



How to order a PowerSpout



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1. Overview

Most potential clients can investigate their options using the tools and information available on the website. We encourage all customers to read the relevant manuals and watch the videos. However, there is an extensive network of PowerSpout dealers around the world who are happy to help you with any or all of the steps below.

Before placing an order all customers must **obtain good site data** to ensure that the most suitable type of PowerSpout is selected, and the turbine(s) of your choice are optimised for your conditions.

Please follow this simple process to avoid frustration or disappointment.

1. Make sure you have a viable supply of naturally falling water
2. Select a dealer to work with
3. Submit complete site data to your dealer
4. Pay promptly
5. Enjoy using low impact renewable energy
6. Send us your feedback and an install picture

2. Global PowerSpout Dealer network

All global dealers are listed on our website at <http://www.powerspout.com/dealers/>. We encourage all customers to find a local dealer who knows the local situation e.g. product and service suppliers and local regulations. EcolInnovation, the manufacturer of PowerSpout, will **only** be your dealer if you cannot find anyone serving your region.

Please note:

- Dealers want to help you find an appropriate solution, but they have other customers too.
- All dealers should offer similar retail pricing for PowerSpout turbines, although price differences may lie in other 'system' components, local taxes, margins and freight costs.
- There is benefit from using your closest dealer to facilitate support (advice, installation, maintenance, replacements etc).
- Negotiating with several dealers at once is unlikely to achieve a cost reduction but will take up lots of time and energy (buyer/dealer).
- EcolInnovation encourages mutual respect and honest transactions as part of a more open and sustainable world.
- All PowerSpout turbines are sent fully assembled, only the jets are removed for packing. LH turbines have the SD removed.

3. Site Data

In order to assess your hydro site potential you need to measure the following properties:

- Head
- Flow
- Pipe length
- Cable length

Under each turbine product option at www.powerspout.com you can select "info" and there you will find assistance on how to measure each of these properties.

You can use this data to assess your hydro site potential in the following ways:

- Investigate the most suitable turbine type
- Assess options and power output using the online Advanced Calculator tools <http://www.powerspout.com/calculators/>
- If you are unable to use the Advanced Calculator tools then complete the Table in Section 6 below so your dealer can advise you of the best solution to meet your needs.

When you are ready to purchase a PowerSpout, you must share your site data with your selected dealer. There is a 'Save and Share' function at the end of the Advanced Calculator to allow you to do this easily. No hydro turbine orders will be accepted until all site data is supplied.

Your turbine will be designed for the site data supplied. If you operate it on a different site, the output power will differ and not necessarily match the prediction of the Advanced Calculator. A new generator core may be required to obtain the best results in such cases. If you intend to run your turbine over a wide range of flow rates, you need to state this at the time of ordering. A different additional generator core can be supplied for an additional charge.

3.1. Demand side data

It is always helpful if you can advise how much power you are likely to need at your site in kWhrs/day, as your hydro resource may be able to generate more or less than is required.

4. Placing the order

Your dealer will

- Help you assess your site (if requested)
- Place the order with EcoInnovation by submitting data from the Advanced Calculator
- Advise you of delivered costs of the turbine, including relevant local charges e.g. taxes and duties
- Arrange for the turbine to be delivered to the appropriate destination
- Provide a target date for the delivery of your turbine

Your dealer is also able to advise on and/or supply

- Appropriate energy system design and components
- Technical expertise to meet local regulations

4.1. Important notes

Global freight is usually included to many global destinations. Freight charges on other items can sometimes be avoided if ordered at the same time as the turbine. Please refer to the online Global Freight Policy guide for the latest information.

If buying direct from EcoInnovation note that the price charged **excludes** any import duty and taxes that the purchaser will have to pay on entry into their country. To determine what this tax/duty may be, contact your own customs for advice. Please note some countries exempt renewable energy products from GST/VAT and import duty, but many do not.

PowerSpout products have been subjected to testing under international Standards and have passed Impact and Drop Tests. These provide confidence that PowerSpout turbines in

standard packaging can withstand considerable transport and handling abuse such as being dropped from a height of 1m onto a hard floor.

www.powerspout.com

5. Product range

The PowerSpout range includes turbines which can operate in particular situations, primarily dictated by water flow rate, then available head (vertical fall height):

Version	Head (m)	Flow (l/s)
PowerSpout PLT (Pelton)	3 – 130	> 0.1
PowerSpout TRG (Turgo)	2 – 30	> 8
PowerSpout LH (Low Head)	1 – 5	> 30

All product information is available on our web site. Please refer to the online manuals for detailed product information. An overview is provided in the tables below.

Common versions of PowerSpout PLT with no overvolts crowbar

PLT model	Off-grid*					On-grid	
	14	28	40	56	80	170	200
Max cable length m	50	150	250	500	1000	1000	1000
Operating cable V	14	28	40	56	80	170	200
Max open circuit V	38	75 ELV US/EU	120 ELV NZ/AUS	150	220	<450	<550
Regulator/inverter	PWM	PWM	MPPT	PWM	MPPT	Grid-tie	Grid-tie

* All off grid MPPT turbines can charge 12, 24 or 48 V battery bank except PLT40 which can only be used in 12 and 24 V systems.

Common versions of PowerSpout PLT with overvolts crowbar fitted*

PLT model	Off-grid 75vdc clamp	Off-grid 120vdc clamp	Off-grid 240vdc clamp		On-grid Aurora PVI wind interface
	56C	100C	170C	200C	350
Max cable length m	500	1000	1000	1000	1000
Operating cable V	56	100	170	200	250-350
Max open circuit V	<75	<120	<240	<240	<400
Regulator/inverter	PWM	MPPT	MPPT	MPPT	Grid-tie

*Refer to Technical Manual

Common versions of PowerSpout TRG with no overvolts crowbar

TRG model	Off-grid				On-grid	
	28	40	56	80	170	200
Max cable length m	150	250	500	1000	1000	1000
Operating cable V	28	40	56	80	170	200
Max open circuit V	75 ELV US/EU	120 ELV NZ/AUS	150	220	<450	<550
Regulator/inverter	PWM	MPPT	PWM	MPPT	Grid-tie	Grid-tie

*All off grid MPPT turbines can charge 12, 24 or 48 V battery bank except PLT40 which can only be used in 12 and 24 V systems.

Common versions of PowerSpout TRG with overvolts crowbar fitted*

	Off-grid 75vdc clamp	Off-grid 120vdc clamp	Off-grid 240vdc clamp		On-grid Aurora PVI wind interface
TRG model	56C	100C	170C	200C	350
Max cable length m	500	1000	1000	1000	1000
Operating cable V	56	100	170	200	250-350
Max open circuit V	<75	<120	<240	<240	<400
Regulator/inverter	PWM	MPPT	MPPT	MPPT	Grid-tie

*Refer to Technical Manual

Common PowerSpout LH and LH Pro products

All LH and LH Pro products connect via MPPT regulators or grid-tied inverters.

- **LH150 and LH150Pro** – use with MPPT regulator rated for up to 150 VDC charging 12/24 VDC batteries. Cable voltage may be as low as 50 VDC.
- **LH250 and LH250Pro** – use with MPPT regulator rated for up to 250 VDC charging 12/24/48 VDC batteries. Cable voltage may be as low as 80 VDC.
- **LH400 and LH400Pro** – use with MPPT regulator or grid connect inverter rated for up to 400 VDC. Cable voltage may be as low as 140 VDC.

6. Data required for PowerSpout manufacture

If you have already completed the online calculation and sent the file to your dealer then you do not need to complete this table.

You must advise your dealer the make and model of the MPPT regulator or grid connect inverter you intend to use and how many kWhrs you need to meet your daily power needs.

Hydro site data required for PowerSpout turbine manufacture

Question	Units
PowerSpout turbine type	PLT, TRG, LH or LH Pro
Have you read the PowerSpout product manuals? You must do so before placing an order	Yes/No
Head at site (vertical drop/fall of pipe)	m or ft
Pipe or flume length required to get fall	m or ft
Supply pipe inside diameter if installed	mm or inch
Do you want us to advise your pipe size?	Yes / No -
Flow available at intake	l/sec or gal/min
What is the cable length from turbine to the power shed?	m or ft
If cable is installed, what size is it?	mm ² or sq inches
Do you want us to advise cable size?	Yes / No -
For MPPT applications state your battery voltage	12/24/48 Volts
For MPPT applications state the regulator make and model	
For Grid connect applications state the inverter make and model you intend to use	
How much power do you required at your site on average	kWhrs/day

Additional Hydro site data required for PowerSpout LH and LH Pro manufacture

Questions	Units
Can a vertical draft tube be installed?	Yes / No
Can you buy 200mm and 250mm OD thin-walled PVC pipes locally to make the draft tube?	Yes / No
If No above then state the inside and outside dimensions of the PVC pipes you can obtain of a similar size. State these dimensions for both the plain and flared ends on the pipe. (read LH Installation manual for more information)	Flared end ID ___ mm or Inch
	Flared end OD ___ mm or Inch
	Plain end ID ___ mm or Inch
	Plain end OD ___ mm or Inch