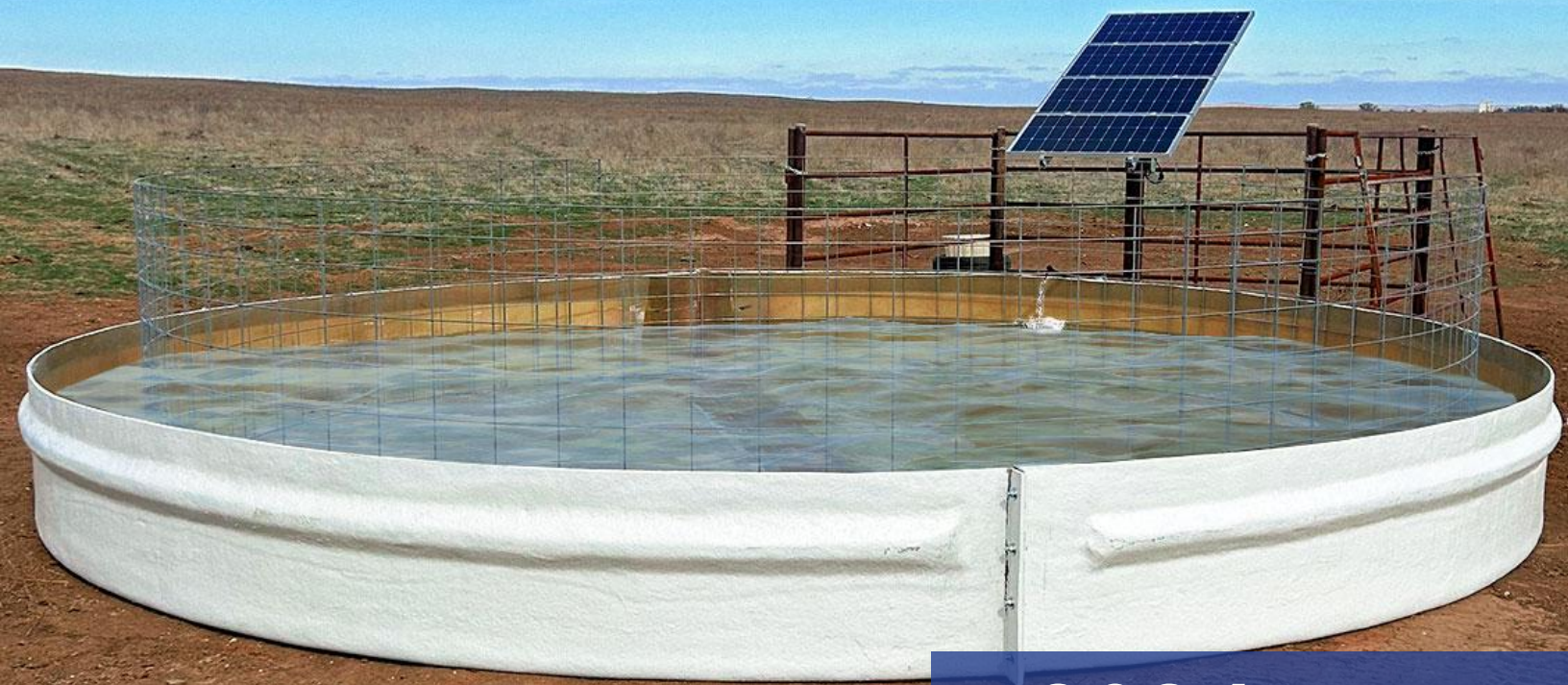




RPS
SOLAR PUMPS

A Complete Guide to Solar Water Pumping



+ 2024

PRODUCT CATALOG

rpssolarpumps.com

888-637-4493



To the American Farmer, Rancher, & Do-it-Yourselfer,

To those not afraid of hard work. Not afraid of rolling up their sleeves and fixing something broken or building something new. To those that honor their land, their animals and their heritage.

To those growing food, feeding animals, harvesting power from the sun and pumping their own water. To pioneers and problem solvers. To self reliance and independence. We here at RPS Solar Pumps salute you.

Cheers to you.



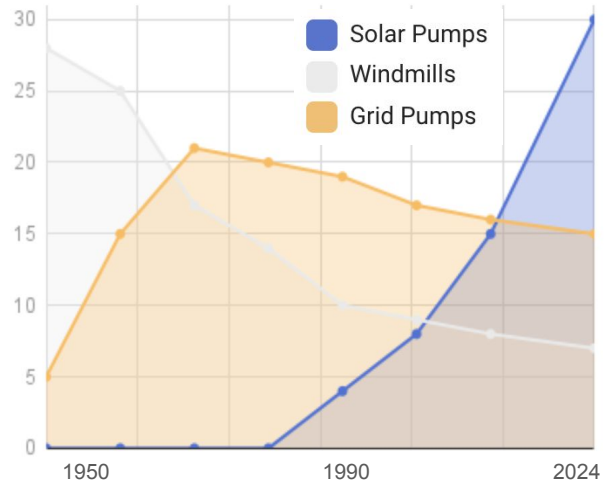
Solar Pumps. More popular than ever.

In the last few years alone, Solar-Powered Water Pumps have exploded in popularity here in the USA. Most larger ranches now have at least one solar pump, with more being installed each season. Many can be seen from the road in cattle country.

With the newest technology and lower prices than ever before, gone are the years of climbing windmills, running generators and hauling water or paying for inconsistent power from the utility company. Solar pumps are here to stay.

RPS Solar Pump Kits are for people that believe in getting the job done themselves, and getting it done right. Our goal is to arm you with the equipment and knowledge to take control of your water and save a fistful of money doing it.

Solar Pump vs. Windmill vs. Grid-tied
Average New Pump Install Popularity in USA



* Over half of cattle ranches over 200 head are using solar



	RPS 200 SOLAR PUMP	GRID-TIED AC PUMP	25' WINDMILL	GENERATOR WITH AC PUMP
UPFRONT COST	\$\$	\$\$	\$\$\$\$	\$
MAINTENANCE COST	\$	\$	\$\$\$	\$\$\$\$
OPERATING COST	None!	\$\$	None!	\$\$\$
TOTAL 5 YEAR LABOR (HOURS)				
TOTAL 5 YEAR COST	\$	\$\$ (2x)	\$\$\$\$\$ (5x)	\$\$\$\$\$ (5x)

More Americans Trust RPS Solar Pumps. Their Neighbors Do Too!

CALIFORNIA

"All your videos are spot on. I loved the user manual. The way my wife follows her recipe for cooking... that's how I followed your user manual. I loved it. Every second of it. ***I've never had customer service like this.***"

-- Tom B

NORTH DAKOTA

"The systems were very easy to install and pumping as they should. Thanks again for the quick and excellent service. ***I'm proud to recommend RPS to all my ranching neighbors***"

-Fred L

ILLINOIS

"I got it installed and it works great! Really quiet and strong, the instructions were easy to follow and it worked the first time I turned it on, even though it was a really cloudy day. I love it! I used to be able to hear the other ones from my house, but this one is so quiet! I am super pleased. What a great solar pump, I am so glad I found your company, ***what a relief to have that handled so well.*** Thanks for all your help from a very satisfied customer."

- Mary W

NEW JERSEY

"The RPS400V is completely outstanding. The pump kit and Turnkey kit had everything we needed and we didn't have to run around to get anything extra. ***I brag on this system to a lot of people and love spreading the word.*** You're not going to get everything in a one-stop kit like this unless you're a pro so the Turnkey Kit was a home-run for us. We're grazing cattle on about 50 acres and before we could only graze on one section at a time but now we're gravity feeding from a hill to 4 different pastures. ***This allowed us to start implementing rotational grazing and actually increase our cattle operation.*** The instructional videos touch on every single aspect of installation and show you all your options. Our whole RPS experience has been absolutely seamless."

-Grant H
Owner, Cowntown Rodeo

TENNESSEE

"I very seldom write to a company. From the very beginning I was impressed, prompt delivery, well protected. The manual and online tutorials were top notch. Answers were only a phone call away. Worked flawlessly. ***The cattle have never lacked clean, fresh, spring water.*** I would not hesitate one moment to recommend RPS to anyone wanting to utilize solar to pump water to livestock. Keep up the good work."

- Steve T

NEVADA

"The system is up and running. We're very happy with it. I ***retired from the electronics industry after 30+ years so I know quality products. Y'all's are that.***"

-Randall S

ARIZONA

"Thank you for all the good information and the exceptional care you gave in addressing all my inquiries. I ***have always felt this company to be unique in the personal engagement area which is sorely forsaken these days...*** and why I called on you folks... so I appreciate that."

- Lee G

TEXAS

"Thanks for asking. We installed the RPS 200 today in 3 hrs and so far couldn't be happier. Would have done it weeks ago, but had trouble getting someone to pull the old windmill pipe out of the well. The kit was complete with everything we needed, the instructions were straightforward, and we couldn't be happier. Sending some photos and video. ***I told my neighbor about RPS and he bought two pumps and he installed the first one this week and is very satisfied as well.*** I will be ordering another pump very soon. Thanks again!"

-Gary P
Mgr. Prairie Grove Ranch

OKLAHOMA

"***RPS is now one of my very favorite companies.*** It was a great project to install and brought me back to using some skills that I haven't used in years."

- Susan T

ARKANSAS

"I needed a solar powered well pump for an empty wellhead that I had on my property. ***I searched all over the Internet for over six months but in the end I chose RPS.*** There has not been one point along the way that I was dissatisfied with either the product or their customer service. this is uncommon in today's age. I highly recommend RPS for the customer service, and their product. It is very user-friendly, made of high-quality parts, and never having installed a well pump before on my own, ***I had it out of the box and pumping water in a little over three hours.***"

-Travis A

FLORIDA

"Our service is just incredible from RPS. The sales person, to shipping getting my order out yesterday when I ordered, to your videos. ***I feel like I can install this thing with my eyes closed right now.*** And the pictures you ask for making us feel like we have achieved something on our own. I am all around impressed with the company right down to you calling me thanking me for the order when you were going through your own situation. I appreciate every single step and department. Ya'll are like a nice tuned machine, from start to finish."

- Don S

Table of Contents

Consider this book your go-to reference guide on all things solar pumping. Not only will you find the most complete list of RPS pumps and accessories, but a crash course in solar pumping, including all-new, full-detail diagrams depicting common setups and candid stories from real customers. It represents one small part of our steadfast commitment to help arm you with the tools and know-how to install a solar-powered water pump yourself!

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World-Class Videos Available on YouTube

When you see this icon on a product page it means we've created a great in-depth video to better demonstrate the product and installation. Find hours of great material and training at youtube.com/RPSSolarPumps



Want More?

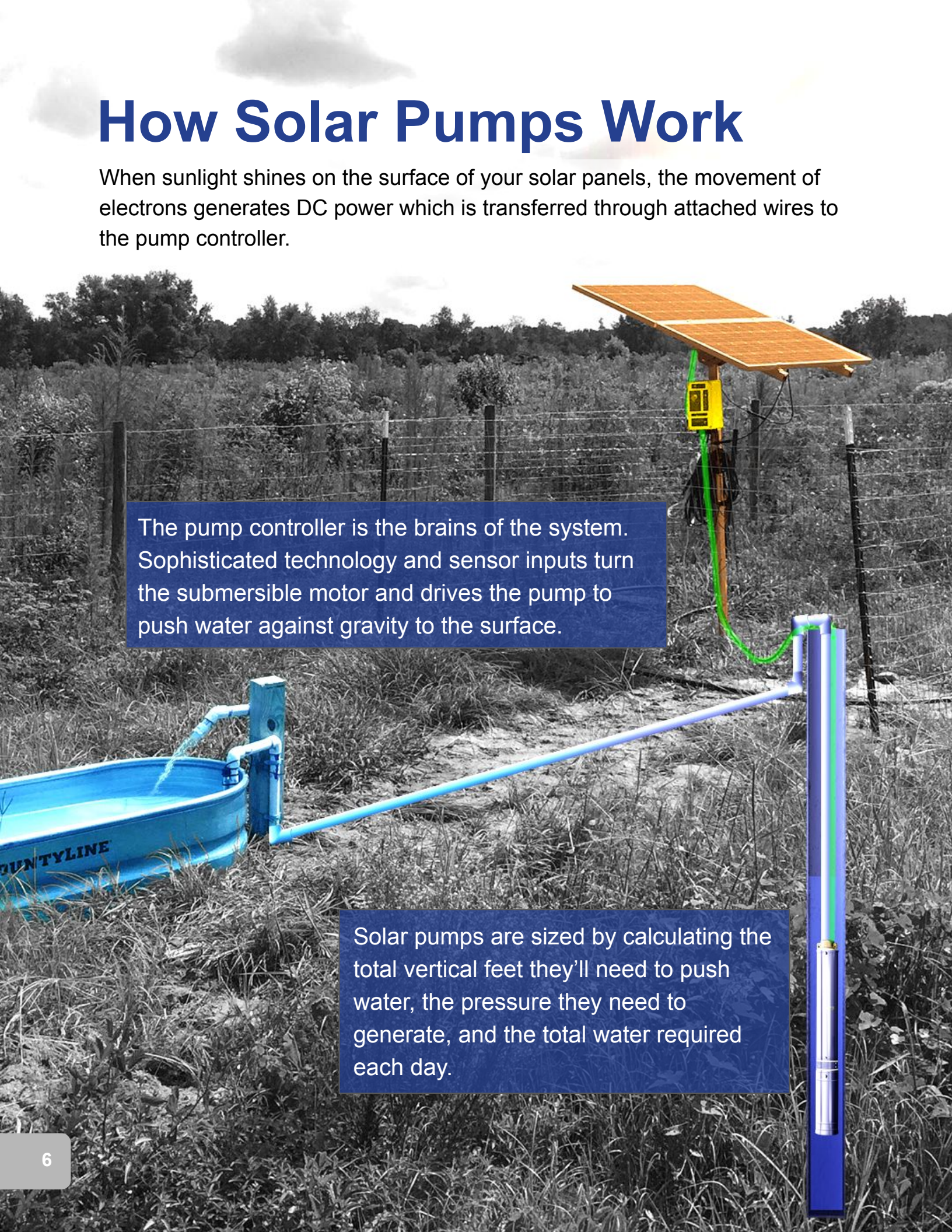
There's plenty more we couldn't fit in here. For more insider knowledge, visit the industry's largest archive of solar pump related material at RPSsolarpumps.com/LEARN



Most standard solar pumps & panels ship UPS Ground. Larger Pro kits may ship Freight on a large pallet.

How Solar Pumps Work

When sunlight shines on the surface of your solar panels, the movement of electrons generates DC power which is transferred through attached wires to the pump controller.



The pump controller is the brains of the system. Sophisticated technology and sensor inputs turn the submersible motor and drives the pump to push water against gravity to the surface.

Solar pumps are sized by calculating the total vertical feet they'll need to push water, the pressure they need to generate, and the total water required each day.

The Magic of Solar Power

Solar cells have an incredible lifespan, allowing for 20+ years of use with very little degradation in performance with zero maintenance, minus cleaning off dusty panels when needed. Solar cells are wired positive to negative to make a usable voltage and current combination for your solar pump. With hearty aluminum frames, solar panels just need to be mounted facing south and tilted based on latitude and season, as perpendicular to the sun as possible.

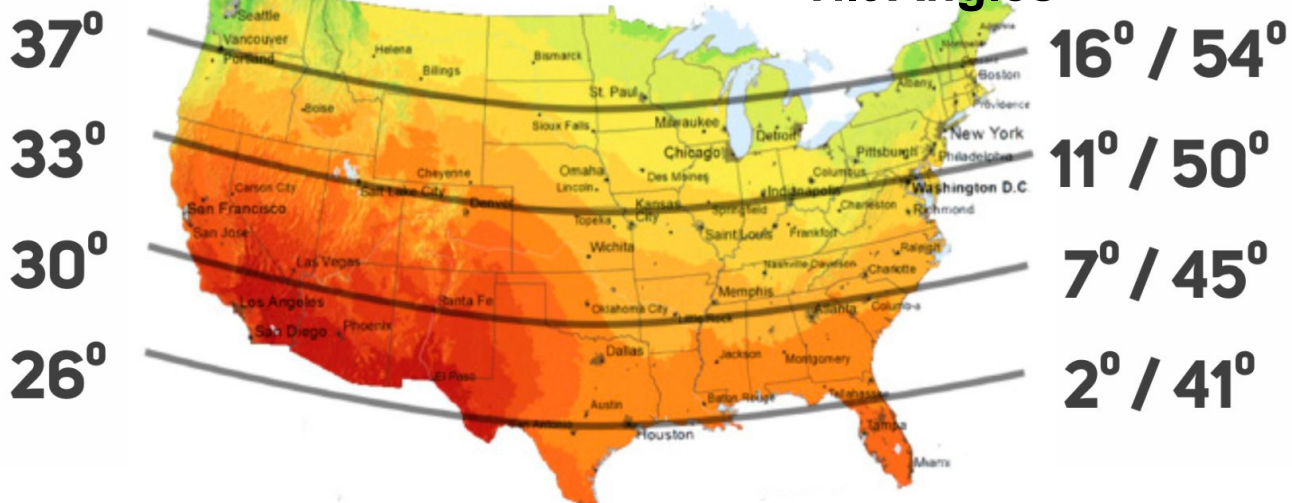
If you are planning on using the pump more in one season or another, you may choose a tilt angle closer to the season, or choose an 'adjustable angle' mount for your panels (pg. 54), allowing a steeper angle in the winter. RPS has some of the highest efficiencies and best warranties in the industry, including a **20 Year Solar Panel Output Guarantee** that protects against defects and degradation of the RPS solar panels included with your pump.

Mounting panels close to your well is ideal, this placement reduces the amount of voltage loss as electricity travels from panels to the RPS Controller. Panels are designed to withstand snow, wind, and large hail, but always ground your solar panels in areas with lightning.



**Fixed Position
Tilt Angle**

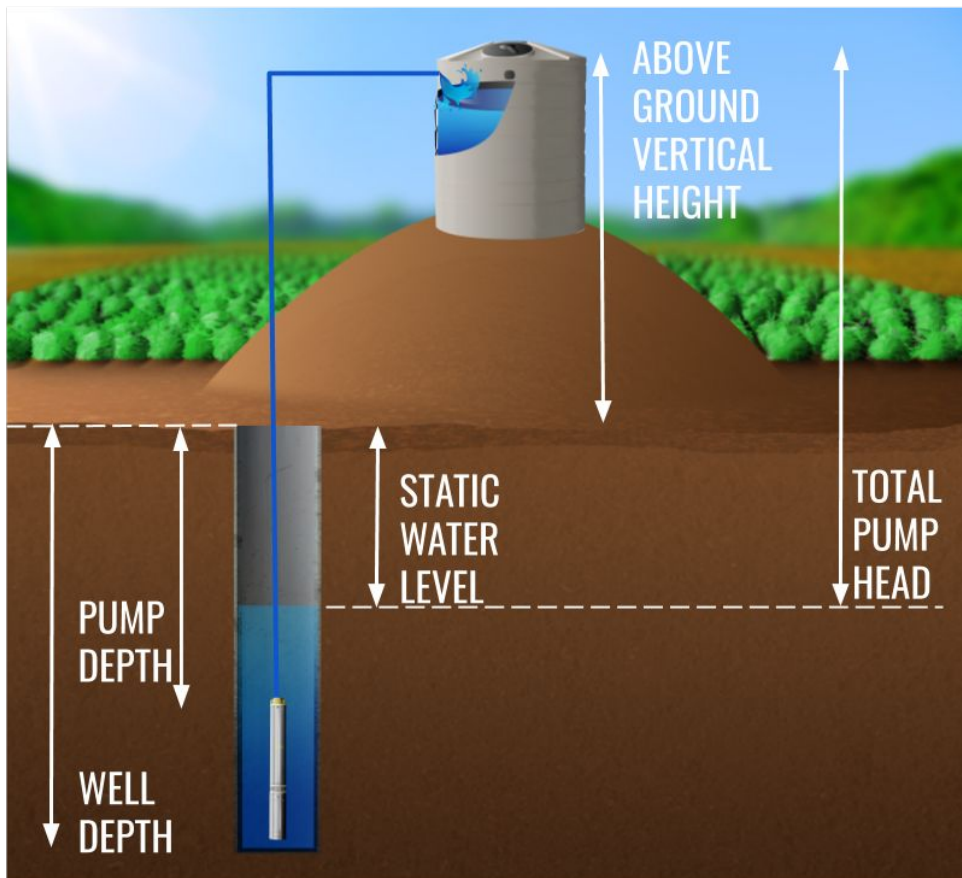
**Summer/Winter
Tilt Angles**



To find tilt angles for locations outside the United States, please visit solarpanellt.com

Image adapted from SolarGIS ©2014 GeoModel Solar

HOW TO SIZE RPS SOLAR PUMPS



Pump sizing is determined by the amount of water you are looking to generate and your **Total Dynamic Head (TDH)**. If you are pumping directly into a tank level with the well, total dynamic head is the static water level (how far down to the top of the water). If there is a rise in elevation, add that on. If you are pumping from a water source other than a well, we only need the total lift, horizontal distance and pipe size. Learn more at rpssolarpumps.com/LEARN

Special Note for Pressure Systems: When pumping into pressure, you will have to account for increased head on the pump. **1 psi = 2.31 feet of head**. A 40 psi pressure tank is 92.4 feet of head and can significantly change sizing!

Total Dynamic Head (TDH) =

Static Water

A recent well survey will list this (sometimes called 'Static Water Level' or just 'Static'), your well driller or local county office may also keep it on file. Some creative ways to measure SWL:

- Drop a half-full water bottle attached to fishing line
- Ask a neighbor if they know their SWL for a proxy estimate



Drawdown

When the static water level drops due to pumping, drought etc. In our experience, wells producing less than 5 GPM will need to consider drawdown. The less GPM, the more potential drawdown. 10+ GPM wells may not draw down much, if at all, when pumping at 5 GPM with a solar pump.



Additional Lift

Don't know the elevation of your well? A phone app could help. Estimate the elevation at your well head, and then at the top of the tank you plan on pumping into. The difference between the two elevations is the additional vertical lift.



Frictional Loss

The higher GPM and the narrower the pipe, the more frictional losses. That means more head on the pump and less flow at the outlet. Size your pipe up if the head increase (also called pressure loss) becomes significant.

LIVESTOCK



94% of ranchers that switched to Solar Pumps this year said they won't ever go back. Switching to solar pumping wins back an average of 2 days per month and \$1500 bucks per season. Join thousands of other ranchers that are putting the sun to work and switching their pumps to solar.

“ Got plenty of water – your product is great pumping more than 300 gallons per hour. Cows are happy and everyone is impressed. Thank you.”
– Daniel, TX

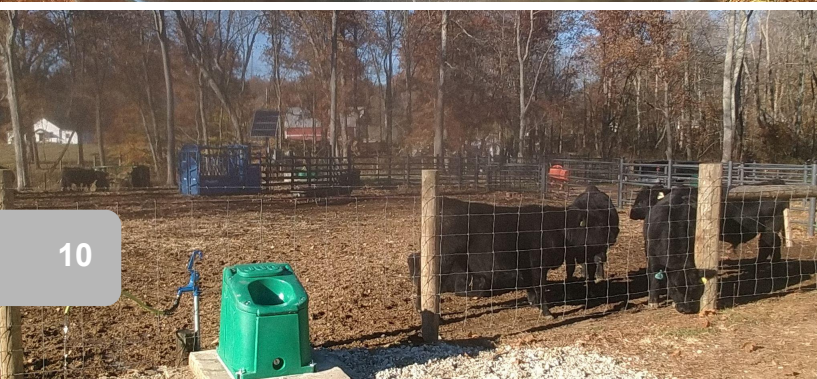
“ I have replaced 3 windmill pumps with these RPS systems and I don't have to worry about them no more. Been working for almost 2 years.”
– John, CA

“ No more hauling water! This system is working great for us and has saved me from having to haul water. Again Thanks.”
– Andy L, CO

WATER TO FEED AMERICA

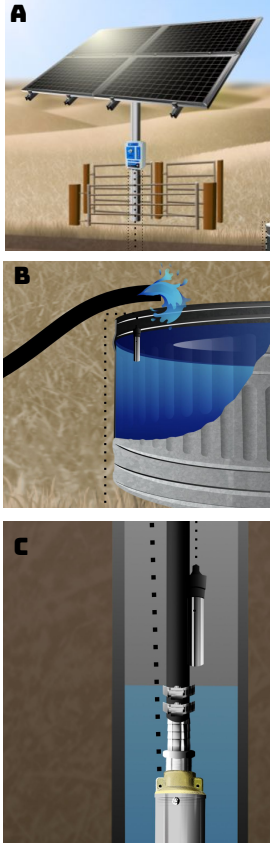


“ .. these are going to be integral in our operation moving forward. I did the RPS 800V first, went over one evening and mounted the panels and next evening did the RPS 200 panels. Then came out on a Saturday and did both pumps, had em' pumping. Took us maybe 5 hours to put both in. When we put that RPS 200 in might have took 30 minutes. Robbie, TX ”



LIVESTOCK

POPULAR



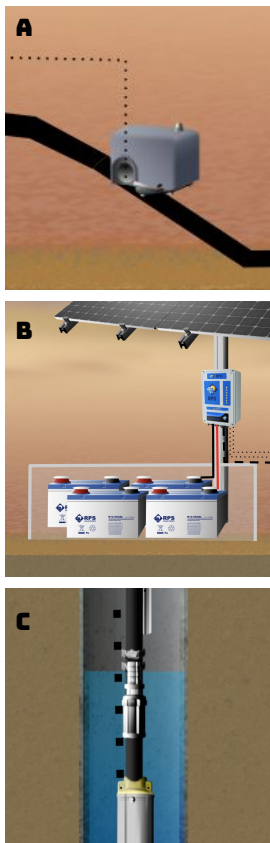
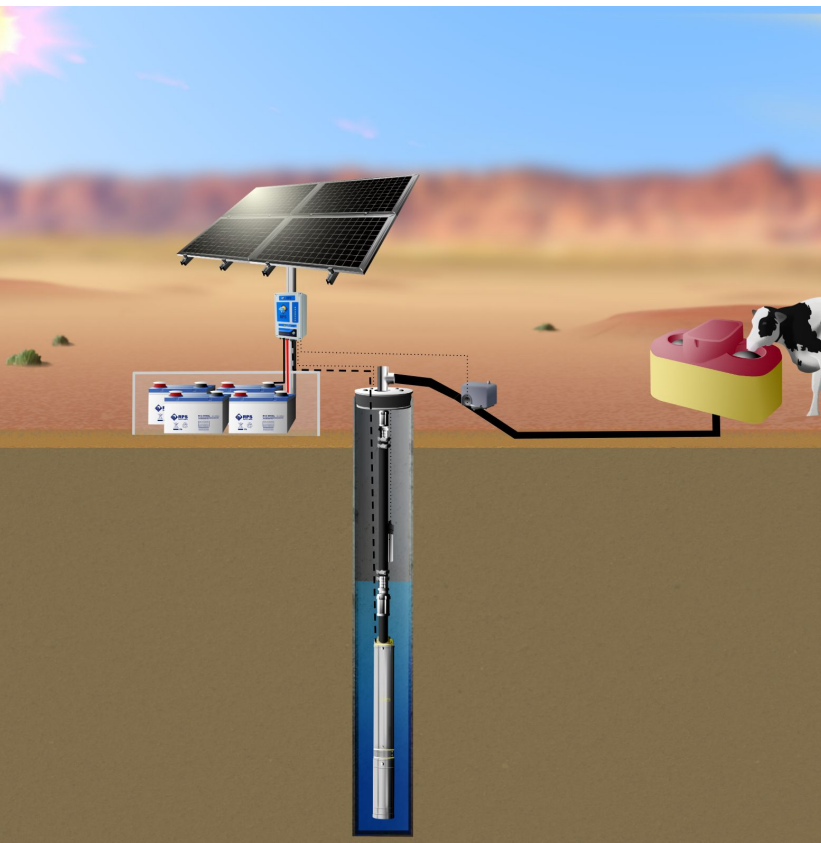
LIVESTOCK / OPEN FLOW

2" or 3" Well to Stock Tank or Pond

Most common livestock install in the USA! With a 2" or 3" well pump you can fit in a 2", 3" 4" or larger casing. For the easiest installs use a flexible black poly pipe hose-clamped to a stainless steel barb (included in the Turnkey Kit) threaded onto the pump (C). Another threaded barb and a coupling will allow you to pass through the well seal and then plumb right into a stock tank, keeping the outlet above the surface to avoid siphoning water back down the well. Without a check valve, water will drain back through the pump at night (a helpful feature to preventing freezing in cold climates). An included tank sensor turns the pump off when the tank is full (B), and a low water sensor placed 1-2 feet above the pump prevents the system from running dry (C) - both sensors wire into the controller. Solar Panels and controller are mounted somewhere clear and south facing, ideally within 100 feet (talk to RPS Engineer if it must be more) and must be protected from cattle (A). You can be up and pumping in hours.

Products Used

2" or 3" Well Pump.....pg 33-37
Turnkey Kit.....pg 59



LIVESTOCK / PRESSURE

Waterers with Pressure Shut-off

This install is especially useful for cold climates, long runs, sites where there is already trenched pipe, or for cattle waterers that need pressurized water. Instead of the normal wired tank sensor, this install uses pressure to turn the pump off and prevents over-pressurization of your plumbing. (Think *mechanical float valve* in an open tank or storage tank) Because we are building pressure, you'll need a *check valve (C)* installed just above the pump. Near the well head you will also need a tank tee (pressure tank optional) with a *Reverse Action Pressure Switch (A)* While not required, the system can be installed with batteries (B) to allow for 24/7 water pressure. This way the tanks and waterers are kept full no matter the season or weather.

Products Used

3" Well Pump.....pg 32-36
VRLA Gel Batteries.....pg 58
Top-of-Pole Mount.....pg 54
Rev. Action Press. Switch.....pg 56
Check Valve.....pg 56

LIVESTOCK

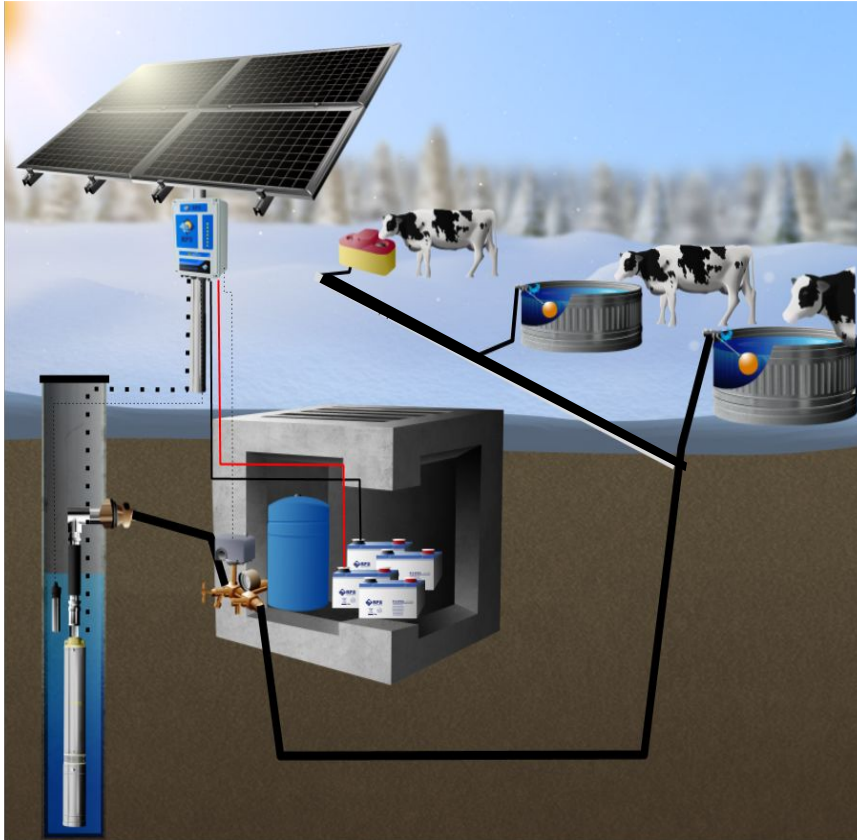
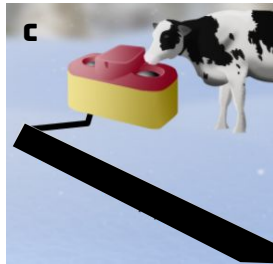
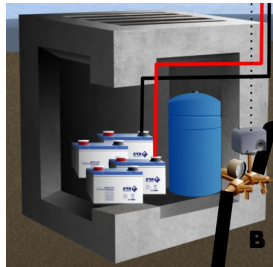
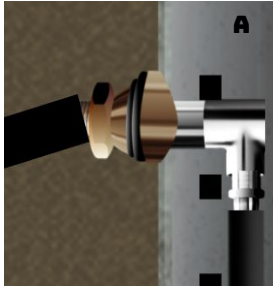
LIVESTOCK / PRESSURE

Freeze-Proof Pressure

Popular with winter pastures! Use a pitless adapter (A) drilled into the side of the well casing below the frost line. From there, plumb to a buried container, vertical culvert pipe or sump pit (B) that protects the Reverse Action Pressure Switch, pressure tank and batteries from hard freezing. Trenched pipe from there to distribute water to stock tanks, frost-free hydrants and waterers around the property (C). Longer distances from pump to furthest tank may require larger pipe diameter to account for frictional losses, especially with higher flow rates, or larger pumps to provide higher volume with increased head from friction.

Products Used

3" Well Pump.....pg 33-37
 Pitless Adapter.....pg 57
 VRLA GEL Batteries.....pg 58
 Rev. Action Pres Switch.....pg 56
 Top-of-Pole Mount.....pg 54



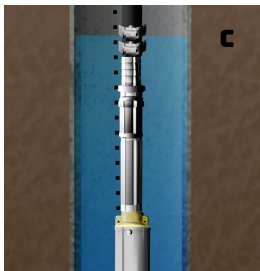
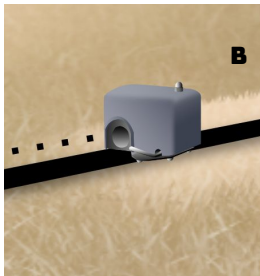
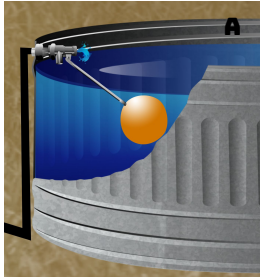
ROTATIONAL GRAZING

Livestock+Rotating Water

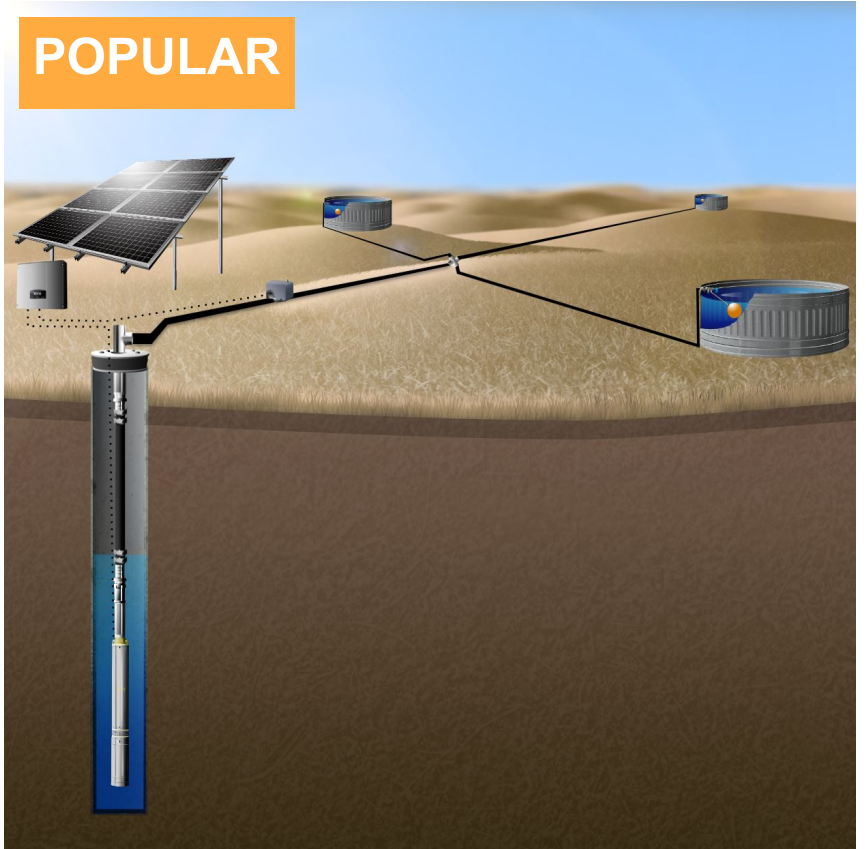
Perfect for larger operations that require multiple rotating tank locations. Rotational grazing is a popular setup for ranchers looking to frequently move livestock through a series of pasture subdivisions. With a RPS 2", 3", or Pro Series Well Pump (up to 225 GPM or 1000 ft of head) you are able to fill multiple tanks with just one well pump. Install a Mechanical Float Valve on each tank in order to monitor tank levels (A). By using our Reverse Action Pressure Switch you are able to signal the pump to turn off once your tanks are full (B). After the Reverse Action Pressure Switch you can split your lines to subdivisions as needed, using valves to shut off water going to tanks that aren't in use. When using a mechanical float valves at the water tanks we are building pressure, so you'll need a check valve (C) installed just above the pump.

Products Used

Pro Series Well Pump.....pg 38-41
 Scalable Ground Mount.....pg 55
 Check Valve.....pg 56
 Rev. Action Pres Switch.....pg 56



POPULAR



Estimating Livestock Water Consumption

Animal water consumption is generally calculated in gallons per day (GPD) per head livestock. To start sizing a solar pump, we like to first estimate the amount of water each animal will need, multiplied by the size of the herd (number of head). **Example:**

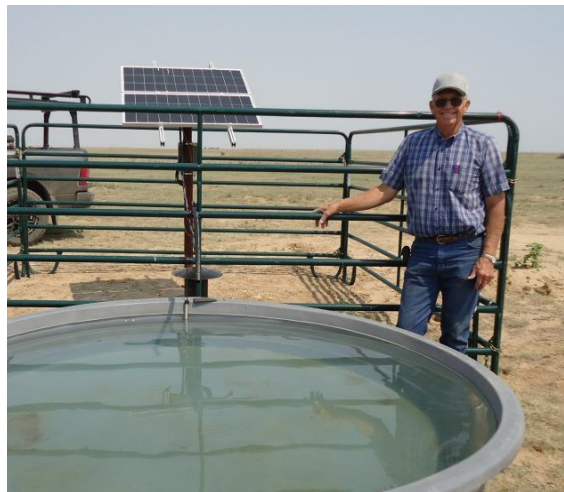
$$50 \text{ head} \times 20 \text{ GPD} = 1,000 \text{ GPD}$$

Our goal is to help find a solar pump that can pump and tank the right amount of water for you and your animals, meeting or exceeding the desired GPD. We start by extrapolating from the GPM of a specific RPS solar pump model to the entire solar pumping day to get the number of gallons pumped in an average of 6 hours of usable solar power, based on national averages and our array overage coefficients. Six hours is a conservative estimate for most states and means you'll get more water than you've bargained for - but it is worth noting that it does fluctuate with the season and latitude. **Example:**

$$5 \text{ GPM} \times 60 \text{ mins} \times 6 \text{ hours} = 1,800 \text{ GPD}$$



LIVESTOCK



Doug's Slow Flow Livestock Well - Colorado

“

Doug's Ranch in Colorado

I'm 73 years old so I've quit ranching and farming and I've leased my places out. But I still take care of the water and all of the fencing and have replaced six windmills with solar pumps on my own ranch.

Our land here is semi-arid and sandy loam. Some of it is real sandy, if you ever heard of the Dirty Thirties, when farmers cut all the grass off and the land blew away, that's where we're at. We're 70 miles east of the Rocky mountains, we kinda live on a high desert plain.

Dealing With Drought

We're going through a very severe drought right now, that's why you don't see any cattle on the pastures. There's no cattle right now where we put this pump or where we're going to put the next one, but if it starts raining next spring we'll move our cattle back in.

Install Experience

That's the first time I've used your RPS pump and pumping system, and I thought it went really good. We're about 70 feet deep for the well and have 19 feet of standing water, the water level wasn't anything to worry about. We decided to go with RPS because the pumps that I use are 4 feet long and the in-take is about a foot from the top. The next well that I'm working on has only 3 feet of water. I had to go to RPS because I needed a good pump with an intake that is only 14 inches from the bottom of the pump, which is ideal for the 3 foot of standing water.

Putting all the wires together and putting them down was a little different than what I'm usually doing. I liked the extra low level sensor. Just seemed like it went real smooth and the instructions were real good. My wife helped me and we just put it right in without too much difficulty.

Using the Motor Speed Dial for a Low Producing Well

This was for a neighbor, we helped her put it in. Where we live it is so cold that you have to protect your pump from freezing. Our weep hole was a little bit too big so I had to pull the pump back up and tape that weep hole which is about 3-4 feet below the surface (of the well). I drilled a smaller hole and that really helped the situation. The well itself only produced 1.5 gallons per minute. I really liked that power switch that you can control from a number 1 to a number 10, we're on about a number 2, it's really nice to be able to tailor the power to the amount of water that the well would produce. I turned that dial up to 3 and it just quit because it ran out of water, it's pretty easy to dial it in, you just keep backing your dial off until your pump keeps running steadily. Because of the dial, we could control the power and the well didn't really run out of water, so we didn't need to use the timer to kick it back on.

Using an RPS Pole Mount

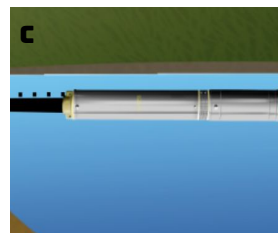
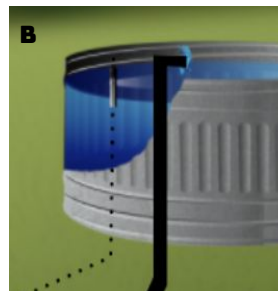
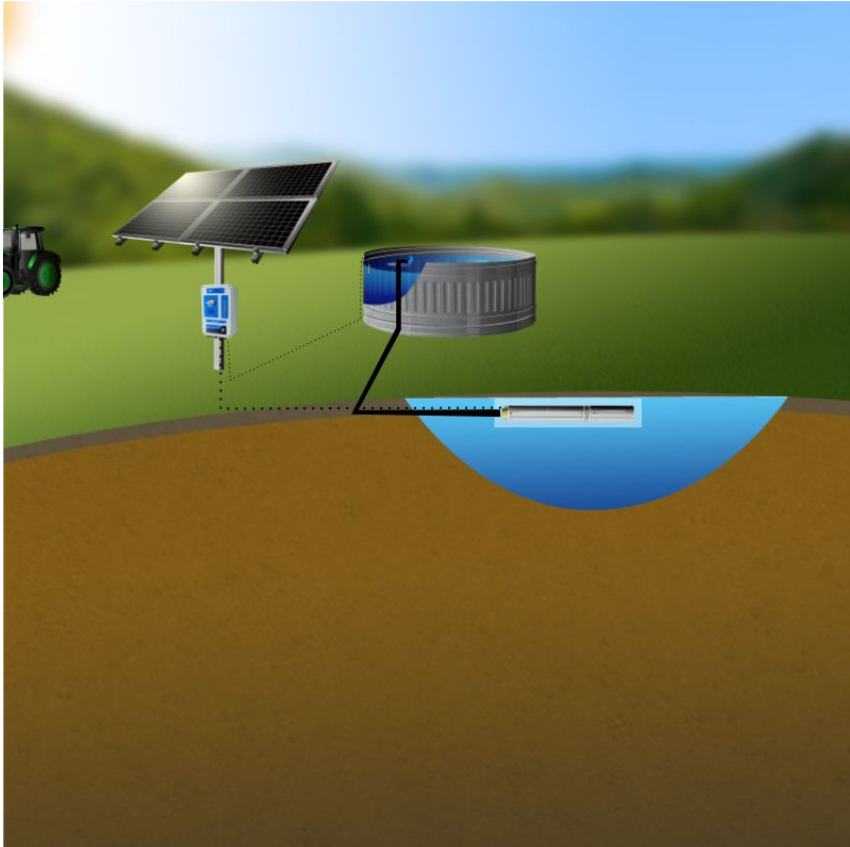
I put your mount on there, I wasn't sure what your RPS system was like with the control box as it was the first time I ever put one in with a sensor box like you have. The only thing I did on my own was put the pole in and the rest was from RPS!

RPS 200 vs. RPS 800

You know what I like about that eight panel (the RPS 800)? If you just have the two panel system about 4:30 PM or 5 PM in the evening it quit pumping. But the one with the eight panels was still pumping about ten after 6 PM. And then it went over the next morning about 7 AM, it went to pumping again and it's just because it has more surface area to gather in light.

”

LIVESTOCK



POND TO TANK

From Ponds to Stock Tanks

Submersible well pumps aren't exclusively used in wells. When you need an easy way to move water from a large tank or pond to stock tanks around the property, customers like to use a floating well pump. Self-priming surface pumps may not always be an option with cattle around. With the pump in the pond, this install shows the wiring of a tank full sensor (B), that will turn off the pump and prevent overflow. Your Pump's Controller (A) is totally weatherproof and can be mounted easily with the solar panels. (See page 18 in **Pond** section for ideas on how to float the pump in a pond) RPS well pumps can be oriented horizontally (C) or vertically in the pond with no impact on functionality or longevity and unlike a surface pump, will never lose prime.

Products Used

3" Well Pump.....pg 33-37
Top-of-Pole Mount.....pg 54

NRCS / USDA / FSA / EQIP

For agricultural installs, there may be federal or local funding opportunities available to you, designed for American farms and ranches. RPS Solar Pump Systems have been approved for every one of these different agency programs, and while the actual process requires you go through the motions of applying, RPS can often help in navigating this. While the local process and final funding decisions are dependent on your local branch office, we have designed a special line of **"NRCS Ready" Solar Pumps** that adhere to every documented requirement of these agencies.

Most farms and ranches are able to size a pump with our engineers, purchase and install far quicker without going through the funding process upfront, but using the *"Request for NRCS Documentation"* form on the website can help get that process started in parallel. The form will ask you to fill out details on your well, water use, location and your contact info. An RPS Engineer will turn your info into a formal document that you can bring in, mail or email to the agency field office in your area. From there, the local engineers will likely reach out to do a site visit before reimbursing for product and installation costs.

In addition to Standard RPS Solar Pump kit components (pg. 33-41) + Turnkey (pg. 59) the "NRCS-Ready" System contains:

- UL 1703 Approved RPS Solar Panels & Documentation
- Approved Solar Panel Mounts with Engineering Stamps for Hail/Wind Loads on Panels / Mounts
- Well Casing Spacer / Torque Arrestor (Upon request by your local branch office)
- External DC Cutoff
- Approved in-line Fusing / Arrestor
- Extended Warranties on Pump & Solar Panels
- NSF Approved 3/4" or 1" 160 psi black poly pipe (optional)
- Three Strand Submersible Wire (optional)
- Approved Well Seal and plumbing adapters
- Bare Copper Grounding Wire, Clamp
- Detailed Pump Curves & Documentation

PONDS



Harness the sun to fill and aerate your pond for **free**. With the rising cost of grid power, more and more ponds are being filled with solar-powered pumps. See more fish, ducks, and happy animals. Stay on top of evaporation even in heat. **And say goodbye to big electric bills.**

“ We installed a Pro Series pump system and couldn't be happier. The company was extremely helpful setting up my challenging system, they really stand behind their word and their great systems. ”
– Liz, CA

“ The system is working great and with the battery backup we are pumping 4 gallons a minute, 350 feet up a 70 foot hill to the pond. Pictures are attached. In the year we have had it running the spring water has maintained the pH and lowered the water temperature making the fish thrive. Thanks again. ”
– Jeffrey, OK

PONDS



Estimating Pond Volume

Calculating pond dimensions does not need to be an exact science, but having an estimate of the area and volume is helpful especially, if you are creating a new pond. To calculate the days required to fill a pond with your solar pump, divide the numbers in the table on the right by the estimated gallons per day for your selected pump (assuming your well can support that GPD). If you want to supplement power at night with a generator for the first few days, the pond will fill 3 to 4 times faster.

	Average Pond Depth			
	1 ft	2 ft	5 ft	10 ft
Pond Surface Area	Gallons of Water			
30'x30' (900 sqft, 1/50 acre)	6,732	13,465	33,662	67,324
50'x50' (Roughly 1/16 acre)	18,701	37,402	93,506	187,011
1/8 acre	40,731	81,462	203,655	407,310
1/4 acre	81,462	162,924	407,310	-
1/2 acre (~1/2 football field)	162,924	325,848	-	-
1 acre	325,848	-	-	-

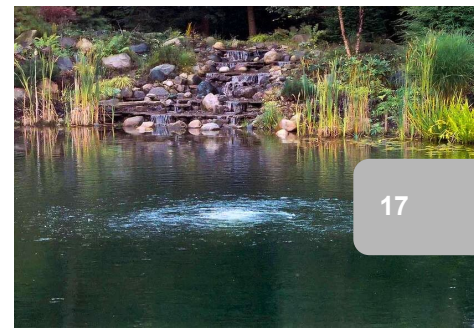
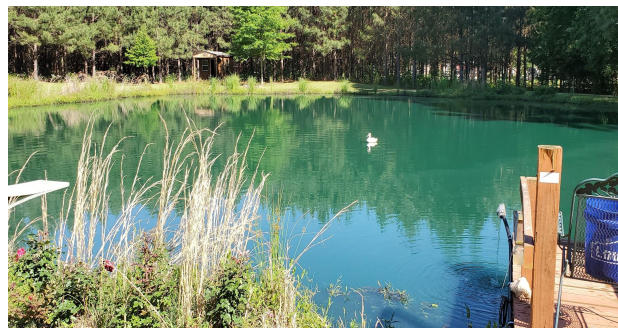
Keeping up with Evaporation

To maintain a steady water level in the absence of rain, water must be added at the same rate as evaporation. Solar pumps are generally perfect for filling ponds as the sunniest days when evaporation is greatest are generally the days when you'll get the most hours of solar pumping.

Evaporation rates are also affected by:

- Air Temperature
- Surface Area
- Water Temperature
- Humidity
- Wind

Pond Surface Area	Gallons of Evaporation Per Day		
	Low Range	Avg. Range	Extreme Range
1/50 acre (Roughly 30' x 30')	68	136	272
1/16 acre (Roughly 50' x 50')	204	407	815
1/8 acre	424	849	1,697
1/4 acre	849	1,697	3,394
1/2 acre (~1/2 football field)	1,697	3,394	6,789
1 acre	3,394	6,789	13,577



PONDS

FILL and AERATION

Filling Pond from Well or Aerating Pond Pump

Filling a pond with a well pump is a popular and fairly simple install. Plumb the well pump to discharge into the pond being careful to have the pipe outlet above the water level to prevent siphon. You can also pump from a river or spring to a pond with a solar well pump or surface pump.

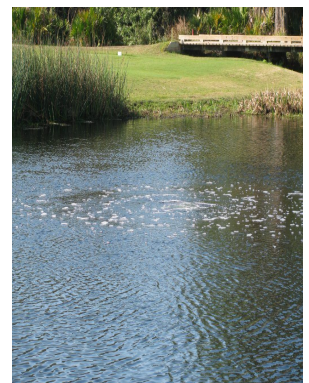
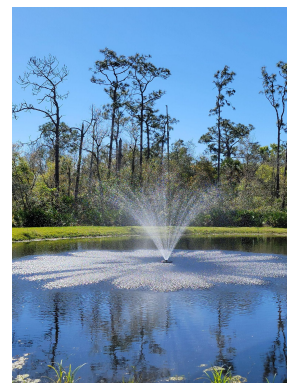
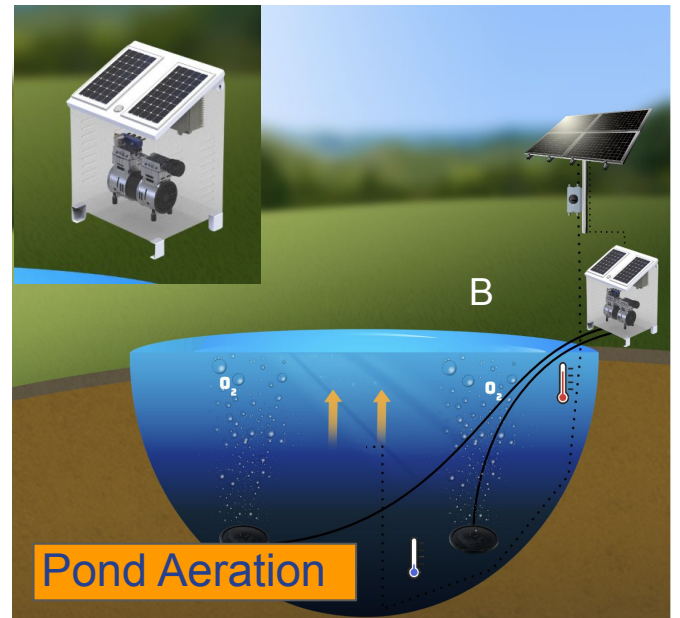
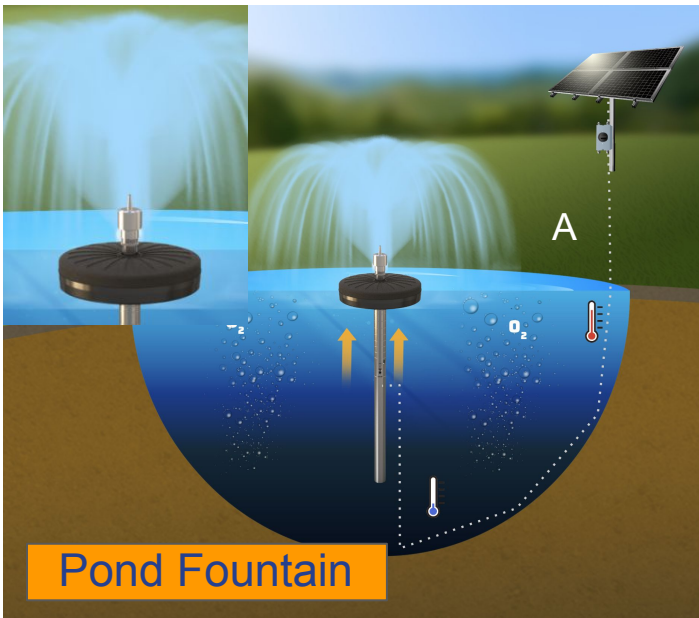
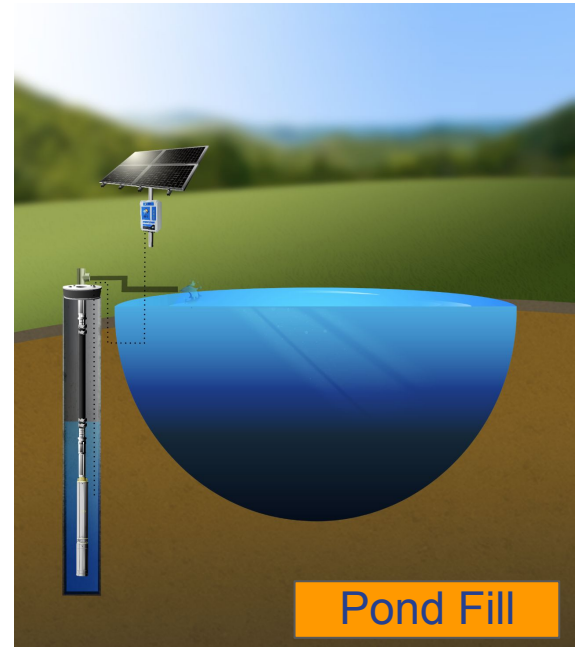
The second pump in the center of the diagram illustrates a simple install to create a fountain for aeration (A). Even a simple aeration system helps to de-stratify the temperature gradients (thermoclines) in the pond (B). Hot, oxygen rich water at the top is prevented from mixing with the cold, oxygen depleted water at the bottom by a thermocline. Fish loss from stratification poses a serious problem to pond health, but **a properly aerated pond can hold twice the amount of fish that a non-aerated pond could hold!**

Products Used

Solar Air-ation Kits...pg 42-43

Solar Fountain Series...pg 44

Top of Pole Mount.....pg 54



IRRIGATION



Your yield and profits depend on reliable water. You can't take any chances with cheap, unreliable pumps or siphoning off regulated water sources. Your gas-hauling generator days are behind you. More and more farmers and growers are switching to effortless (and quiet!) solar for their water pumping needs. Simple backup options give you peace of mind that your plants will have water when they need it.

“ Everything went very well. Install took less than 2 hours. Was surprised how well it was pumping. Very happy with the product and customer service. There has been a few friends checking it out. ”

Thanks
– Susan, FL

IRRIGATION

Two of the major factors in designing an irrigation system are pressure (psi) and flow rate (Gallons Per Minute, GPM). When you open a hose bib to water your lawn, the water is already pressurized and comes out at between 5 and 10 GPM. In towns and cities this is part of the municipal infrastructure, but off-grid we must do this all ourselves, pressurizing our own water using elevation or a pump - submersible or surface (traditionally coupled with a pressure/bladder tank in a well-house or basement).



General Irrigation Setups

Type	Pressure	Add to Head
Flood Irrigation	Open Flow	0 ft
Drip Lines / Emitters	20 psi	45 ft
Small Sprinkler	35 psi	80 ft
Soaker Hose	45 psi	100 ft
Sprinklers	45 psi	100 ft
Larger Sprinklers	60 psi	150 ft

Type	GPM Needed
Each Drip Emitter	0.5 to 0.9 GPM
25' Soaker Hose	2 to 3 GPM
Small Sprinkler Heads	2 to 3 GPM
Lawn Sprinklers	4 to 6 GPM
Center Pivots / Guns	30 to 200 GPM
Flood Irrigation	200+ GPM

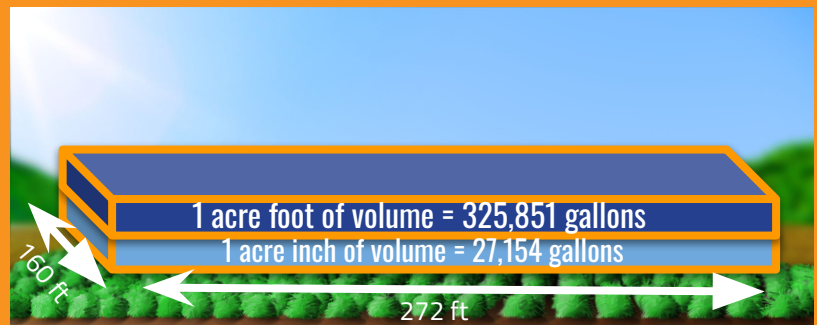
IRRIGATION

Plant or Canopy Area to Water	Square Feet (sqft)	Cool day Early spring Late fall	Warm day Spring or fall Some fog	Hot day Summer No fog
ET _o (Inches / day)		0.1	0.2	0.25
Trees <i>Daily Water Use in gallons per day (ET)</i>				
1 year old Fruit / Nut tree (4 sqft)	4	0	1	1
2 year old Fruit / Nut tree (10 sqft)	10	1	2	2
3 year old Fruit / Nut tree (36 sqft)	36	3	5	7
10 Semi-Dwarf Mature or 4 year old (1000 sqft)	1000	75	150	188
25 Grapevine Mature (2000 sqft)	2000	150	300	375
10 Large Mature Tree (3000 sqft)	3000	225	450	563
1/2 Acre Young Trees, 50% Cover	10890	817	1634	2042
Row Crops				
2 feet wide 100 feet row Raspberry (200 sq. feet)	200	15	30	38
4 feet wide 100 foot row Strawberry (400 sqft)	400	30	60	75
5 rows, 2 feet wide, 100 foot row Tomatoes (1000 sqft)	1000	75	150	188
30 rows, 2 feet wide, 100 foot row Tomatoes (6000 sqft)	6000	450	900	1125
1 acre Broccoli in Rows, 50% Cover	21780	1634	3267	4084
Larger Estimates				
1/2 acre Solid Cover (Canopy or Ground Cover)	21,780	1,634	3,267	4,084
1 acre Solid Cover (Canopy or Ground Cover)	43,560	3,267	6,534	8,168
2 acres Solid Cover (Canopy or Ground Cover)	87,120	6,534	13,068	16,335
5 acres Solid Cover (Canopy or Ground Cover)	217800	16,335	32,670	40,838

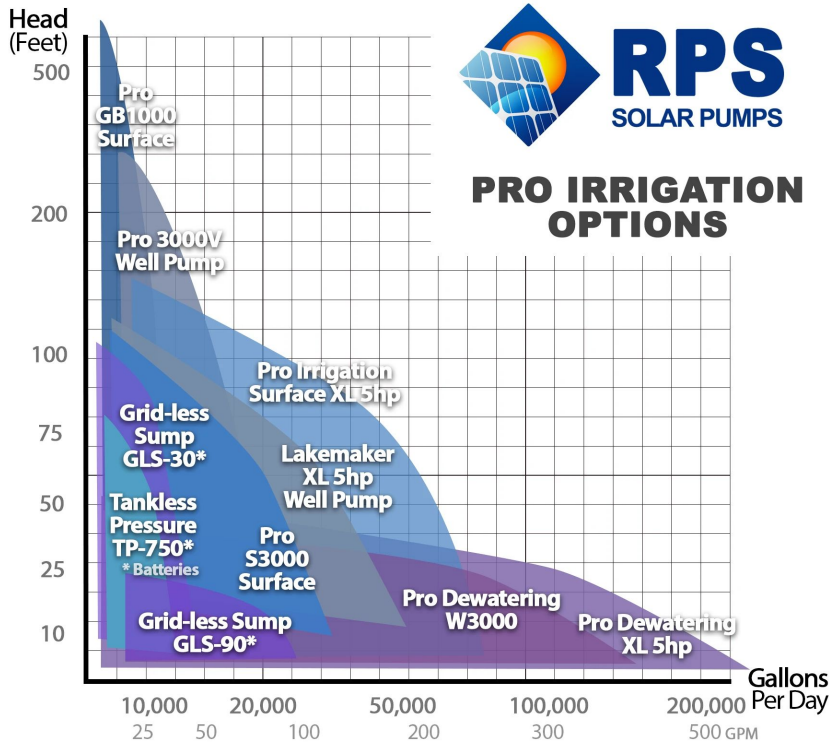
Estimates listed above are for rough planning purposes. Adjustments may be needed depending on land, topography, climate, and crops. Consult local experts or your state's university agricultural documentation.

Irrigation / Water Rights

It's important to know how much your water rights entitle you to withdraw, and based on each state's regulations your consumption may be limited to a certain number of acre feet, or a maximum flow rate sometimes known as a miner's inch (9 to 11 GPM varies by state). Cubic feet per second (CFS) is another to describe flow, 1 CFS = 450 GPM which is 1/45 of a 10 GPM miner's inch, or one acre-inch per hour, or two acre-feet per day (24 hours). RPS can size a pump based on appropriate GPM requirement for your irrigation needs.



IRRIGATION



Common Irrigation Pressures

The relationship between pressure in pounds per square inch (psi) and head (in feet) is especially relevant when sizing pumps for irrigation. Each psi is equivalent to 2.31 feet of head. In other words, if you had a water column that was 231 feet tall, you would have 100 psi if you opened a valve at the bottom.

The Total Head for a pump is calculated by adding the height the pump needs to push water and the head needed to create pressure, see page 8 for more insight on how to size a pump. More at RPSsolarpumps.com/LEARN

Ensuring Proper Water Volume + Planning

In addition to the pressure of the water, each different type of irrigation requires certain volumes as well. A large lawn sprinkler needs more water than drip irrigation with a single emitter. When the required flow exceeds the volume supplied, the common practice is to break an irrigation system into multiple **zones** so there will still be enough GPM volume for each.

When you call RPS for help planning a system, bring an idea of how many emitters you plan on having, how many GPM each emitter needs, the number of zones in the system, the length of time you plan on watering each zone and whether you'll need to water at night.

IRRIGATION

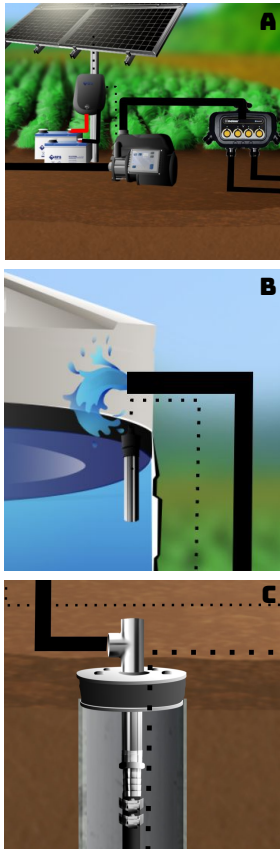
WELL / IRRIGATION

Well Pump to Tank then Tankless Pressure Pump™

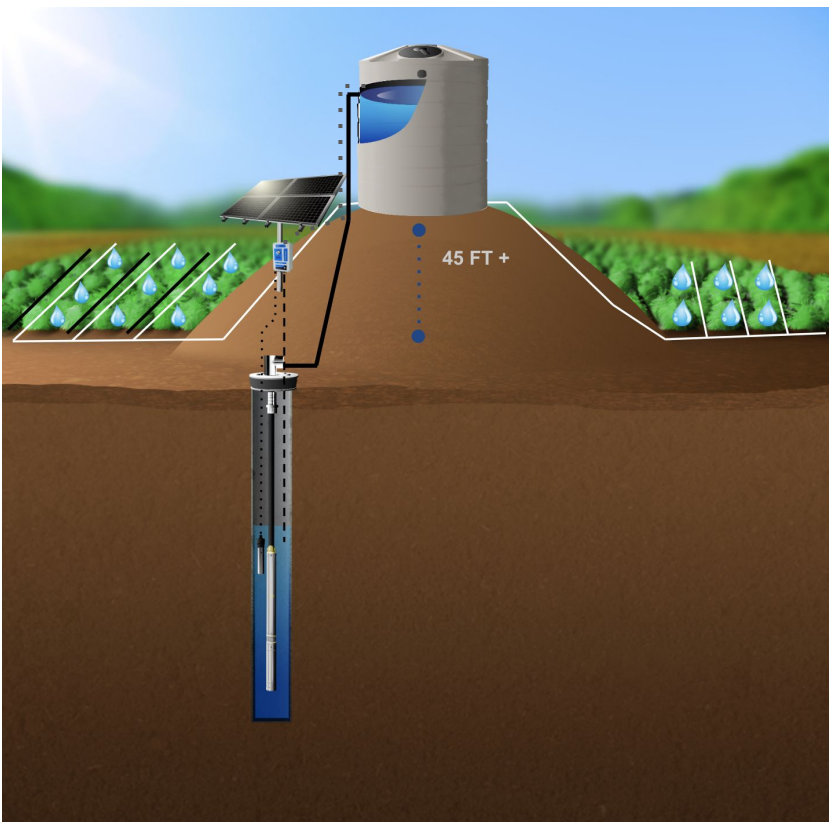
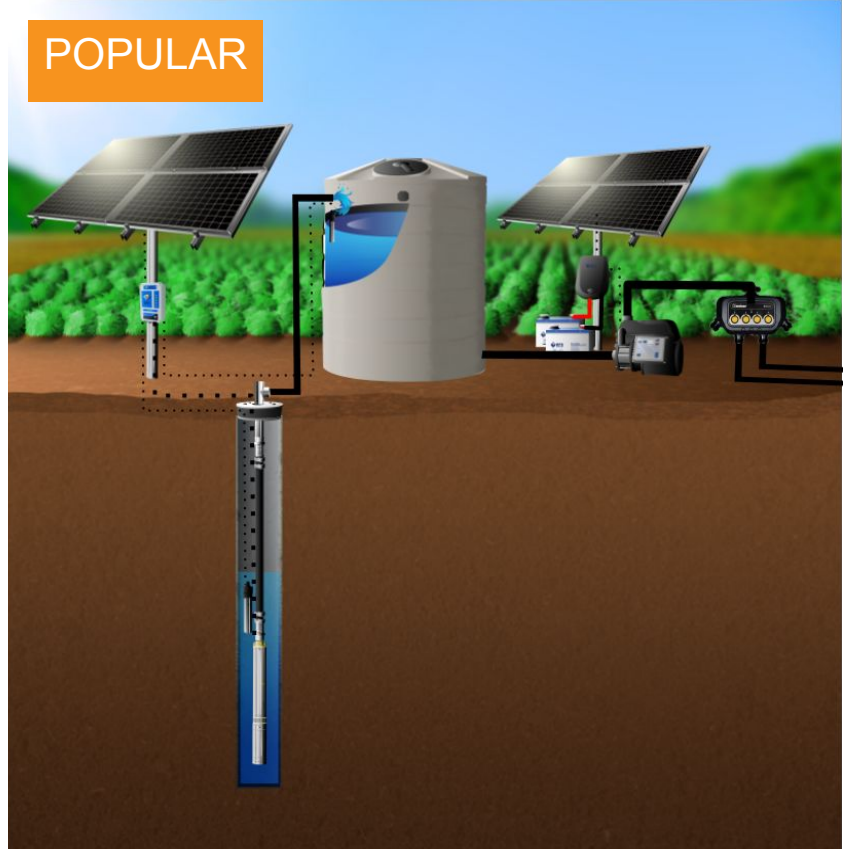
With a direct drive solar pump, keep a tank full with water from your well ready for irrigation day or night. If you don't have elevation on your property sufficient for pressure (50' to 100') you can use the popular solar charged-battery system called the Tankless Pressure Pump™ to pressurize water from the tank whenever you want to irrigate, even when the sun isn't shining. A sensor inside the storage tank keeps the tank full (B). The Tankless Pressure Pump™ (A) provides up to 45 psi/ 25 GPM and can be programmed for daily watering or combined with an irrigation timer/valves for more advanced watering cycles, compatible with both drip lines and sprinklers.

Products Used

3" Well Pump.....pg 35-37
 Top-of-Pole Mount.....pg 54
 Tankless Pressure Pump™.....pg 46
 GEL Battery Bank.....pg 58
(solar array + battery bank sized to your daily water needs)



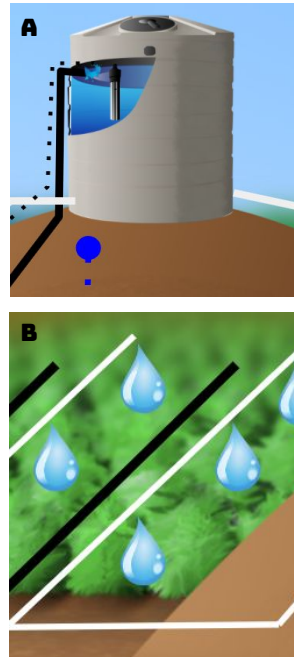
POPULAR



IRRIGATION

Gravity Feed from Tank or Irrigation Surface Pump

On properties that have usable elevation change, water can be stored in a tank at a high point of the property, naturally pressurized from gravity for irrigation. A sensor inside the elevated storage tank ensures the tank stays full (A) and ready day or night. If every 1 psi = 2.31 feet of head, an 18- 20 psi gravity fed drip line (B) requires lifting the storage tank at least 45 feet above the location you wish to irrigate. For higher pressure sprinklers use a Pro Irrigation Surface Pump that can pressurize up to 45 psi. An irrigation timer after the pump or tank is optional for custom watering schedules. Otherwise, the pump can be manually turned on and valves manually opened.



Products Used

3" Solar Well Pump.....pg 35-37
 Top-of-Pole Mount.....pg 54

OFF-GRID

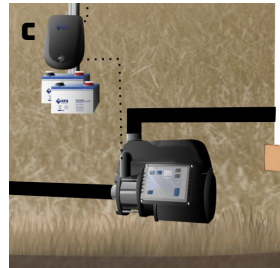
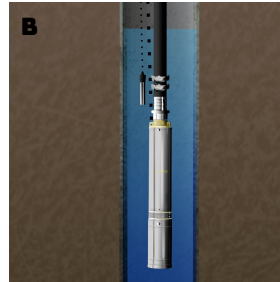
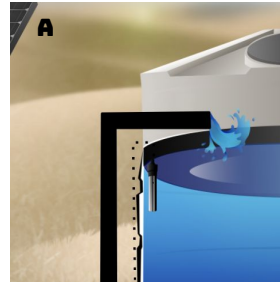
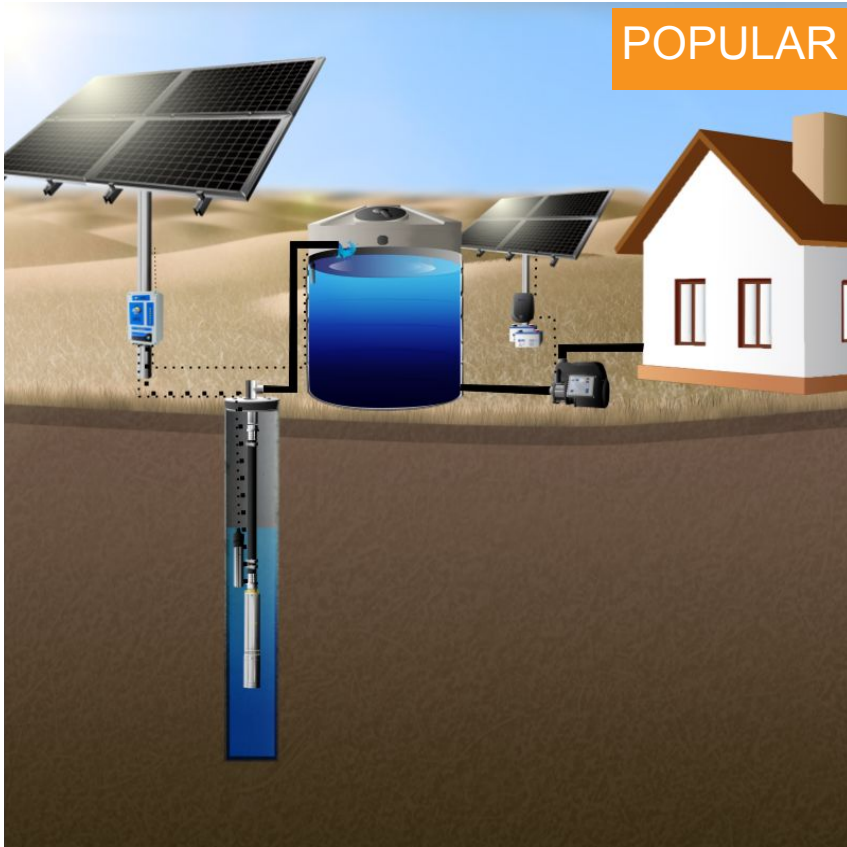


You've got some land. You've got a trusty vehicle and a lovable dog. You're ready to start living the good life Off-Grid. But you need water first. For hundreds of RPS customers, their Off-Grid life started with a reliable water pump. A water pump gives you water for drinking, cooking, for animals, for gardening, for hot showers after a day of hard work. Whether a homestead, house, cabin, RV, tent – water allows you to live sustainably. The independence and self-reliance we all strive for.

“ Got it installed with our electric pump, and with our electric pump should I lose that pump or should I lose electricity, I have this solar backup. I'll tell you what it's a sense of security and I really enjoy that. ”
– David, WA

“ I want to thank everyone at RPS for their assistance and friendly customer service. This has been a most pleasurable DIY experience, and I will be sure to highly recommend RPS for anyone's power backup requirements. ”
– Barry K, TN

OFF-GRID



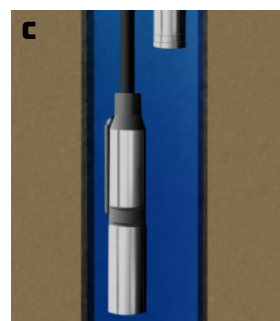
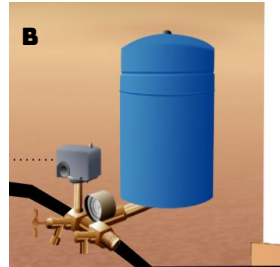
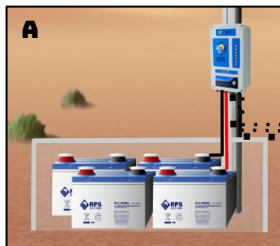
WATER PRESSURE

Well Pump to Tank, Tankless Pressure Pump™ to Cabin

Backups to the backups are always a good idea for an off-grid cabin or household system. Pumping to a storage tank (A) with a direct-drive solar pump provides a few extra days of above-ground water. The install shown here uses the solar/battery powered Tankless Pressure Pump™ or TPP (C) to pressurize water from the storage tank, replacing the need for a pressure tank! The TPP has a built in pressure sensor that turns the pump off automatically when faucets are closed, and back on when faucets are opened, adjusting speed as needed to save power. Although this diagram uses a 3" well pump (B), if you have a deep well check out our Pro Series Deep line of well pumps on page 43.

Products Used

- 3" Well Pump.....pg 33-37
- Tankless Pressure Pump.....pg 46
- Turnkey Kit.....pg 59
- GEL Batteries.....pg 58



PRESSURE TANK

Solar Well Pump with Batteries to Pressure Tank

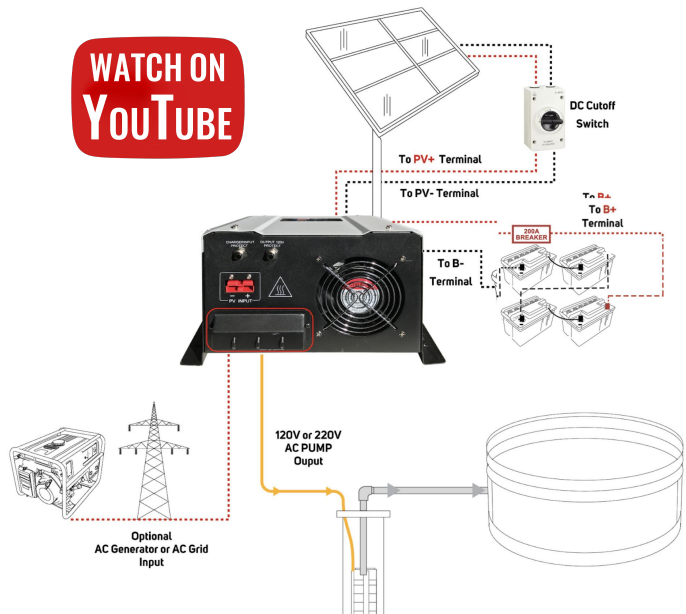
Use your solar well pump as the primary household water pump or create the popular "redundant system" to your primary AC pump (C) or hand pump by sliding down a narrow 2" pump in the same casing and plumbing into the existing pressure system. Keep most of your above ground plumbing the same, just add a tee and the pipe from the solar pump can also fill the pressure tank (B). Based on the setting of the pressure switch, the AC or solar pump can be prioritized. To prevent being limited to the water in the pressure tank at night, batteries are popular to provide night-time pumping power (A). Keep the system off until you need it, or slowly transition over to being fully off grid.

Products Used

- 2" Submersible.....pg 37
- Turnkey Kit.....pg 59
- GEL Batteries.....pg 58
- Rev. Action Press. Switch.....pg 56
- Check Valve.....pg 56

WaterSecure™ Solar+Battery Backup Systems

Power Existing Water Pumps with Solar



Water Security when the grid goes down! Finally, a solar charged battery backup for existing grid-tied well pumps. The **WaterSecure™** system allows for the running of a new or previously installed 110v or 220v Single Phase on a solar charged battery bank. Yes! It's finally possible! Comes in 3K, 6K and 12K (refers to size of pure sine inverter i.e 3k is a 3,000W pure sine inverter) with different sized solar/battery combinations for varying amounts of daily runtime and storage requirements. Load up to twenty-four 100W panels and twenty-four 55 Ah batteries on each system, starting out smaller allows for future expansion. **See page 29 for diagram.**

Models: *WS3K, WS6K, WS12K*

For sizing we generally like to know...

1. Current Pump voltage and horsepower
2. Gallons of water per day your family uses (usually 50-100 gallons/day per person)
3. Type of appliances you plan on powering with the auxiliary 110V/220V power

WaterSecure Dimensions	Height	Width	Depth	Weight
3K	18.9"	13.2"	7.5"	61 lbs
6K	20.9"	15.7"	7.5"	85 lbs
12K	24.7"	16.4"	8"	145 lb

Don't need batteries and just want to run your existing 3-wire or Three Phase 220V AC pump on solar? Ask an RPS engineer about the 220V-to-Solar Conversion Kit up to 5hp, page 41.

EXISTING 220V AC PUMP COMPATIBILITY

	RPS 220V-to-Solar Conversion Kit	RPS WaterSecure™	Consider Upgrade to 3 Phase motor included with RPS Pro Series Kit
2 WIRE 220V <i>2 Wires + Ground. PSC or Split Phase.</i>			
1/2 HP	3K	✓	✓
3/4 HP	6K	✓	✓
1HP	6K	✓	✓
2HP	12K	✓	✓
3HP			✓
5HP			✓
3 WIRE 220V <i>Single Phase 3 Wires + Ground. CSIR or CSCR. (Control Box)</i>			
1/2 HP	3K	✓	✓
3/4 HP	3K	✓	✓
1HP	6K	✓	✓
2HP	12K	✓	✓
3HP		✓	✓
5HP			✓

Larger loads and longer runtimes required? Ask about our Solar+Battery Trailers for a limited time.

UNRIVALED EFFICIENCY

OF EVERY
COMPONENT

RPS Pump Ends

Serviceable in the Field
Helical & Centrifugal Pump Ends
Stainless Steel Body
Stainless Female Thread

RPS Controllers

Multiple Sensor Inputs
Low Water/ Tank Full Sensors
Variable Frequency Control
Cycling Protection Timer
Exterior Shut-off Switch

RPS Motors

Slow Start/Stop
Brushless Motor Tech.
Permanent Magnet Efficiency
Rated for Continuous Operation

Solar Panels

UL1703 Certified Per Intertek
ETL
Nationally Recognized to Hail,
Wind Requirements
IEC 612512 / IEC 61646
Comply fully with NRCS



When you buy from RPS, you'll find no middlemen between you and your pump. Too many large pump companies force you to navigate a gauntlet of merchants, salespeople and distributors, who all get a cut, meaning you pay more. We make them, you buy them, and you pay less — simple as that.

Field Replaceable

Finally, a pump that you can easily maintain yourself. Depending on water quality and use, helical rotors will eventually wear out. No need to send the pump in for service or fight for warranty support, replace the rotor out in the field in about 20 minutes. RPS stands behind and offers a Lifetime Replacement Guarantee on every helical rotor.

Quality Motor Windings

Optimized efficiency from quality copper windings provides longer daily pumping times.

Rugged 304 SS Body

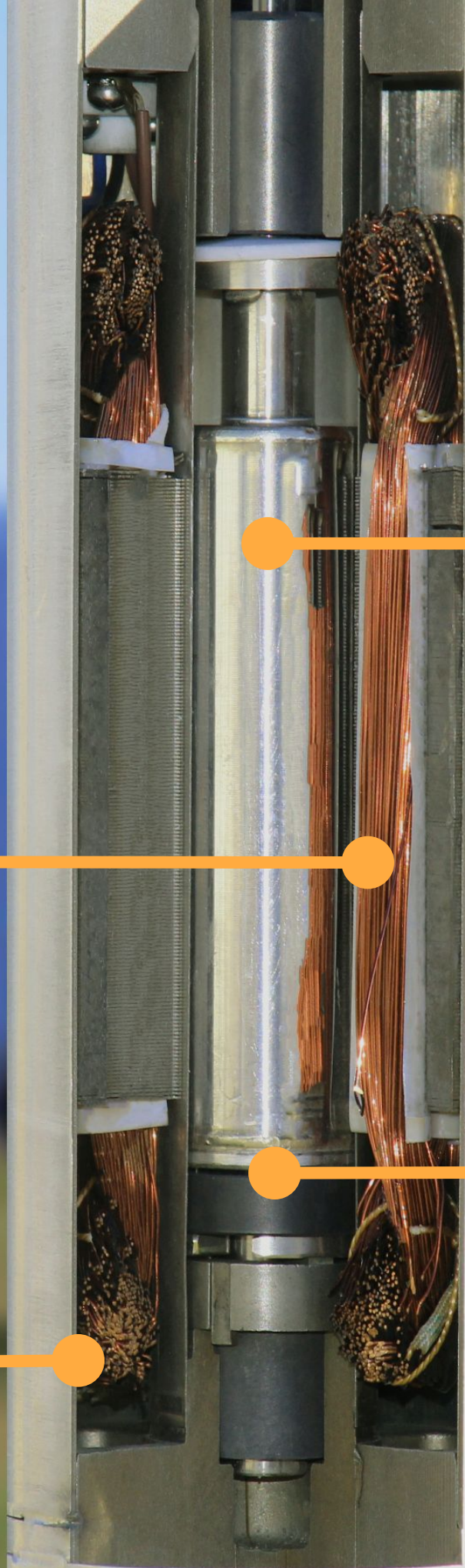
Stainless steel hardened against adverse well conditions like sulfur, iron bacteria, minerality and turbidity.

Rare-Earth Magnets

In a conventional DC motor, the initial magnetic field is produced by motor windings. RPS's ultra efficient permanent magnet motors use a rare-earth magnet to produce a magnetic field, allowing for a more efficient slow start and slow stop with less heat, noise and vibration.

Brushless Motor

RPS Solar Pumps only uses hyper-efficient DC Brushless motors rated for continuous duty. Typical brushed motors wear out within 6-12 months of purchase and aren't serviceable.



Field Support Whenever You Need it.

RPS Solar Pump Kits are for people that believe in getting the job done themselves, and getting it done right. Our goal is to arm you with the equipment and knowledge to take control of your water and save a fistful of money doing it.

“But I’ve never installed a solar pump myself before.. ”

No problem! You got this! Thousands of customers before you that had never worked with solar or even a submersible pump are happily pumping water. We’ll arm you with the tools and the know-how to get your solar pump DIY-ed like a PRO!

Whether you’ve just cracked open your solar pump kit, gotten your first solar water flowing or have questions in the years to come, our team of expert engineers are standing by with one job: to help you.

And if that’s not enough to get you excited, our full-color, 36 page, step-by-step RPS user manual with troubleshooting flowchart is massively popular with customers.

NEW! An even MORE FOOLPROOF DIY install for First Timers and Old Timers alike - ask our technicians about receiving a GOOF PROOF KIT. Includes a DC Clamping Multimeter (a rare tool that you might not have at that local store!) to ensure everything is wired up and troubleshoot if needed -*RPS Engineer Recommended*

AS SEEN ON

**WORKING
RANCH
MAGAZINE**

&

Cattlemen[®]
American

PRODUCT CATALOG

AMERICA'S BEST-SELLING

RPS
SOLAR PUMP



Trusted when and where it counts most. More Ranchers, Farmers and Off-Gridders trust RPS. With over 1 Billion gallons pumped in all 50 states, you're in good company.

Questions or Ready to Order? Our famous support team is here to help!

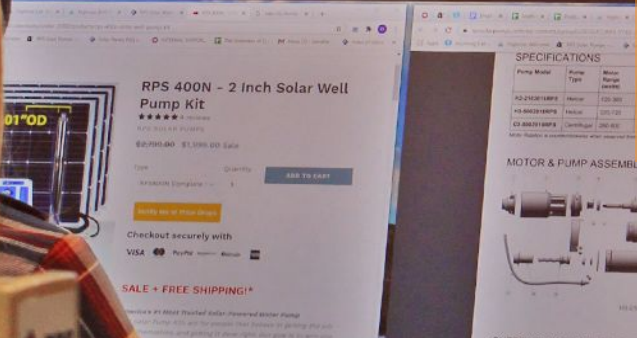
Call or Text 888-637-4493



Memorable Customer Service

Our famous customer support offers a direct line to talk with real, friendly humans here in the USA. Customers comment that our team has raised the standard for what to expect from a help line.

RPS pump engineers are available for questions, troubleshooting, or planning for installation. And you're not limited to one call, we want to make sure you get the right pump first go around.



MEET YOUR DIY SUCCESS TEAM™

The world's first **DIY Success Company™** every RPS customer gets a special non-commissioned team to help design a solar pump system, ship it to your doorstep, then back up your DIY skills with USA engineers to make sure you succeed in getting water! 100% of the time!

“ This is a great product with exceptional customer service. What a pleasure to deal with a company that takes pride in their craftsmanship as well as cares about the customer's success. You can't go wrong with RPS as they'll support you through the entire installation & operation of your new system. ”

- Chris P

“ Everyone from the owner to the guys helping me load my truck were awesome, answering my last minute questions and very appreciative of me as a customer. So far so good, hopefully I won't need your support for a very long time. If I do, I'm confident your service will be just as good! ”

- Eric M

“ I have to say you have some of the best customer service representatives I've ever worked with. I'm very pleased and excited at the whole experience. You all made it way easier than I thought it was going to be. The hardest part was building the rack for the panels! ”

- Nate A

Solar Well Pump Sizes

	RPS 200	RPS 400N	RPS 400 / 800	RPS 400V / 800V	RPS Pro Series
Solar Power	24V Direct Drive on Solar or Batteries	48V Direct Drive on Solar or Batteries	48V Direct Drive on Solar or Batteries	48V Direct Drive on Solar	Direct Drive on Solar
Batteries	Supported	Supported	Supported	Batteries Not recommended	No
Generator/ AC Backup	110V with Converter	110V with Converter	110V with Converter	110V with Converter	220V Direct
Size / Diameter	2.9"	2.01"	2.9"	2.9"	3.9"
HP Horsepower (range w/solar)	1/2 HP	1/2 to 1 HP	1/2 to 1 HP	1/2 to 1 HP	1/2 to 5 HP
Min. Plumbing Recommended	3/4" (1" for longer pipeline)	3/4" (1" for longer pipeline)	3/4" (1" for longer pipeline)	1" (2" for longer pipeline)	1" 1-1/4" 2"
Turnkey Kit Available	Yes	Yes	Yes	Yes	Pro Turnkey Kit Now Available

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

For an even MORE FOOL PROOF DIY install for First Timers and Old Timers alike ask our technicians about receiving a GOOF PROOF KIT. Includes a DC Clamping Multimeter (a rare tool that you might not have at that local store!) to ensure everything is wired up and troubleshoot if needed -RPS Engineer Recommended

3" Well Pumps

RPS 200 POPULAR

HEAD ●●●●●●●●●●
 GPM ●●●●●●●●●●
 COST ●●●●●●●●●●

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering



Put the Sun to Work on your land with the famous RPS 200, installed by more farmers and ranchers than any other system we offer! Two solar panels offer an attractive blend of performance and price, giving you up to 1,800 gallons a day, and over 700 gallons at max head of 125 ft. For more flexibility and peace of mind, batteries or a generator can be used to supplement as needed, but are not required.

Pump Weight: 14 lbs
 Pump Length: 21"
 Diameter: 2.9"
 OD
 Outlet Size: 3/4" FNPT

Solar Panels
 Approx. 40x20x1.18" 15lbs

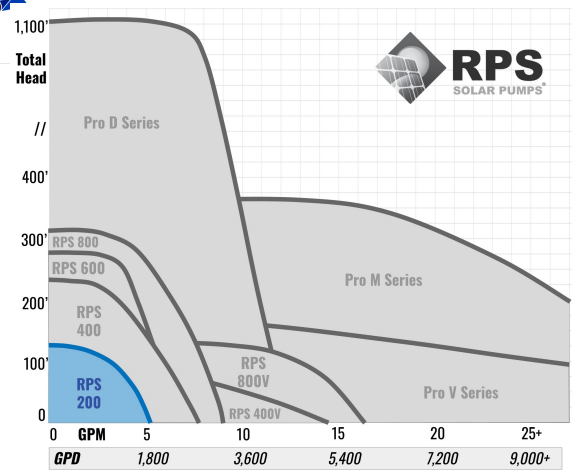


	No head	75 ft	125 ft
GPM	5.1	3.3	2.1
Per Day (6 hours)	1836	1188	756



Kit includes:

- 2 x 100 Watt Monocrystalline Solar Panels
- RPS Brushless Motor Helical Rotor Pump
- RPS Universal Pump Controller
- 3/4" or 1" hose barb and hose clamps
- 1x Low-water well sensor w/ 100ft wire attached
- 1x Tank Shut-off sensor w/ 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped wires



Call 888-637-4493 for help with sizing

3" Well Pumps

RPS 400 POPULAR

HEAD ●●●●●●●●

GPM ●●●●●●●●

COST ●●●●●●●●



Well Pumps

Aeration

The famous RPS 400 is trusted by farmers and ranchers with **moderate head and water requirements**. Four solar panels can be mounted easily on a single pole, and at low head can still pump 2700 gallons a day, and over 1,000 gallons at max head of 225 feet. For more flexibility and peace of mind, batteries or a generator can be used to supplement as needed, but are not required. The RPS 200 and 400 use the same pump + controller, but a different amount of panels.

Pump Weight: 14 lbs
 Pump Length: 21"
 Diameter: 2.9" OD
 Outlet Size: 3/4" FNPT

Solar Panels
 Approx. 40x20x1.18" 15lbs

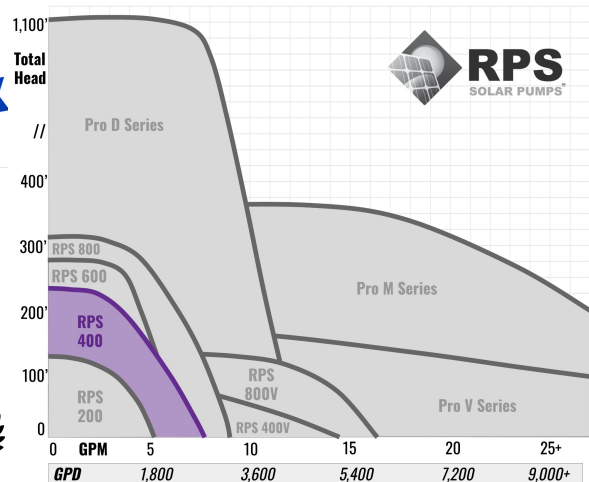


	No head	75 ft	200 ft
GPM	7.6	6.1	3.4
Per Day (6 hours)	2736	2196	1224

Surface Pumps

Kit includes:

- 4 x 100 Watt Monocrystalline Solar Panels
- RPS Brushless Motor Helical Rotor Pump
- RPS Universal Pump Controller
- 3/4" or 1" hose barb and hose clamps
- 1x Low-water Well sensor w/ 100ft wire attached
- 1x Tank Shut-off sensor w/ 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped wires



Sump / Dewatering

Call 888-637-4493 for help with sizing

2" Well Pumps

RPS 200N/400N/800N

HEAD ●●●●●
 GPM ●●●●●
 COST ●●●●●

Well Pumps

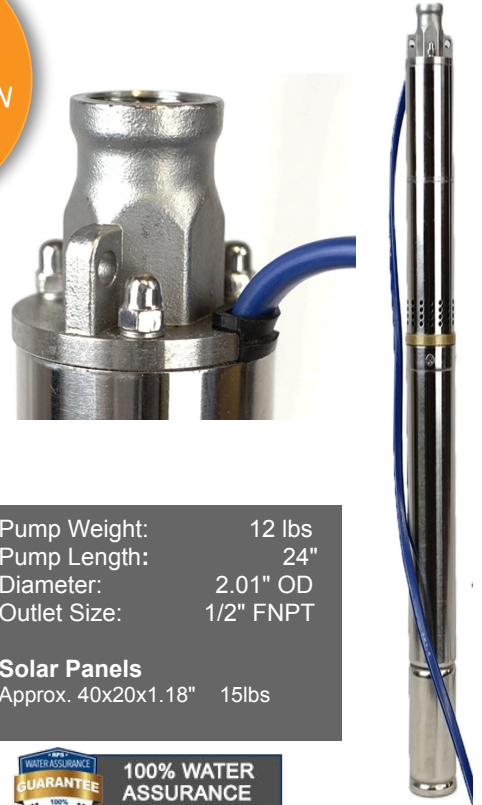
Aeration

Surface Pumps

Sump / Dewatering



GREAT SOLUTION FOR WINDMILL WELLS!



Pump Weight: 12 lbs
 Pump Length: 24"
 Diameter: 2.01" OD
 Outlet Size: 1/2" FNPT

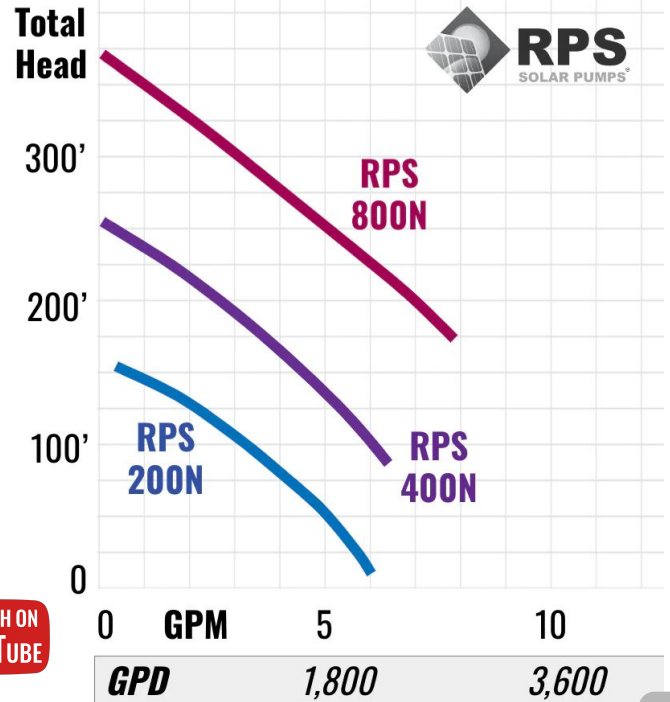
Solar Panels
 Approx. 40x20x1.18" 15lbs

100% WATER ASSURANCE GUARANTEE

The newly redesigned **narrow pump** is a miraculous 2.01" in diameter and the first of its kind. Yes, it can sneak in next to an existing pump in a 5" well casing to act as a backup redundant pump, or if a pump is stuck down in the well. It fits new PVC 2" casings and the 3" casings that are so common in old windmills. Offered in kit options of two, four or eight 100W panels. The 400N will provide about 3 GPM at 200 feet of head, but add on four more panels and the 800N will increase flow rate to 7 GPM!

Kit includes:

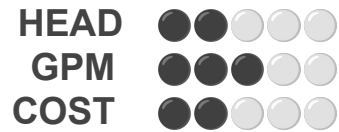
- 2, 4 or 8 100 Watt Monocrystalline Solar Panels
- RPS Brushless Motor Helical Rotor Pump
- RPS Universal Pump Controller
- 1/2" to 3/4" Hose barb and hose clamps
- 1x Low-water Well sensor w/ 100ft wire attached
- 1x Tank Shut-off sensor w/ 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped pump wires



Call 888-637-4493 for help with sizing

3" Well Pumps

RPS 400V / 800V



When a helical screw pump can't get you enough volume and the Pro Series is a little too much pump or money, consider the RPS 400V or 800V. Using the same great controller as our famous helical pumps, we have created a **higher volume, lower head option**. Start with the four panel RPS 400V then add another four panels later to make an RPS 800V and increase flow as your needs grow. The 800V pumps more than 5,700 gallons per day at low heads! Perfect for keeping large stock tanks or ponds full in the summer.

Pump Weight: 15 lbs
 Pump Length: 28"
 Diameter: 2.9" OD
 Outlet Size: 1"
 FNPT

Solar Panels
 Approx. 40x20x1.18" 15lbs

F400/ F800 Submersible Fountain uses this pump with your choice of Fountainhead, produces 10+ lb of Oxygen per day.

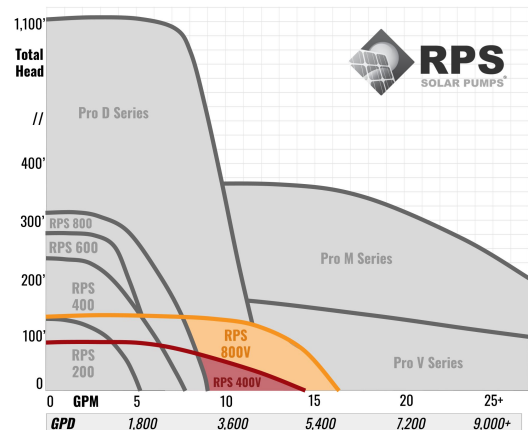
Kit includes:

- 4 or 8 100 Watt Monocrystalline Solar Panels
- RPS Brushless Motor Centrifugal Pump
- RPS Universal Pump Controller
- 1" hose barb and hose clamps
- 1x Low-water Well sensor with 100ft wire attached
- 1x Tank Shut-off sensor with 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped pump wires



Call 888-637-4493 for help with sizing

	No head	25 ft	75ft	150 ft
RPS 400V				
GPM	14.1	10.2	7.2	n/a
Per Day (6 hours)	5076	3672	2592	
RPS 800V				
GPM	16.0	14.9	13.6	9.5
Per Day (6 hours)	5760	5364	4896	3420



Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

3" Well Pumps

RPS 800

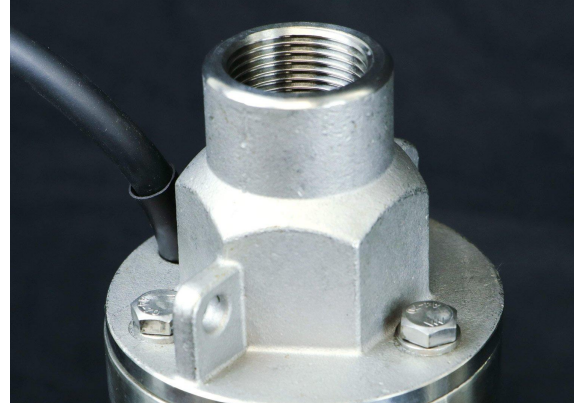
HEAD	●●●●●○
GPM	●●●○●○
COST	●●●○●○

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering



For deeper wells, the RPS 800 remains the most popular on the market. Eight easy-to-mount solar panels offer powerful performance at an amazing price - up to 3,200 gallons a day, and over 1,600 gallons at its max head of 300 feet. And to give you more flexibility and peace of mind, batteries or a generator can be used to supplement as needed. The RPS 800 uses a more powerful pump than the RPS 200 or 400, as well as more panels.

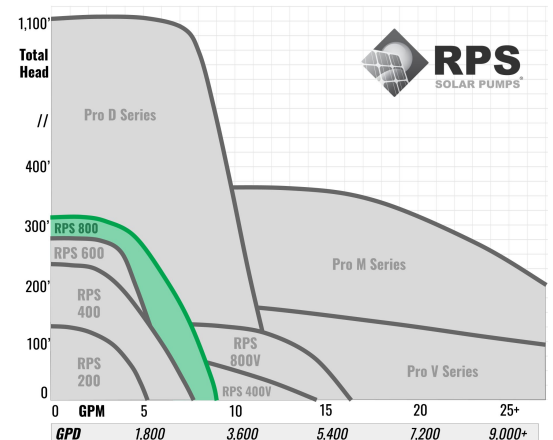
Pump Weight:	15 lbs
Pump Length:	22"
Diameter:	2.9" OD
Outlet Size:	3/4" FNPT
Solar Panels	
Approx. 40x20x1.18"	15lbs

	No head	175 ft	325 ft
GPM	8.9	6.9	4.1
Per Day (6 hours)	3,204	2,484	1,476



Kit includes:

- 8 x 100 Watt Monocrystalline Solar Panels
- RPS Brushless Motor Helical Rotor Pump
- RPS Universal Pump Controller
- 3/4" or 1" hose barb and hose clamps
- 1x Low-water Well sensor with 100ft wire attached
- 1x Tank Shut-off sensor with 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped pump wires



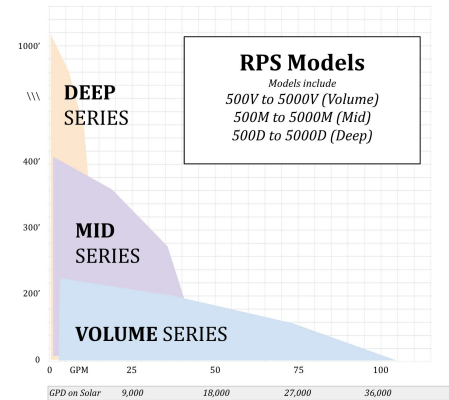
Call 888-637-4493 for help with sizing

4" Well Pumps

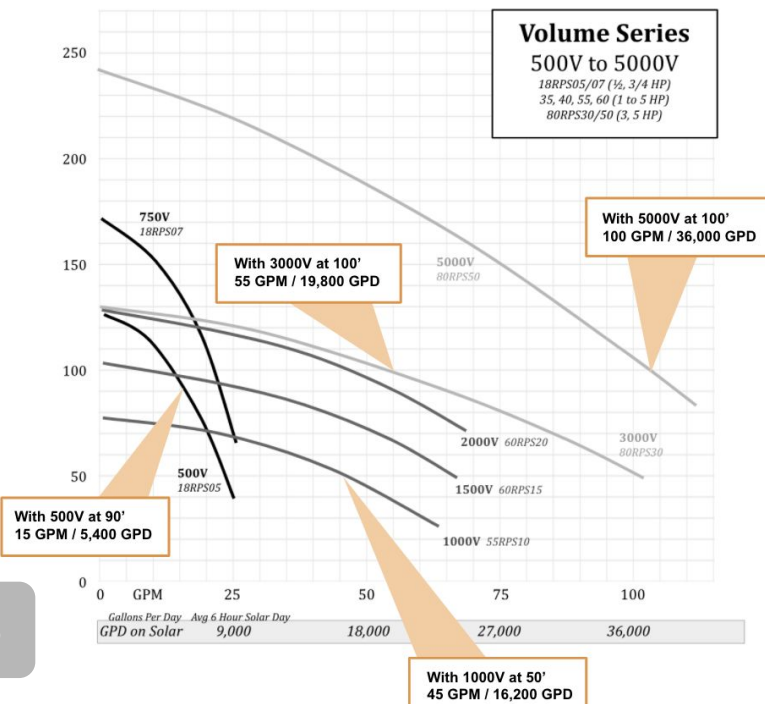
Pro Series VOLUME



Pump Dims: Model Dependent		
Diameter:	3.9" OD	
Outlet Size:	1.25" - 2" FNPT	
Solar Panels		
Small	40x20x1.18"	15 lbs
Large	66x40x1.4"	40 lbs



Our Pro Series V (ProV) pumps are designed for **high volume, low head applications**. Systems use hearty 3-Phase Motors and 3.9" Centrifugal Pump Ends. Our controllers are the best in the world and allow customization and optimization based on sun and season, sensor input, 220v backup and more. The pump curves outlined here are our most popular sizes- 1/2HP (500V) to 5HP (5000V). **Need more volume? Call a n RPS tech to discuss our 5 HP Lakemaker options for 150-225 GPM, or Big Ag Pumps page 44.**



Systems Include:

- Solar Array of Monocrystalline Aluminum-framed Panels (number of panels varies with model)
- 2.2 kW Rated Solar Controller (takes DC Voltage from Solar Panel array +Auto-Switch to run with 220v Grid or Generator when not enough solar)
- Brushless Submersible Motor (3 Phase 220v, 3.9" Diameter)
- Stainless Steel High Volume Centrifugal Pump End
- Large Float Switch for use as high water tank sensor
- All connector cables from solar panels to controller
- DC cut-off disconnect switch rated for your array, plug and play with MC4s
- Phone & Email support before and during installation

Call 888-637-4493 for help with sizing

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

Pro Series MID

HEAD ●●●●●●●●
 GPM ●●●●●●●●
 COST ●●●●●●●●

Well Pumps



Aeration



Pump Ends and Motor Ends vary in size based on specific project needs

Our Pro Series Mid (ProM) pumps are designed for **mid volume/head** applications that call for a balance of head and volume. They can be self-installed or using a local installer. Easily switch between solar and another 220V backup power source when the sun isn't shining, like a generator or grid power, using the Pro Controller auto-switching feature. Over 400ft see Pro Series Deep, over 50 GPM see Pro Series Volume.

Pump Dims: Model Dependent		
Diameter:	3.9" OD	
Outlet Size:	1.25" FNPT	
	(Up to 2")	
Solar Panels		
Small	40x20x1.18"	15 lbs
Large	66x40x1.4"	40 lbs



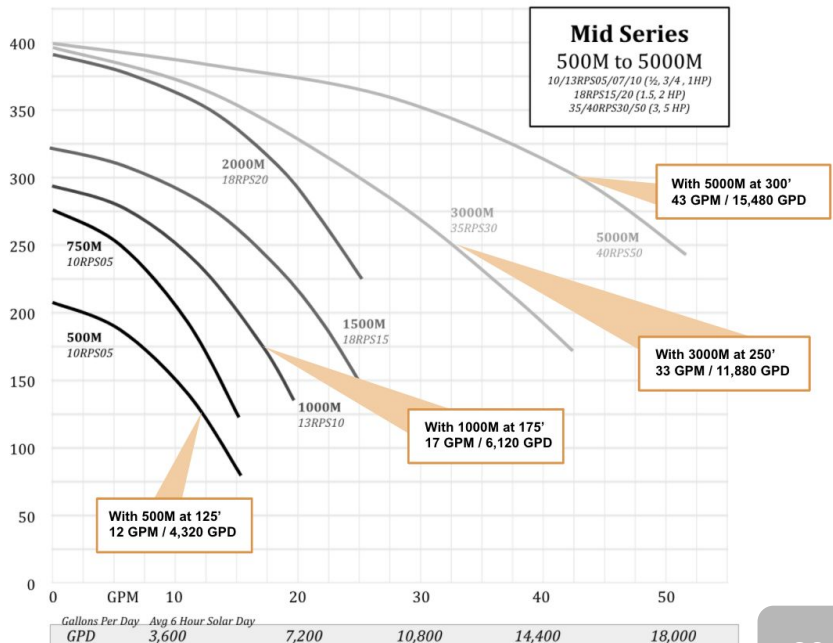
Surface Pumps

Sump / Dewatering

Systems Include:

- Solar Array of Monocrystalline Aluminum-framed Panels (number of panels varies with model)
- 2.2 kW Rated Solar Controller (takes DC Voltage from Solar Panel array +Auto-Switch to run with 220v Grid or Generator when not enough solar)
- Brushless Submersible Motor (3 Phase 220v, 3.9" Diameter)
- Stainless Steel High Volume Centrifugal Pump End
- Large Float Switch for use as high water tank sensor
- All connector cables from solar panels to controller
- DC cut-off disconnect switch rated for your array, plug and play with MC4s
- Phone & Email support before and during installation

Call 888-637-4493 for help with sizing



4" Well Pumps

Pro Series DEEP

HEAD ●●●●●●●●
 GPM ●●●●●●●●
 COST ●●●●●●●●



Our Pro Series D (ProD) pumps are designed for **high head, lower volume applications** of extremely deep wells. Systems use hearty 3-Phase Motors and 3.9" Multistage Centrifugal Pump Ends. Our controllers are the best in the world and allow customization and optimization based on sun and season, sensor input, 220v backup and more. The pump curves outlined here are our most popular sizes- 1/2HP (500D) to 5HP (5000D). Installing well pumps over 400 feet gets more challenging, so we generally recommend finding an experienced helper or a local installer who has the equipment to lower the pump/cable/pipe safely.

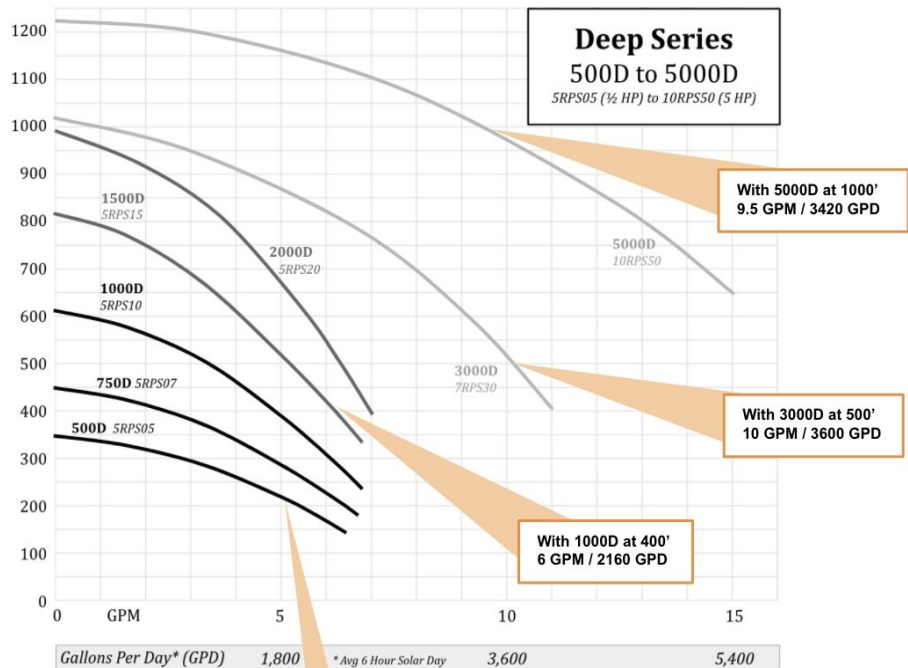
Pump Dims: Model Dependent
 Diameter: 3.9" OD
 Outlet Size: 1.25" FNPT

Solar Panels
 Small 40x20x1.18" 15 lbs
 Large 66x40x1.4" 40lbs



Systems Include:

- Solar Array of Monocrystalline Aluminum-framed Panels (number of panels varies with model)
- 2.2 kW Rated Solar Controller (takes DC Voltage from Solar Panel array +Auto-Switch to run with 220v Grid or Generator when not enough solar)
- Brushless Submersible Motor (3 Phase 220v, 3.9" Diameter)
- Stainless Steel High Head Centrifugal Pump End
- Large Float Switch for use as high water tank sensor
- All connector cables from solar panels to controller
- DC cut-off disconnect switch rated for your array, plug and play with MC4s
- Phone & Email support before and during installation



Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

More Options

220V-to-Solar Conversion Kits

Power Your Existing Pump with Solar!

The **RPS 220V-to-Solar Conversion Kit** allows for the powering with solar any existing 220V **3-Wire Single Phase** motor OR **Three Phase** motor up to 5 HP. Works with both surface pumps and submersible pump as long as they are 220V AC. Controller handles automatic switching between solar and another 220V backup power source when the sun isn't shining, like a generator or grid power, using it's built-in auto switching feature. Not compatible with batteries directly, but can be powered by WaterSecure units or Solar Trailers. There is no other kit like this on the market! Jet pumps, Well pumps, Pool pumps, Irrigation pumps, Dewatering pumps etc...

Identifying Compatible Motor Types

3-Wire pumps (compatible) have a ground also, so it will be 4 wires going down your well. You'll usually find a starting capacitor box above ground in between the motor and utility power) that will have 4 wires leaving towards the pump.

3-Phase pumps (compatible) have a ground also, so it will also be 4 wires going down your well. You'll usually find a VFD controller above ground in between the motor and utility power) that will have 4 wires leaving towards the pump. *Unsure? Send us a photo to confirm support@ruralpowersystems.com*

Have a non-compatible 2-Wire Pump?

There are still options! Pumps that connect directly to a breaker and have only 2 wires plus ground wire can still be powered by WaterSecure units or a Solar Trailer. Many customers also choose to convert this older technology over to a more modern system with a full RPS Pro Series kit with solar panels, controller and pump/motor combination!



Power Rating	Kit	Solar Panels
0.5HP	1/2HP 220V-to-Solar Conversion Kit	12x 100W Panels
0.75HP	3/4HP 220V-to-Solar Conversion Kit	16x 100W Panels
1HP	1HP 220V-to-Solar Conversion Kit	6x 370W+ Pro Panels
1.5HP	1-1/2HP 220V-to-Solar Conversion Kit	8x 370W+ Pro Panels
2HP	2HP 220V-to-Solar Conversion Kit	10x 370W+ Pro Panels
3HP	3HP 220V-to-Solar Conversion Kit	14x 370W+ Pro Panels
5HP	5HP 3 Phase Only 220V-to-Solar Conversion Kit	20x 370W+ Pro Panels

NEW Power 7.5HP to 25HP Pumps with our Big Ag Series

The same reliability and technology as our popular 5hp Pro Series is expanded up to 10 times with systems up to 25 Horsepower!



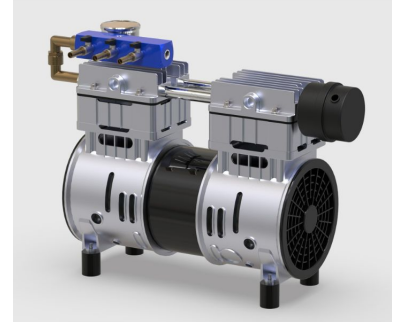
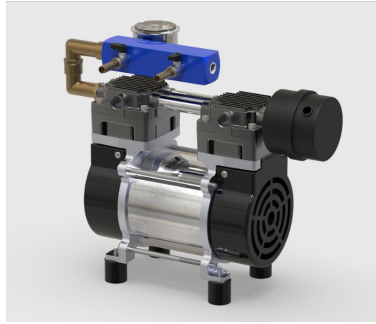
BIG AG PUMPS have been spec'd to align with every one of the different federal or local American agricultural agency programs, including **NRCS**. Large irrigation systems with big water demands and pressure from high-volume Ag wells 6" and up. 3-Phase 6" Motors and 6" Pump Ends allow for up to 350 GPM at pressure and up to 375' of head at that flow rate. All **BIG AG PUMPS** come pre-wired with breakers, surge protection, disconnect switches. Solar Arrays are sized with enough wattage to power your pump's motor for 6+ hours per day in USA's best solar states. With more runtime during growing seasons in states like TX, AZ, NM and CA.

AIR-ation Kits

NEW RPS AIR800!



The RPS AIR800 is the first of its kind, aerating your pond with an RPS Air Compressor with a DC Brushless Motor, weighted aerator hoses, 7" weighted diffuser membrane air stones, and the assistance of 800W of power from eight -100W Solar Panels.



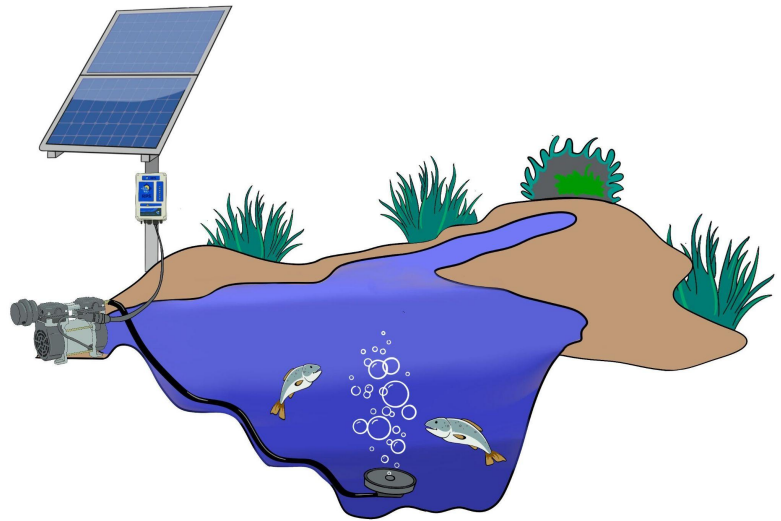
RPS AIR COMPRESSORS WITH DC BRUSHLESS MOTOR AND AIR INTAKE FILTER



	2 ft	2-5 feet	5-10 feet	10+feet
50x50	Air200	Air200	Air400	Air400
¼ acre	Air200	Air400	Air400	Air400
½ acre	Air400	Air400	Air800	Air800
1 acre	Air800	Air800	Air800	Air800

RPS' First Aerator

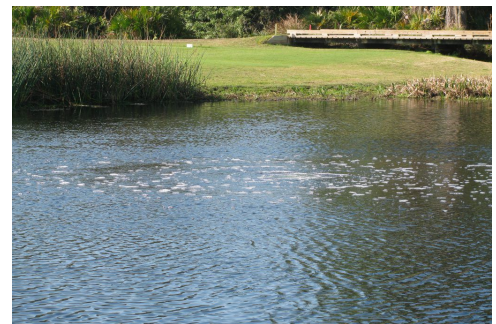
Our RPS engineers spent all year developing three solar-powered air compressor kits that are now the most unique technology we have found on the internet to aerate your pond! This pump can easily be assembled and installed by one person in a single weekend. The solar-powered air compressors push oxygen through the weighted hoses down to the bubbling air stones, aerating multiple pond thermoclines with fresh O2. Our pumps are supported for pond bottoms up to 15 feet deep. For ponds deeper than 15 feet, you can float the air stone at 15 feet and still get great aeration. The air intake muffler combined with the weather-proof enclosure makes for SUPER quiet compressor operation.



A properly aerated pond can hold twice the amount of fish that a non-aerated pond could hold!



Air200/Air400 with Enclosure



Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

AIR-ation Kits

RUNTIME UPGRADE KIT: RPS AIR 400 & RPS AIR 800

If you are worried about bad weather interrupting aeration, RPS offers two larger systems...

1. Adding **two additional solar panels**. Upgrading from two 100W solar panels to four 100W solar panels will extend hours of performance and improve performance during overcast days.

2) Adding **six additional solar panels**. Upgrading the RPS Air Compressor to a larger motor with additional outlets to connect more weighted hose and Air Stones.

Spray & Bubble 800

If you are not sure whether the Fountain Kit or Aeration Kit will work better for your pond this is a great option to start with.

A great two for one! Not only will you get great looks for your pond with the water fountain but the circulation of air with both fountain and aeration pumps to your pond will create a healthier ecosystem.

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

RPS AIR-ation KITS INCLUDE:

The RPS Air200 and Air400 Contain

- RPS 100 Watt Rugged Aluminum Framed Mono-Crystalline Solar Panels (Dimensions are roughly 3.75' long, 1.6', wide and a little more than 1" thick). 2x100W Air200, 4x100W Air400, 8x100w Air800.
- RPS Air Compressor with DC Brushless Motor and Air Intake Filter
- Weatherproof vented metal enclosure to house controller and compressor
- RPS Universal Controller
- 1/2 inch hose barb
- 20 feet of solar wire
- Air Intake Filter
- 50 ft Weighted Aerator Hose $\frac{3}{8}$ inch ID
- 7" Weighted Diffuser Membrane Air Stone
- Detailed full-color solar pump guide with step-by-step install instructions
- Access to RPS video archives of installation tips & product walkthroughs
- 30 Day Money-Back & 100% Water Assurance Guarantee
- Field Serviceable
- 2 Year Comprehensive Warranty
- Phone / Email / Text Support from Friendly USA based RPS Engineers

The RPS800 Includes Everything above plus the following

- Additional 50 ft Weighted Aerator Hose $\frac{3}{8}$ inch ID
- Additional 7" Weighted Diffuser Membrane Air Stone

Solar panel mounting is **not included** in the standard RPS AIR system, you can purchase one of our easy-to-install Top of Pole Solar Panel Mount Kits for a complete DIY experience.

NEW Spray & Bubble 800



The amazing F400 Fountain Kit + Air400 Air Kit + 8P Mount Kit all in one package to get the best of both worlds for your pond!

Fountain Pumps

NEW RPS F2200 & F3000



The **RPS F2200 & RPS F3000** are our all new fountain kits! The kits now come with our **custom stainless steel nozzles**. They also come with complimentary **100ft of pump wire** and **100ft of safety rope** to make the install as easy as possible for any level DIYer. Powered by either **2200W or 3000W** from **6 or 8-370W Solar Panels**.



Pond Size:	¼ acre	½ acre	1 acre	1+ acre	2+ acres
Unit	F400	F800	F1600	F2200	F3000

NEW STAINLESS STEEL NOZZLES!



CLUSTER FOUNTAINHEAD



BLOSSOM FOUNTAINHEAD

Both nozzle styles are included in every kit!

RPS FOUNTAIN SERIES INCLUDES:

All Kits Include

- 100' Safety Rope
- 20" Black Poly Float
- Teflon Tape
- Plumbing fittings from pump to nozzle
- Grounding Clamp

The RPS F200/F400 Include

- RPS 400V Pump Kit
- 100' Pump Wire in Box
- 3/4" Nozzles
- Controller
- 100W Solar Panels (2x F200, 4x F400)

The RPS F800/F1600 Include

- RPS TriPower Pump
- 1-1/2" Stainless Steel Nozzles
- DC Disconnect
- 100' Pump Wire Pre-Installed
- 100W Solar Panels (8x F800, 16x F1600)

The RPS F2200/F3000 Include

- RPS TriPower Pump
- 2" Stainless Steel Nozzles
- DC Disconnect
- 100' Pump Wire Pre-Installed
- 370W Solar Panels (6x F2200, 8x F3000)

Solar panel mounting is **not included** in the standard RPS FOUNTAIN system, you can purchase one of our easy-to-install Top of Pole Solar Panel Mount Kits for a complete DIY experience.

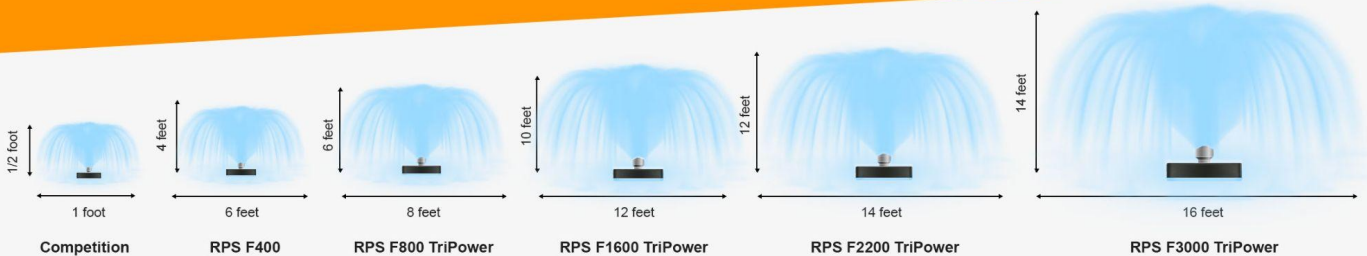
Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

How RPS fountain pumps size up!



Surface Pump Sizes

	Tankless Pressure Pump™	Transfer Pump T400, T800	Pro GB Booster	Pro Irrigation
Well Pumps				
Solar Power	Solar Charged 24V Battery Bank	Direct Drive on Solar	Direct Drive on Solar	Direct Drive on Solar
Batteries	<i>Required</i>	No	No	No
Generator/ AC Backup	220V Generator	110V Generator with Converter	220V Generator	220V Generator
Plumbing	1" or 1.25" Inlet 1" Outlet	1" Outlet	1.25" Outlet	1"-2" Outlet
Horsepower (HP)	1 HP	1/2 to 1 HP	1 HP	1/2 to 5 HP
Common Uses	Household Pressure, Irrigation	Tank Transfer, Aeration	High Head Tank Transfer	Larger Irrigation, Farms, Fountains, Dewatering

For even more Surface Pump options and sizing help for irrigation projects ask about our Surface Pump Catalog. Our NEW! Line of ½ HP, 2 HP and 3 HP Eco-Steady Booster Pumps (pg 50) is perfect for large homesteads and variable pressure irrigation!

Surface Pumps

Tankless Pressure Pump™

TPP 1HP & TPP HP(High Pressure)

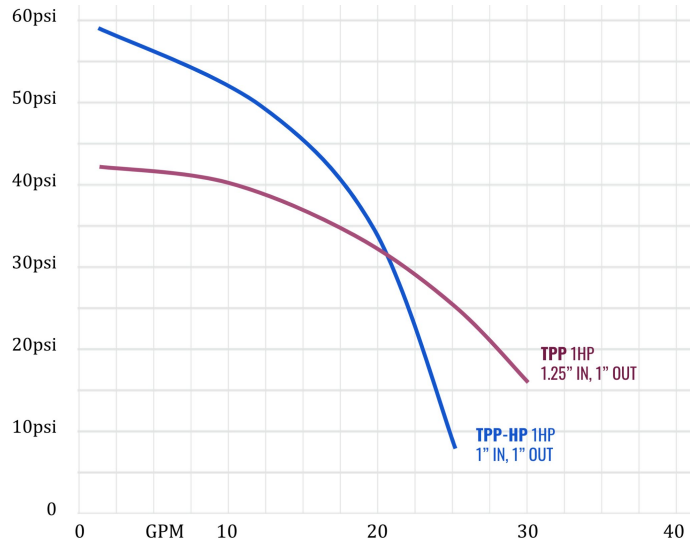
PRESSURE



GPM



COST



With the RPS Tankless Pressure™ System you'll get smooth, continuous, steady reliable water pressure without the need for a pressure tank or AC power! The solar charged battery bank powers a centrifugal booster pump that varies its speed and power based on your demand for water at the exact pressure you select.

RPS Offers Two Kit Options to Fit Your Needs:

TPP 1HP: 5-35 GPM, 10-45 PSI

TPP HP(High Pressure): 5-25 GPM, 10-60 PSI

Need reliable drip irrigation? Set system to 20 or 30 psi. Need household water pressure or sprinklers? Set system to 45-55psi. 15' suction from a pond or shallow well with foot valve. Choose between a 110V or 220V backup power compatibility, just in case the battery bank is drained and the sun doesn't shine. compatibility

Kit includes:

- 100w Mono-crystalline Solar Panels
- Tankless Pressure Pump™
- TPP Controller to regulate power transfer between pump, panels and batteries
- Solar Wires to connect solar panels to controller
- Wires to connect to battery bank (55Ah 12V Deep Cycle AGM batteries optional)
- Purchase RPS GEL batteries with kit or BYOB
- 2 Year Warranty & 100% Water Assurance Guarantee

Pump Weight: 22 lbs
 Pump Dims: 16x13x10"
 Inlet / Outlet: 1.25" / 1"
 Battery Bank Voltage: 24V
Solar Panels
 100w 38x21x1.18" 15lbs

Choose a model based on your water needs.

The higher PSI and/or higher flow rate used, more power is pulled from the batteries-resulting in a range of time available to pump.

Hours Runtime at Different Pressures

	TPP - 8 (8 panel/8 battery)	TPP - 12 (12 panel/12 battery)
Low	3.3	5.0
Med	2.6	4.0
High	N/A	N/A

Gallons Per Day at Different Pressures

	TPP - 8 (8 panel/8 battery)	TPP - 12 (12 panel/12 battery)
Low	5,940	8,910
Med	3,643	5,465
High	N/A	N/A

Hours Runtime at Different Pressures

	TPP HP - 8 (8 panel/8 battery)	TPP HP - 12 (12 panel/12 battery)
Low	3.3	5.0
Med	2.6	4.0
High	2.2	3.3

Gallons Per Day at Different Pressures

	TPP HP - 8 (8 panel/8 battery)	TPP HP - 12 (12 panel/12 battery)
Low	4,950	7,425
Med	2,851	4,277
High	1,320	1,980

Call 888-637-4493 for help with sizing

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

RPS Solar Transfer Pump

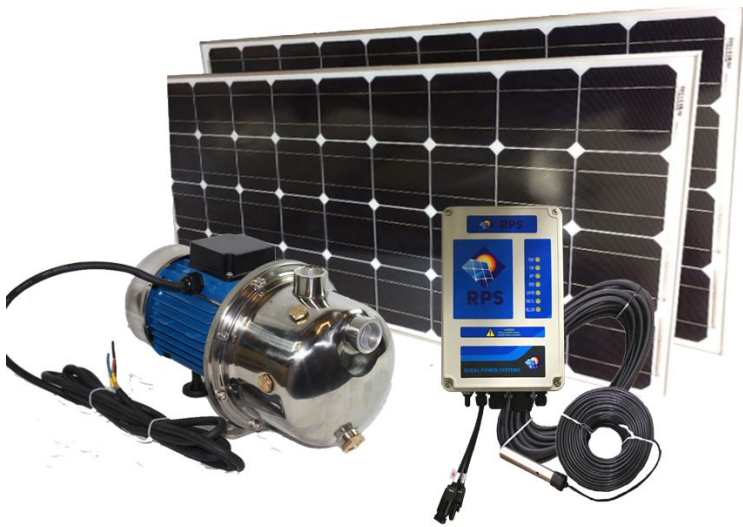
HEAD ●●●●●
 GPM ●●●●●
 COST ●●●●●

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering



With our same best-selling RPS pump controller and a brushless motor, this pump offers small to medium scale surface/transfer/booster pumping with ease. Stainless steel impeller housing and impeller means it won't wear out. This solar direct-drive system can attach to the outlet of any storage tank or suctions up to 15', drawing water up from ponds, springs, creeks and shallow wells. Pressurize water systems for irrigation or cattle waterers, but compare with Tankless Pressure Pump if 24 hours of water pressure is needed as that system uses batteries and can pump outside the 'solar day'. Will pressurize to about 40psi during full sun. Choose between a four panel (T400) or an eight panel (T800) system.

Pump Weight: 18 lbs
 Pump Dims: 20x14x12"
 Inlet / Outlet Size: 1"
 Solar Panels
 Approx. 40x20x1.18" 15 lbs



		T400		T800	
Head (ft)	PS I	GPD	GPM	GPD	GPM
0	0	4752	13.2	4860	13.5
10	4	4356	12.1	4536	12.6
25	11	3204	8.9	3672	10.2
50	22	1152	3.2	3528	9.8
75	32			2340	6.5
100	43			684	1.9

Kit includes:

- 100w Mono-crystalline Solar Panels
- RPS Surface Centrifugal Transfer Pump
- RPS Universal Pump Controller
- 1x Low-water Well Level sensor with 100ft wire attached
- 1x Tank Shut-off sensor with 100ft wire attached
- Solar Panel cable connectors
- Waterproof heat shrink wire splice kit with pre-crimped pump wires

Pro GB Booster

HEAD ●●●●●●
GPM ●●●●●●
COST ●●●●●●



Our Pro GB Pumps are for super high head, non-submersible applications where suction is not necessary (usually plumbed to tanks). Systems use hearty 3-Phase Motors and 3.9" Multistage Centrifugal Pump Ends. Our controllers are the best in the world and allow customization and optimization based on sun and season, sensor input, 220v backup and more. There is no other kit like this on the market.

Kit includes:

- Solar Array of Monocrystalline Aluminum-framed Panels (number of panels varies with model)
- 2.2 kW Rated Solar Controller (takes DC Voltage from Solar Panel array +Auto-Switch to run with 220v Grid or Generator when not enough solar)
- **Pro GB1000** 1 HP GB Booster Pump
- Large Float Switch for use as high water tank sensor
- All connector cables from solar panels to controller
- DC cut-off disconnect switch rated for your array, plug and play with MC4s
- Phone & Email support before and during installation



Pump Dims: Model Dependent
Inlet / Outlet Size 1"

Solar Panels
 Small 40x20x1.18" 15 lbs
 Large 66x40x1.4" 40 lbs



100% WATER ASSURANCE GUARANTEE



Head (ft)	Gallons Per Day (6 hrs)	Gallons Per Minute (GPM)
100	3,240	9.0
200	2,880	8.0
300	2,520	7.0
400	1,980	5.5
500	1,260	3.5

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

Surface Pumps

Pro Irrigation Surface Pump

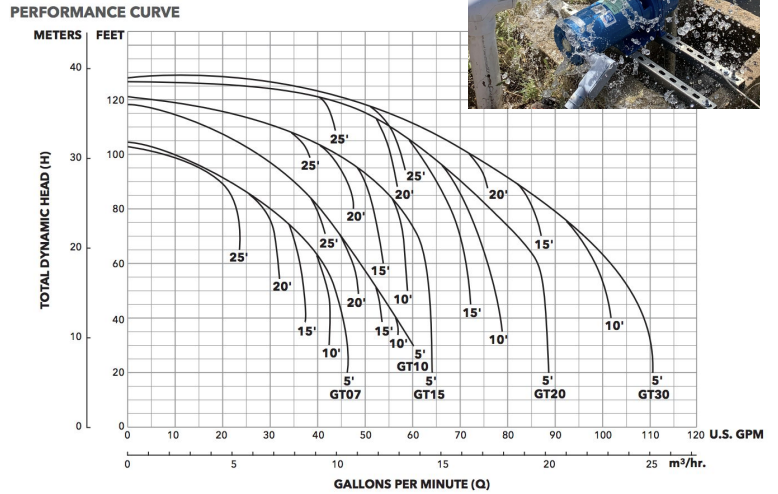
HEAD ●●●●●
 GPM ●●●●●
 COST ●●●●●

Well Pumps

Aeration

Surface Pumps

Sump / Dewatering



Our Pro Irrigation Pumps are high volume, mid-head, non-submersible applications where suction still may be necessary. Great for sprinklers up to 45 psi, but can also supply drip lines without overpressurizing. Self priming suction up to 25' but the less priming, the better GPM production at lower head. The systems use best-of-the-best USA 3-Phase Pumps. Pump from sun up to sun down or program an irrigation timer for a custom watering schedule. Cast iron construction sealed with corrosion resistant Electrocoat paint.

Pump Dims: Model Dependent
 Inlet /Outlet Size: 1.25" NPT /1.25" NPT

Solar Panels
 Small 40x20x1.18" 15 lbs
 Large 66x40x1.4" 40 lbs



Kit includes:

- Solar Array of Monocrystalline Aluminum-framed Panels (number of panels varies with model)
- 2.2 kW Rated Solar Controller (takes DC Voltage from Solar Panel array +Auto-Switch to run with 220V Grid or Generator when not enough solar)
- Up to 5hp Goulds Irrigation Pump (see curves above)
- Large Float Switch for use as high water tank sensor
- All connector cables from solar panels to controller
- DC cut-off disconnect switch rated for your array, plug and play with MC4s
- Phone & Email support before and during installation

Head (ft)	Pro S750	Pro S1000	Pro S3000	Pro XL S5000
25	16,560 GPD (46 GPM)	21,600 (60 GPM)	39,600 (46 GPM)	86,400 (46 GPM)
50	15,480 (43 GPM)	18,720 (50 GPM)	37,800 (46 GPM)	79,200 (46 GPM)
75	12,240 (34 GPM)	15,120 (42 GPM)	33,480 (46 GPM)	66,600 (46 GPM)
100	3,600 (10 GPM)	9,720 (27 GPM)	25,920 (46 GPM)	54,000 (46 GPM)
120	-	-	16,200 (46 GPM)	43,200 (46 GPM) 25,200 at 140' (46 GPM)

Surface Pumps

NEW! Eco-Steady Booster Pumps

Receive smooth, continuous, steady reliable water pressure without the need for a pressure tank or AC power! The solar charged battery bank powers a centrifugal booster pump that varies its speed and power based on your demand for water at the exact pressure. BP05 fits lower pressure irrigation, 24/7 livestock tanks with floats and moving water between tank locations or springs. BP2 and BP3 are ideal for farms and large homesteads with a variety of applications like drinking water, livestock troughs, orchards and pasture irrigation. Expandable battery bank and solar panel array provide longer runtimes as your property grows. Plug into any 220V backup power source just in case the battery bank is drained and the sun doesn't shine. Typical install plumbs out from a storage tank, but offers the option for a 15' suction from a pond or shallow well with foot valve. Choose a model based on your water needs. The higher PSI and/or higher flow rate used, more power is pulled from the batteries-resulting in a range of time available to pump.



Kit includes:

- 100w Mono-crystalline Solar Panels
- Eco-Steady Booster Pump™
- Solar Power Train Controller to regulate power transfer between pump, panels and batteries
- Solar Wires to connect solar panels to controller
- Wires to connect to battery bank (55Ah 12V Deep Cycle, AGM batteries optional)
- 2 Year Warranty

	BP05	BP2	BP3
Pressure	10 to 30 PSI	10 to 60 PSI	10 to 70 PSI
Flow Rate	5 to 18 GPM	5 to 30 GPM	5 to 50 GPM
Horsepower	½ HP	2 HP	3 HP
Inlet/Outlet	1" / 1"	1.25" / 1"	1.5" / 1.5"
Solar Panel / Battery Kit Options	4 batteries / 4 solar panels 8 batteries / 8 solar panels 12 batteries / 12 solar panels	12 batteries / 12 solar panels 24 batteries / 24 solar panels 36 batteries / 36 solar panels	24 batteries / 24 solar panels 36 batteries / 36 solar panels

Hours of Runtime at Different Pressures

	BP05 - 4 (4 panel/ 4 battery)	BP05 - 8 (8 panel/ 8 battery)	BP05 - 12 (12 panel/ 12 battery)	BP2 - 12 (12 panel/ 12 battery)	BP2 - 24 (24 panel/ 24 battery)	BP2 - 36 (36 panel/ 36 battery)	BP3 - 24 (24 panel/ 24 battery)	BP3 - 36 (36 panel/ 36 battery)
Low	2.6	6.6	9.9	4.0	7.9	11.9	6.6	9.9
Mid	2.2	5.3	7.9	2.9	5.9	8.8	5.1	7.7
High	N/A	N/A	N/A	2.5	5.0	7.4	3.8	5.7



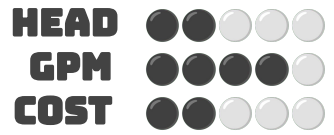
Well Pumps

Aeration

Surface Pumps

Sump / Dewatering

Grid-less Sump Pump™



Well Pumps

Aeration

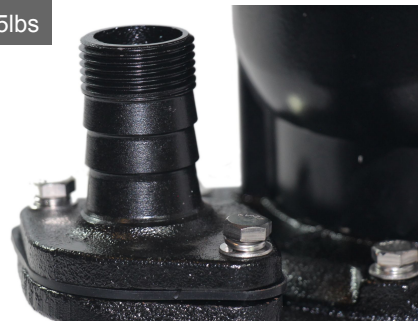
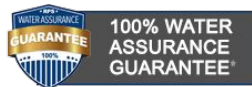
Surface Pumps

Sump / Dewatering



Pump Weight: 18 lbs
 Pump Dims: 20x9x9"
 Inlet / Outlet Size: 1" / 2"

Solar Panels
 Approx. 40x20x1.18" 15lbs



The one and only off-grid sump pump for dewatering without the grid! The most exciting sump pump system we have ever seen, up to 90 GPM dewatering capability without grid power!

With the RPS Grid-less Sump Pump™ System you'll get reliable dewatering without the need for AC power or the utility grid. No more stress about flooding or water damage. The solar charged battery bank powers an ultra efficient permanent magnet-driven sump pump to give you dewatering abilities if the grid goes down or you're off-grid, or don't have access to reliable AC power.

Kit includes:

- 100 Watt Monocrystalline Solar Panels
- RPS Grid-less Sump Pump™
- RPS GLS Pump Controller
- 55Ah GEL Batteries (optional)
- Battery Jumper Wires
- 1" / 2" hose barb and hose clamps
- 1x Plug-and-Play Low Water Float shut-off
- Solar Panel cable connectors

5ft Head	GLS-90-4	GLS-90-8	GLS-Hybrid
Solar Panels Included 100w	4	8	12
Recommended Batteries	4	8	12 Included
Hours Pumping **	1-2	3-4	6-10
Gallons Per Day **	Up to 5,400	Up to 10,800	Up to 25,000

** Based on Under 50ft head. Actual values depend on head, initial charge rate, concurrent solar input and real-world conditions.

Wireless Tank Sensor

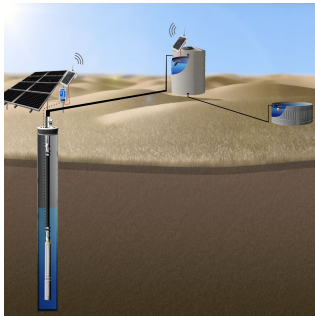


Finally, you can avoid trenching wire thousands of feet in order to shut off your pump remotely when the tank is full! After years of customer requests and development, comes an easy to use wireless tank full sensor, recently upgraded for 24 hour options and AC pumps. No more trenching, no more running hundreds of feet of wire, no more damaged underground wires! It just works. *New models in 2020 mean compatibility with solar pumps, VFD's and AC pumps!*

Standard units come with solar panels to operate both the transmitter and receiver and are perfect for RPS standard and Pro Systems. Plug the units into their solar panels, hook up your float switch or stainless tank full probe, connect to your pump controller and you are ready to go. 24 hour option comes with batteries for backup power and the AC options come with 30A 120V/240V AC contactors to control large loads.

The system has been tested at over 2.5 miles line-of-sight and will perform with moderately flat land and trees, not with large hills that will block the signal.

“Saved us! Trenched wire to tank got cut somewhere in a 2000ft run. This wireless shutoff saved us! Installed quickly. Works well.” -Tom, CA



Transmitter at Tank End



Receiver at Controller End

Transmitter Unit is installed at Water Tank connected to small Float Sensor. Includes: Tank Float Switch, Solar Panel, Mounting bracket

Receiver Unit is installed at RPS Pump Controller to the Tank Sensor terminals. Includes Wiring Jumpers, Solar Panel, Mounting bracket, Hardware

Adding an Irrigation Timer to RPS Systems

Have a remote setup where you need to turn your solar pump on and off at a set schedule?

OPTION 1: Basic Battery Powered Timer Switch - The basic irrigation timer will turn on and off our RPS200, RPS400, RPS600, RPS800, RPS400V, RPS800V, T400 or T800 (0 to 30 min low water timer built in on standard kits), on a daily basis. There is only one turn on time and one turn off time per day, which repeats every 24 hours. For simple irrigation setups. System requires four AAA batteries that last around 30 days.

OPTION 2: Pro Series Battery Powered Timer Switch - The Pro Series Timer is compatible with the RPS 200, 400, 600, 800, and all of our Pro Series Systems. It is perfect for more complicated watering needs and allows for different daily schedules. System requires two 9V batteries which last as least 6 months.



RPS Top-of-Pole Solar Panel Mount Kits



You bring the pipe+cement, we supply the rest! Adjustable tilt bracket allows you to fine-tune panel angle for each season. We use durable parts, all of our bracketing and screws are made of 100% stainless steel and extruded aluminum anodized rails for longer life. Rated for up to 81 MPH winds.

“★★★★★ **Great and Quick**
 I ordered the 4 Panel Kit for a old satellite post I had in my backyard. This kit was easy and had online instructions on YouTube. No way you could not install this kit. Looks nice and hold securely at your sun angle to maximize your power output of the panels.”



	2P Top-of-Pole Mount	4P Top-of-Pole Mount	8P Top-of-Pole Mount
100W Solar Panels Each Panel Approx. 47" x 20" x 1.18"	2x	4x	8x
Angle	Adjustable by Season	Adjustable by Season	Adjustable by Season
Customer Supplied	2" Post (2.3/8 OD)	4" Post (4.5 OD)	4" Post (4.5 OD)
Common System	RPS 200s	RPS 400s	RPS 800s

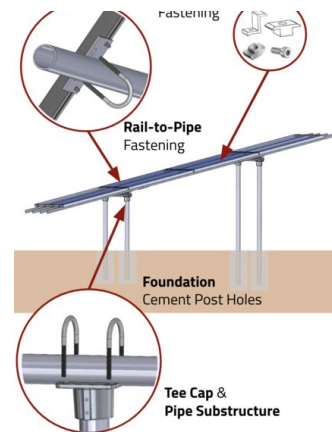


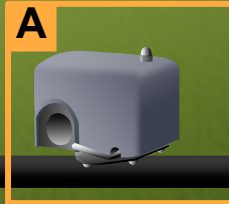


Scalable Solar Panel Ground Mounting

	Vertical Columns				
	1x	2x	3x	4x	Larger
4x Horizontal Rows (Number of Larger Solar Panels ex. 300w) Each Panel Approx. 65" x 40" x 1.4"	VC1-HR4 (4 Panels)	VC2-HR4 (8 Panels)	VC3-HR4 (12 Panels)	VC4-HR4 (16 Panels)	VC -HR4
8x Horizontal Rows (Number of Smaller Solar Panels ex. 100w) Each Panel Approx. 47" x 20" x 1.18"	VC1-HR8 (8 Panels)	VC2-HR8 (16 Panels)	VC3-HR8 (24 Panels)	VC4-HR8 (32 Panels)	VC -HR8
Rough Array Dimensions	7' Wide X 16' Deep	10' Wide X 16' Deep	15' Wide X 16' Deep	20' Wide X 16' Deep	
Steel Pipe Required for Substructure (2")	50'	50'	75'	100'	

An **affordable** and **easy-to-install** mounting system for **larger panels and arrays at fixed angles**. The new Scalable Solar Panel Ground Mounting by RPS is the quickest way to plan for mounting a large array with an RPS Pro Series Kit. These Ground Mounts are built using the tried-and-true post & beam substructure, bridged by our popular RPS rails and solar panel fastening hardware - the gold standard with our Top-of-Pole Mounting systems. For installation, all you need to bring are a few tools, some steel pipe and a few bags of cement for the post holes. (and your RPS solar pump kit of course!)





A. Reverse Action Pressure Switch

Square D brand and similar to the traditional AC pump pressure switches, just working in reverse electrically. These switches complete a circuit with 2 signal wires when the pressure is up to the setting, for example turning off at 30 psi and on at 50 psi. Two signal wires connect to any RPS Solar Pump Controller.



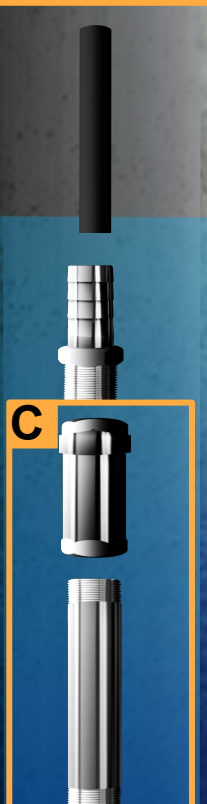
B. All Stainless Steel Well Seal Assembly

Available with 3/4", 1" or 1-1/4" Stainless Barbed insert down hole for Poly Pipe Connections. Plumbing through well seal is 1-1/4". Well seal available in 2", 3", 4", 6", 8" or 10".

Includes:

- Stainless Well Seal
- Stainless Threaded Nipple
- Stainless Threaded Tee or Elbow
- Stainless Coupler
- Stainless Hose Clamps

** Pitless Adapter+Well Cap also available online.



C. Check Valve + Threaded Nipple

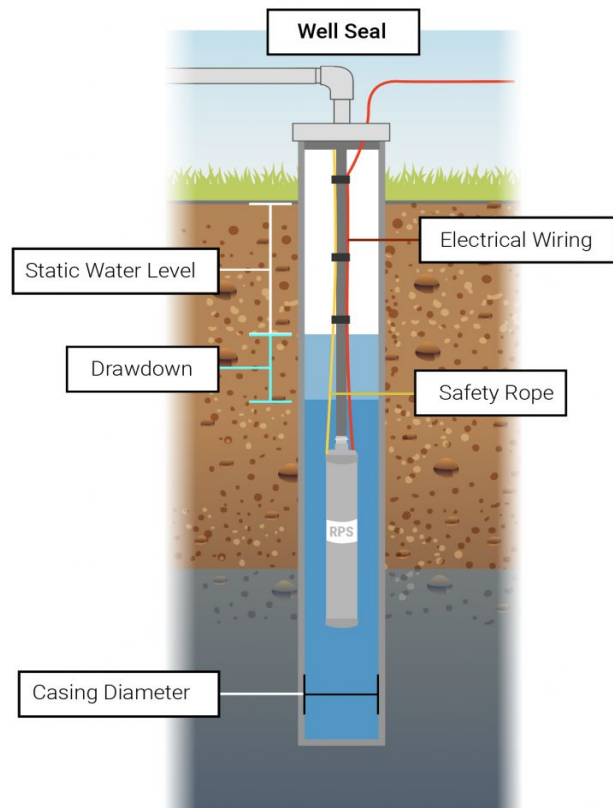
Holds pressure and prevents backflow. While a check valve is optional for RPS systems when pumping into the top of a storage or stock tank, a check valve is required if pumping into a tank bulkhead at the bottom or into a pressure/bladder tank. Your kit will come with a threaded barb of the proper size for your pump and will fit the check valve of the same size as they are all NPT thread.



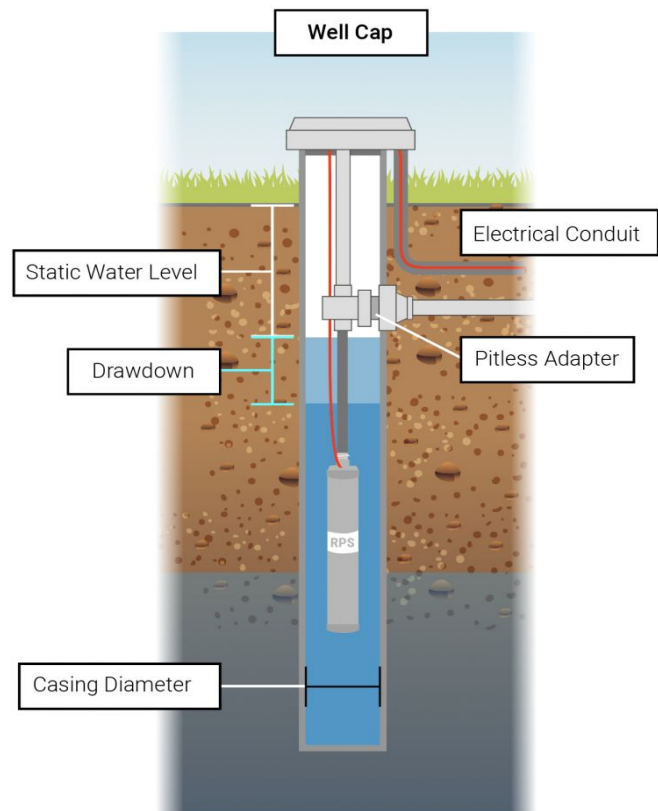
3/4" is compatible with RPS 200, 400, 800
 1" is compatible with RPS 400V/800V
 1-1/4" is compatible with all Pro Series kits

Winterization / Well Cap vs. Well Seal

Common for: Windmill Conversions, Livestock Wells, Warmer Climates, Faster+Easier Installs



Common for: Colder climates with trenched pipe, when using pressure as shut-off.



Well caps are by far the most popular installation technique. For freezing climates they can still be used if weep holes or a full drain-back system is used to keep the water from sitting in the pipes. RPS Helical models can be installed without a check valve, allowing water in the pipe to drain back into the well when the sun goes down and the pump is no longer pumping. No water in your pipes means no freezing, but the pump will have to work each morning to refill the pipes before you'll make progress filling your tank. Usually, this is not an issue unless the exposed pipe above ground is of significant length. **Pitless adapters can be used to connect to trenched pipe, and RPS carries pitless adapters for sale on our website .**

More at rpssolarpumps.com/LEARN

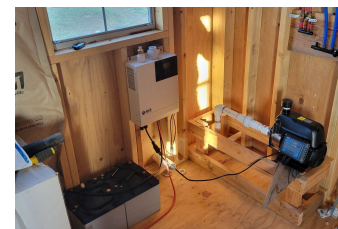


Deep Cycle GEL VRLA Batteries 55Ah 12V or 160Ah 12V Options

At last, the ultimate off-grid deep cycle batteries! RPS is offering the highest quality VRLA sealed batteries with operation lifetime up to 15 years and 1,350-1,550 cycles (50% DOD) before they lose only 40% of their capacity. Rely on our 2 year warranty and compare that to standard flooded lead acid batteries. Our GELs have 3-4 times the lifespan for about the same cost. Plus at 55ah and 12V, these pack a punch yet are easy to carry and handle. Gone are the days of checking and filling batteries every few months and risks with battery acid spilling. Bar none, these are the highest quality and longest lifetime lead acid batteries on the market today!



- Completely sealed for spill prevention and maintenance elimination
- Extra thick Pb-CA-Tin alloy plates for extra long lifetime
- 55 Ah: 38 lbs, 9.02 x 5.43 x 8.50 inches each battery
- 160Ah: 106lbs, 20.9 x 8.15 x 8.16 inches each battery
- "+" and "-" battery-to-battery and battery-to-controller jumpers included in every purchase



POPULAR Generator / AC Grid Inverter Box

Essentially an AC to DC Power Supply (36-72v, 360-1000w) with 3 wires from a standard 3-prong 110v plug that can go right into your generator. MC4 Connectors (standard solar panel connector clips) attach from the power supply to the leads of your controller. Manual switching and automatic switch versions available. We sell out of these fast!




	36v	72v
	RPS 200, 200+, 400N, 400	RPS 400, 400V, 600, 800, 800V
	110V 1000W+ Generator	110V 1000W+ Generator

The RPS 400 is compatible with either, but will run best at high head on the 72v.

AUTOMATIC SOLAR/AC SWITCHING: Built in is a power-blending automatic switcher that will accept power from both solar and an AC source while prioritizing solar. You will be able to hook up conventional 110v line power. It will supply your system full power continuously for full performance regardless of the weather. When using batteries, this can be used to top-off batteries connected to the system.

Backup & Night Time Power



SPEED UP YOUR
INSTALL WITH OUR
TURNKEY KIT

You've got this.

It's now easier than ever to install your solar well pump with the Turnkey Kit's flexible black poly pipe, wire and mounting. The Turnkey components get packed in a "big blue doughnut", simple to ship and ready to throw in the back of your vehicle.

No more dependence on expensive contractors or special equipment.

TIME IS MONEY “TURNKEY KIT”

POPULAR

Short on time? In a remote area without access to a hardware store? Get everything you need to install an RPS Solar Pump right to your doorstep.

The “Turnkey Kit” was designed by popular demand and has made for hundreds of easy installs in remote areas all over the USA. Small enough to throw in the bed of your truck and pick up everything by hand.

Available in 100ft, 200ft & 300ft
Compatible with RPS 200, 400, 400N, 600, 800, 400V, 800V



Unbox-to-Pumping Record Holder

1hr 7min from opening boxes to pumping water. *Missouri, USA*

NEW!

Pro-Turnkey 1.25” Poly Pipe

For mid flow pump applications around 15-25 GPM. Designed to be compatible with pumps from the ProV, ProD and ProM lines. Pro-Turnkey includes **250 psi** 1.25” poly pipe, a check valve assembly, rope, **10Ga** 3+G wire, well seal or well cap assembly. Solar panel mounting sold separately.

	Standard RPS Solar Pump Kits	With FULL “Turnkey Kit”
RPS Solar Pump & RPS Solar Controller	✓	✓
Solar Panels 100W Aluminum Frame	✓	✓
Solar Panel Mounting Adjustable Tilt Pole Mount		✓
Controller Mounting 2” or 4” Post Straps & Plates		✓
Controller Mounting Tabs & Lags for Plywood	✓	✓
Solar Wire Two 20’ Lengths with MC4s	✓	✓
Steel Post + Cement 2-3/8” OD or 4.5” OD Pipe	Customer Supplied	Customer Supplied
12-3 Pump Wire 6’ + butt crimps on pump		✓ 100’ or 200’ or 300’
Pump Wire Splice Kit With Wire Labels	✓	✓
Low Water Sensor + Wire	✓ 100’	✓ 100’ or 200’ or 300’
Tank Full Sensor + Wire	✓ 100’	✓ 100’
Sensor Wire Splice Kit	✓	✓
Safety Rope Yellow No-Decay Twisted Poly		✓ 100’ or 200’ or 300’
Black Poly Pipe 160psi Rated		✓ Choose ¾” or 1”
Pump-to-Poly Pipe Barbed Coupling + Hose Clamps	✓	✓
Well Seal SS Plumbing All Stainless with barb & tee		✓
Standard Well Seal		✓ Choose 4”, 5”, 6” or 8”
Grounding Lug for controller	✓	✓
Bare copper wire roll & Grounding Clamp		✓
Grounding Rod 4’ or 8’ if required by code	Customer Supplied	Customer Supplied
Teflon Tape For SS plumbing		✓
Electrical tape For bundling pipe/rope/wire		✓
Digital Multimeter For testing voltages if needed		If Requested
Our Award Winning RPS Support Team if you need us!	✓	✓

NEW 2024 SUN TITAN™ Solar Trailer

Mobile Off-Grid Power for Ranch, Farm and Country Living



Eligible for 26% Federal Tax Credit + Limited Number Available in 2024!

A rugged mobile power unit that can power water pumps up to 2HP, welding equipment, power tools, refrigeration units, lighting, electric tractors, Wi-fi and charge your Iphone and field laptop to boot. Every piece of this trailer is pre-configured and pre-wired by RPS engineers for ease of use right off the lot. The eight 345W solar panels are set on a track of quick locking slides out for ease of deployment at your job site, and that compactly nest together for travel mode. The inverter delivers 10,000W of rated power output, and apris with your choice of either GEL or LiFe batteries. Dual MPPTs provide 99% efficiency. Provides 120V and 220V output power. Also compatible with 120V/220V AC grid charging or auto-start generator.

Trailer Includes...

- 10K Pure Sine Inverter
- 2700W QUICK DEPLOY SOLAR ARRAY
- GEL or LiFe Battery Bank
- 20FT Adjustable LED Light Tower + Light Timer
- 4x 100W LED Lights
- Trailer 2" Ball Hitch + Light Wiring
- Dual Solar DC Disconnects
- Hydraulic Solar Panel Lift
- Easy Connect Outlet Panel
- Pure sine wave output in standard 110V and 220V 1PH (split phase)
- Pre-installed outlets & breakers. Pictured: 50 Amp NEMA 14-50R110V/240V, 30 Amp 120V, 20AGFI 110V circuit *customization with Fleet orders*
- 2" Ball Hitch + Backup Light Wiring Plug
- Over current/voltage protection

AUTO-START GENERATOR ADD-ON AVAILABLE
Call 888-637-4493 for pricing!

Choose Between a Lead Acid or Lithium-Iron Battery Bank

	8x GEL	12x GEL	1x LiFe	2x LiFe	3x LiFe	4x LiFe
Hours for Recharge from Empty	4.9	6.8	1.75	3.5	5.3	7
Total kilowatt hours (kWh)	15.3	23	5.1	10.2	15.4	20.5
Usable kWh at Normal Discharge*	7.7	11.5	5.1	10.2	15.4	20.5

NEW 2024 Instant Off-Grid Shipping Container

Both Pre-Engineered and 100% Custom Options



**BRING
YOUR
CUSTOM
DESIGN!**

Eligible for 26% Federal Tax Credit

A fully customizable off-grid solution to fit your exact needs whether it's for construction sites, rural offices, farm/ranch storage, tiny home, hunting camp, shed/RV alternative, company break room or field worker coding station. By adding a solar power system, you can power your container without relying on the grid, or a noisy generator. These off-grid one trip shipping containers are outfitted with roof mounted solar panels on the outside, and on the inside, a rugged inverter with power ready battery bank. The durable container design is completely waterproof, protects you and your equipment from the elements and can be locked when not in use. Beyond mounting the solar panels on the roof of the container on delivery, NO wiring or assembly is required to have a climate controlled space ready in just a few hours. **100% Customizable!**

Container Includes...

- Custom Exterior Colors
- Fiberglass coated plywood for Interior
- WS LiFe 10k Prewired and operational
- 110v and 220v Plugs & Receptacles Wired up both Inside and Outside (220v outside only)
- DC Disconnects
- Solar Input Connectors
- Container Roof Mounting Brackets Come welded on Container
- 2" Pipe required comes in container on delivery and is pre cut to length for tilt angle
- Air Conditioning/Heat: 12,000 BTU or 18,000 BTU
- Interior Lighting and Cabinets
- Windows and sliding doors
- Functional Swing Container doors

Call 888-637-4493 for custom rating & pricing!

Choose Between a BYO-Container, Quick Deploy / Bare Bones or Move in Ready!

Adding more GEL or Lithium Iron batteries to any of these example model buildouts is easy! Stack up to 9 Lithium Batteries per system!

System Solar Array Size	3,000W (Limited large appliance use)	4,000W (Limited large appliance use)	6,000W (Limited large appliance use)	8,880W (Planned AC, Lights & Fridge)	12,000W (Planned AC, Lights & Fridge)
Option #1 of 100Ah Lithium Iron Batteries	1 (5kWh)	1 (5kWh)	2 (10kWh)	3 (15kWh)	4 (20kWh)
Option 1: # of 160Ah Lead Acid GEL Batteries	8 (15,360Wh)	8 (15,360Wh)	16 (30,720Wh)	16 (30,720Wh)	16 (30,720Wh)
Number of 370W Solar Panels	8	12	16	24	32
Inverter Size	10K Hybrid Inverter				

Our Pledges to You

1. **Be a company our Grandfathers would have trusted.** The trend of 'outsourcing' customer support after the sale is a trend we wholeheartedly oppose. We are an American, family run company and our USA engineers support you before and after the sale.
2. **No sales pressure.** Ever. Nobody in the company is paid on commission. We think this is important. Their role is to make sure they find the right pump for you and your well. If we don't have a pump that will suit your needs, we will help you find a solution elsewhere. Our job is to help get you water.
3. **Reliable Water.** All manufactured products have occasional issues and we can't claim to be perfect. However, we are proud of a near perfect track record in getting our customers water. This starts with selling a pump sized for your usage with our Water Assurance Plan and promptly addressing warranty issues to get you up and pumping again quickly.
4. **Give you the power!** When you control your ability to pump water out of the ground, whether in the field or at home, it makes you more resilient and independent. We are here to help educate you about solar water pumping and our systems over the phone, with our manual and our great videos online, so you can install yourself. Take control of your water supply today.
5. **Fight for the American rancher.** RPS is a David & Goliath story of a small American company fighting against a big European pump corporation that cares more about profits than the longevity of their pumps and the sky-high price for ranchers. Thanks to all our customers for the support of small business vs. foreign corporations trying to profit off some of the hardest working people in our great nation.

- The RPS Team





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