the distance tube from the rear face.

6.3 Locate the nose cone cover evenly around the blades and torque tighten the bolt to 15Nm.

7. Fitting Turbine to Tower Pole

Tools Required

- 6mm Hex Key
- Builders Trestles or Suitable Tower Support

Parts Required

- Assembled Tower
- H1 Turbine Assembly

Before starting this step, it is recommended to support the top of the tower by placing it on a builder's trestle or similar support.

7.1 Before mounting the turbine on the tower pole, the 3-Phase power cable which connects to the turbine output cables (blue cables) needs to be pushed through the tower tube. Connect using inline Wagos (or suitable connection method depending on cable CSA). ***It is important to ensure that no weight of the cable can pull on the turbine cables when the tower is upright and the cable does not get crushed at the tower base and are fully insulated.***

7.2 Brake the turbine to prevent it from free running. This can be done by either using the stop switch or by shorting the cables from the turbine.

7.3 Fit the turbine to the top of the tower and secure by tightening the grub screws that clamp to the tower tube. Use thread lock adhesive on these grub screws for added adhesion.