Congratulations!

Congratulations! You are now the owner of a new **SILVERengines *proton***, the most advanced, simple-to-operate, ionic/colloidal silver generator on the market!

This manual is your key to getting the most out of your portable **SILVERengines *proton*** machine. Because you care deeply about your well-being, you have chosen the ideal brand and product for your family. You are about to experience the simplicity and value of the most cutting-edge ionic/colloidal silver generator on the market. **Enjoy!**

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by Duncan Carey Palmer

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Fill Line

**WARNING!
Do NOT over-fill!
Water Damage to the
circuitry will VOID
your warranty!**

The Story Behind the SILVERengines *proton*

Duncan Carey Palmer has been making and using <u>ionic/colloidal silver</u> for more than 20 years. During that time, he's learned a great deal about how to make it effectively.
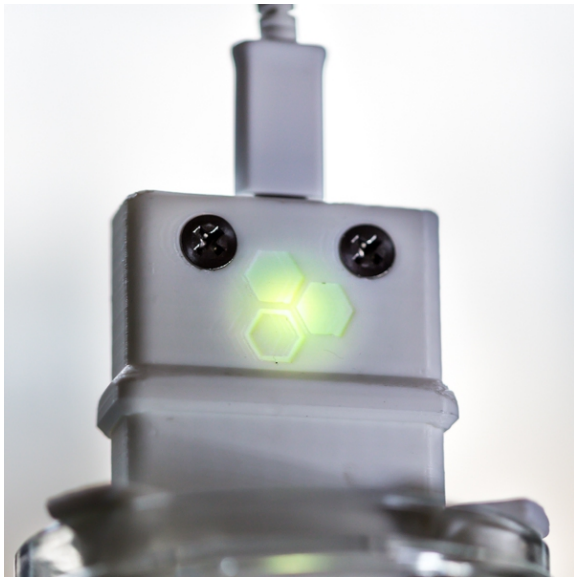
The new **SILVERengines *proton*** has been under intense development for more than five years. Duncan's goal was to create a reasonably priced, fully automatic, trouble-free machine that would allow the average person to conveniently and inexpensively make high quality, consistent batches of <u>ionic/colloidal silver</u> in the comfort of their own home.

The **SILVERengines *proton*** is built using modern ROHS compliant surface mount electronic technology. It leverages the best of modern electronic and manufacturing technology to produce a beautifully clear, consistent, and uniformly high quality <u>ionic/colloidal silver</u> solution, comparable to high-priced brands at your local health-food market. Operation is fully automatic and quite simple.

"I used to get terrible sinus infections," says Duncan, "pretty much every time the Santa Ana winds would blow. My sinuses would dry out and crack, and before I knew it I'd be headachey and feverish.To make matters worse, I absolutely *hated* going and paying a doctor to tell me I had a sinus infection... I *knew* that! But because I needed his autograph on a prescription for antibiotics, I had little choice in the matter."

"Then one day I came across a bottle of nano silver in a health food store. I'd heard about it, and decided to give it a try. The next time a sinus infection struck, I fought back with the ionic/colloidal silver, and was delighted to find it as thoroughly as effective as the pharmaceutical antibiotics that I used to spend so much money on. What a relief!"

"For the past more than 20 years, I've been able to completely skip the doctor - prescription - pharmacy drug cycle. I've been able to manage my own health when it comes to infections."

"I honestly believe that a **SILVERengines *proton*** belongs in the medicine cabinet of every family in the universe," says Duncan.

Getting Started

For a short (less than two minutes) overview, watch the Quick Start Video, and then follow these instructions:

- Fill the Mason jar to the top of its mouth with 16 ounces of ***DISTILLED*** water. (Please read about distilled water).
- Insert the **SILVERengines *proton*** into its support bracket – **Note:** The front of the **SILVERengines *proton*** faces the open side of the bracket. In the back of the bracket there are small indentations to accommodate the set screws used to hold the pure silver wires in place.
- Insert the USB power cable into the **SILVERengines *proton*** USB socket, and secure the wire in the integral support clip. You may wish to add an ordinary rubber band around the jar and wire for additional stability.
- Place the **SILVERengines *proton*** system in the mouth of the mason jar with the silver wires in the water. **NOTE:** The silver wire tips *should not* be under water; they should be sticking up just above the surface of the water.
- Plug in the USB power supply. Notice the LED color sequence as the **SILVERengines *proton*** starts up. If the water is truly *distilled,* containing no dissolved solids, the **SILVERengines *proton*** will begin to slowly pulse a cool blue.
- **Tap Water** or any contamination in the water will cause the **SILVERengines *proton*** to rapidly flash pink or red. (**Solution:** Use *distilled* water.)
- When the ionic/colloidal silver solution is ready, the blue pulsing will change to green.
- Pour the solution through a paper coffee filter into any glass or storage container.
- Between uses, gently wipe the silver rods clean with a paper towel. **CAUTION:** The wires are very soft, and so handle them gently. Keep them parallel by gently straightening them as needed.

NOTES:

- Gentle stirring speeds the process and makes the resulting solution more homogenous.

- Depending on the ambient temperature, a typical batch may take about an hour and a half to two hours or more to finish before it flashes green.

- If the system doesn't start, or doesn't flash blue, or if there are any other "out of the ordinary" indications on the LEDs, please unplug the unit for at least thirty seconds and try starting again.

- At its "normal" setting (Level 3), a batch should take approximately three and a half to four hours, or sometimes a little more.

- If you have any difficulty, please read the Troubleshooting section of this manual, or please Contact Us!

Start Up

Your **SILVERengines *proton*** exercises its LED display every time you power it up.

On power-up, you will see a Red / Green / Blue blink sequence, after which the **SILVERengines *proton*** will begin testing the water quality.

While testing water quality, Your **SILVERengines *proton*** slowly blinks Orange.

If the silver rods are shorted together, your **SILVERengines *proton*** will rapidly flash Red.

If you have inadvertently used tap water, or if your distilled water has become contaminated, your **SILVERengines *proton*** will rapidly flash Red or Pink.

However, if your distilled water is pure, your **SILVERengines *proton*** will begin a slow, steady Blue blink, and will continue blinking blue until your ionic/colloidal silver solution reaches its target value.

When the desired Solution Strength is reached, your **SILVERengines *proton*** display will change to a slow, steady Green blink, and will continue blinking green until you turn it off.

NOTE: If your **SILVERengines *proton*** *rapidly* flashes Orange, a memory fault may be indicated. This is a *vanishingly rare* occurrence, and may be transitory. However, if this behavior is repeated, please contact returns@SILVERengines.com for a Return Merchandise Authorization (RMA).
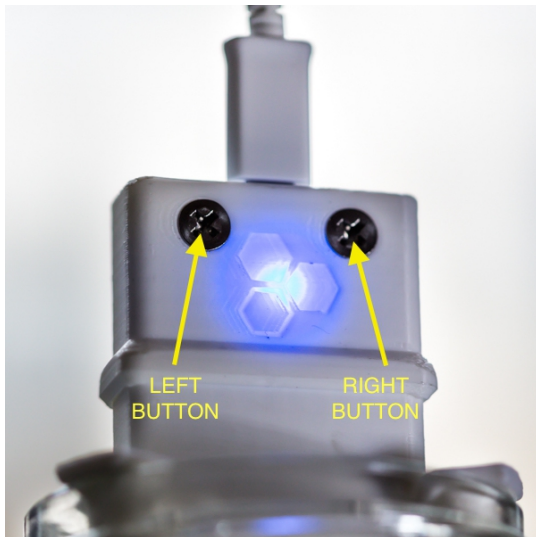
Adjusting Your SILVERengines *proton*

Your **SILVERengines *proton*** has five different settings of ionic/colloidal silver Solution Strength. Setting these levels is simple, but please read "touch and release" below!

- During Start Up of your **SILVERengines *proton***, touch and release both control buttons on the front of your **SILVERengines *proton*** at the same time.
- The display will start blinking white. Count the number of blinks - it will be in the range of one to five (factory *default* is *three*). This is the current Solution Strength setting.
- Each time you touch and release the Right Button, the number of blinks will cycle to the next number in sequence.
- When the number of blinks matches the desired solution strength setting, touch and release the Left Button. Your **SILVERengines *proton*** will flash green to indicate that it has accepted the new setting.

Your **SILVERengines *proton*** will remember this setting until you choose to change it again.

Note: This feature requires that your **SILVERengines *proton*** be plugged into a wall outlet. Adjustments cannot be made while running on battery power.

Control Buttons

There are two stainless steel screws on the front of your **SILVERengines *proton*** that serve a dual purpose. They not only hold the **SILVERengines *proton*** assembly together, they are also the controls by which you can set the **SILVERengines *proton*** to one of its five available levels of ionic/colloidal silver solution strength.

Please read Adjusting Your SILVERengines proton for details.
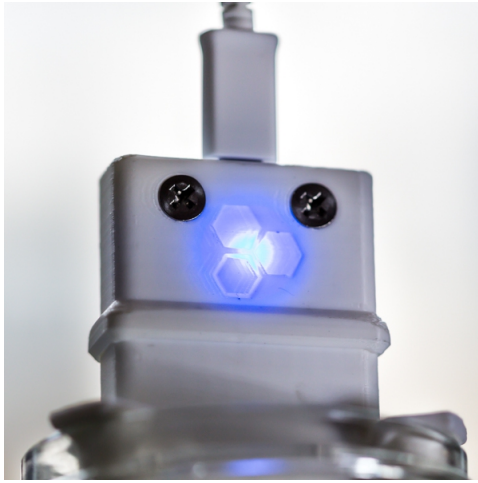
This illustration shows these Left and Right Control Buttons...

Touch And Release

When operating the Control Buttons, "touch and release" means just that - *touch* the button or buttons *briefly* and then **remove** your finger or fingers completely.

The desired action will occur at the time that you *release* the button or buttons, *not* when you first touch them.

Flash Blue

In normal operation, while it is dispersing silver ions into distilled water, the **SILVERengines *proton*** will be slowly and calmly blinking blue.

Flash Green

When your **SILVERengines *proton*** determines that the amount of silver ions and particles in the water has reached the desired preset level of Solution Strength, it will change from blinking blue to blinking green.

Flash Red

When your **SILVERengines *proton*** is starting up, it quickly tests to be sure that you are using pure, distilled water by measuring the conductivity of the water.

If the water contains minerals or other contaminants, the **SILVERengines *proton*** will rapidly blink red or pink, and it will not process that water. This protects you by preventing the creation of any silver salts or silver chlorides.

Solution Strength

The ionic/colloidal silver solution strength levels that correspond to settings 1-5 are *approximately* as follows:

- 3 ppm
- 5 ppm
- 10 ppm (*default setting*)
- 15 ppm
- 20 ppm

Please click here for instructions on setting your **SILVERengines *proton*** to the desired level.

These values are ***approximate***, and based on readings taken with an EC (Electrical Conductivity) meter. If you check the batches of silver solution that you make with your **SILVERengines *proton*** on any particular setting, they will be close to these values and remarkably consistent from batch to batch.

NOTE: We chose a default setting of 10 ppm because we feel that this represents an ideal balance between effectiveness and processing time.

NOTE: Operating the **SILVERengines *proton*** without Gentle Stirring may result in slightly higher batch output PPM readings and considerably longer processing times. In any case, strive to be consistent in how you operate your **SILVERengines *proton*** in order to achieve consistently good results.

Gentle Stirring

Because the **SILVERengines *proton*** is not "timer based" like some inferior machines, the length of time it takes to make a batch of nano silver can vary quite a bit.

Processing time is temperature sensitive, and shorter if room temperature is at or above 68 degrees Fahrenheit / 20 degrees Celsius. It can also be shortened by the following *gentle stirring* method.

To accomplish a gentle stirring action, peel the back off the black contact paper square included with your **SILVERengines *proton***. Stick the square on the side of the mason jar near the base, and place a 40 to 60 watt incandescent light bulb nearby to warm it.

Note: Although we did at one time, we no longer recommend heating the distilled water when you make nano silver. The processing time is somewhat longer, but we believe that you will have more consistent results in terms of your resulting parts per million. Furthermore, the **SILVERengines *proton*** alternates the direction of current flow periodically, which effectively stirs the solution.

How Can I Tell My SILVERengines *proton* Is Working?

The fact is that properly made ionic/colloidal silver looks a whole lot like plain water. Like Jack's father in the story of *Jack and the Beanstalk*, you may be wondering if perhaps you've been sold an illusion?

Fortunately, it is quite easy to test and see that your **SILVERengines *proton*** is in fact producing high quality ionic/colloidal silver! There are a few fairly simple tests that you can perform at home with modestly priced equipment and supplies.

First and foremost, the "proof of the pudding is in the eating" as the saying goes. Are you experiencing good results from using the solution you produce with your **SILVERengines *proton***? Great!

Some people can actually taste the silver dispersed in distilled water; if you are one of those people, your own taste buds supply evidence that your **SILVERengines *proton*** is working!

As far as measurements go, you can scientifically prove that there is an upper bound to the size of a majority of the colloidal silver particles that your **SILVERengines *proton*** generates by using The Tyndall Effect.

Additionally, with the purchase of a relatively inexpensive instrument known as an Electrical Conductivity or EC Meter, you can actually measure the Parts Per Million (PPM) of silver in the output solution from your **SILVERengines *proton***.

Beyond these measures, you could send out a sample of the solution your **SILVERengines *proton*** produces to a lab for measurement with a Transmission Electron Microscope, but that would be quite expensive!

Ionic/Colloidal Silver

What is **ionic/colloidal silver**? It is precisely what the **SILVERengines *proton*** produces.

In the simplest terms, **ionic/colloidal silver** is a mixture of atomic-scale silver ions and nano-scale silver particles suspended in pure distilled water. Silver ions are individual silver atoms with a positive (+) electrical charge, and make up about 80% of the nano silver. About 20% uncharged silver atoms gather into very small particles that remain in a colloidal suspension, meaning that they are *so* small that the molecular motion of the distilled water keeps them from ever settling to the bottom of the jar.

However, the **SILVERengines *proton*** is anything but simple! It is a complex and very sophisticated device that makes the *production* of the highest quality **ionic/colloidal silver** extremely simple and reliable for you, the user.

What makes **ionic/colloidal silver** "high quality?" In order of importance,

- A base of pure, distilled water without minerals, chlorine, or other contaminants
- A suspension of pure, fine silver ions and microscopic silver particles
- Silver particles that are extremely small (typically < 100nm in size)
- A consistent, repeatable silver concentration

The **SILVERengines *proton*** ensures that your results will be outstanding!

Features and Benefits

Your new **SILVERengines *proton*** has many advanced features and benefits.

- **Portability**
- Some ionic/colloidal silver generators practically need their own suitcase to be lugged around in. Not so, with the **SILVERengines *proton***! This sweet little machine and its standard accessories fit completely inside its own 16oz mason processing jar! Perfect for traveling!

- **Industry Standard USB Power**
- Why is this important? You can power your **SILVERengines *proton*** with any typical portable phone charging adapter, such as those that plug into your car's cigarette lighter. Most modern automobiles have standard USB power outlets built in. You can also easily purchase battery packs that provide USB power. You can even commonly find solar powered USB batteries!

- **Fully Automatic**
- Your **SILVERengines *proton*** is fully automatic. Just set it and forget it!

- **Built-in Safety**
- Water with contaminants such as chlorine or minerals could produce silver compounds that aren't healthful, such as silver chloride or silver nitrate. No need to worry; your **SILVERengines *proton*** has your back! Every time it starts up, it tests the conductivity of the water to ensure that it is really pure, distilled water. If it finds any contaminants, it will refuse to run and will flash red or pink to warn you.

- **Constant Current**
- Now we're getting a little technical, but be assured that by maintaining a constant, low density current on the silver rods, only silver ions and the smallest silver particles are dispersed, assuring the highest quality results.

- **Low Power Consumption**
- The **SILVERengines *proton*** consumes less than 300 milliamps of electrical current. This is an especially valuable trait if you find yourself traveling and running off of a battery pack.

- **Savings**
- Making ionic/colloidal silver with your own **SILVERengines *proton*** is hands-down far more economical than purchasing the same product at retail. Consider the savings!

The Tyndall Effect

For fun, shine a red laser pointer through pure distilled water before you process it - you should not see a "beam," though perhaps you'll see "sparklies", i.e. little flecks of dust.

After you've processed a batch, shine the pointer again - you may need to view this against a dark background! And you'll see a faint, smoky "trail" these are silver particles smaller than the wavelength of the laser light (650 nanometers). You can read more about the "Tyndall Effect" here: (http://en.wikipedia.org/wiki/Tyndall_effect)

Note: In order to produce a bright trail for the camera, the jar in this photo contains an extremely strong solution of ionic/colloidal silver.

Tips and Tricks

Travel

The entire kit fits in its own mason jar. **Suggestion:** you may want to crumple up a paper towel, or maybe a few coffee filters, to insert into the mouth of the jar. This will keep the pieces from rattling around. When you arrive at your destination, all you need do is purchase some distilled water.

As a makeshift measure, you can use a coffee filter alone without a funnel by stretching it over the mouth of a cup and pouring the silver solution through it. In a pinch, even a paper towel works reasonably well. A paper or plastic cup with a hole in the bottom also makes a usable funnel.

If you're short of time, and particularly if you don't have a good way to heat the distilled water in your mason jar, just set the Solution Strength to Level 1 to reduce the processing time. The concentration of your silver solution may be lower than usual, but at least you will be getting those helpful silver ions into your system while on the road!

Battery Operation?

Your **SILVERengines *proton*** will operate on any USB power source capable of delivering 300 mA of current for the length of time required by the chosen solution strength.

This means that you can, for example, run it by plugging it into a USB port on your laptop computer.

You can also run your **SILVERengines *proton*** on a USB battery pack, such as those used to boost cell phone battery life.

With the right setup, you can even run the **SILVERengines *proton*** on solar energy.

Troubleshooting

As with any highly technical product, there may be occasional "glitches" in the operation of your **SILVERengines *proton***. Perhaps the simplest and most effective "first resort" is to simply unplug the cable from the USB power supply for 20 seconds, and then re-connect the cable to re-start the **SILVERengines *proton***.

If, however, you should experience some on-going problem, please do not hesitate to Contact Us. If we can't find a solution in short order, we will arrange for an upgrade, a repair, or a replacement.

Here is a list of some of the most common "symptoms" that you may be able to "cure" immediately:

SYMPTOM: My **SILVERengines *proton*** is not blinking in its "normal" pattern or color.

CURE: Unplug the USB power supply for at least 20 seconds and then restart. Be careful not to have your hands or fingers on the two stainless steel control buttons.

SYMPTOM: My **SILVERengines *proton*** blinks blue "forever" and never switches to blinking green.

CURE: The most likely cause is that the pure silver wires are not solidly connected to the internal PC board. Simply tighten the screws a little bit with a 3mm hex wrench. To test, start up your **SILVERengines *proton*** while holding the bottom of the soft silver wires together - i.e., touching one another. (Don't worry, the very soft wires are easily straightened out again!) If the **SILVERengines *proton*** blinks red, you know that the wires are in contact with the PCB and it is ready to run again.

SYMPTOM: I cannot seem to adjust my **SILVERengines *proton*** using the control buttons.

CURE: Are you plugged into a wall outlet? This feature requires that your **SILVERengines *proton*** be plugged in and that you not be absolutely isolated from ground. You may need to place your feet firmly on the floor to allow a modest ground path.

Note: Adjustments cannot be made while running on battery power.

Distilled Water

The *only* way to achieve high quality ionic/colloidal silver is to begin with pure, distilled water.

Pure, distilled water will register 0 PPM (Parts Per Million) on a TDS Meter and 0 uS (micro-Siemens) on an EC Meter.

Your **SILVERengines *proton*** is a very clever little device! It will refuse to operate *unless* you begin with pure, distilled water.

Most supermarkets and general stores carry bottled distilled water. You can also purchase home distillers that enable you to make your own distilled water. A final option would be to use a specialized reverse osmosis water purifier with one or more extra final stages that completely de-ionize the reverse osmosis water, rendering it completely mineral free.

Of course, just because the label on the jug says "Distilled Water" does not guarantee that it is so. Who knows, someone may have re-filled the bottle when you weren't looking! The bottom line is that you can trust your **SILVERengines *proton*** to evaluate the water for you. The **SILVERengines *proton*** will refuse to run, flashing red or pink, unless the water is distilled.

F.A.Q.

Frequently Asked Questions

(If your question is not addressed here, please send it to info@SILVERengines.com)

Q: Will ionic/colloidal silver make me turn blue? (a condition known as Argyria)

A: The "blue man scare" is propaganda promulgated by the giant pharmaceutical companies and their FDA lapdogs. When used as directed with distilled water, the **SILVERengines *proton*** produces only the highest quality pure ionic/colloidal silver, which definitely will not cause Argyria.

Q: How long does it take the new **SILVERengines *proton*** to make a 16oz batch of ionic/colloidal silver?

A: Actual time may vary considerably because the **SILVERengines *proton***, unlike other primitive systems, is not a "timer based" device. However, if you follow our "best recommendations" regarding gentle thermal stirring, and if you start with high quality distilled water, and if you set up the **SILVERengines *proton*** in a comfortable "room-temperature" environment, a 16oz batch should typically take about 90 minutes to two hours or so to make at room temperature. If it takes much longer than two hours at the "standard setting" of 3, or if it doesn't turn off at all, see the **Troubleshooting** page in this manual.

Q: When the light turns green and the batch is done, it still looks like distilled water. How do I know anything has happened?

A: Properly made ionic/colloidal silver *should* and *does* appear clear to the naked eye, or possibly very lightly straw-colored. If you were to test the distilled water with a Total Dissolved Solids (TDS or Electrical Conductivity (EC) meter before and after you make a batch, you would measure a PPM level starting at zero PPM and increasing to somewhere between 3 and 20 PPM (depending on the setting of your **SILVERengines *proton***). Another way to observe that there are now suspended sub-micron sized particles in the water is to shine a laser light through it, before and after, viewing it against a darkened background. This is called The Tyndall Effect, and it clearly shows that nano-particle colloidal silver has dispersed into solution.

For a more thorough answer to this question, please see How Can I Tell My SILVERengines proton Is Working?

Q: Can I use my **SILVERengines *proton*** with my backup / portable phone charger?

A: Yes, the **SILVERengines *proton*** will operate reliably with any standard micro USB power source capable of supplying at least 300mA (300 milliamps) or more of current for the time it takes to produce a batch of colloidal/ionic silver. This includes cellphone "booster" battery packs, your typical cellphone charger, or even one of the USB outlets on your laptop or desktop PC. However, **Please Note** that to adjust your ppm level, you *will* need to "plug in" to a grounded power outlet.

Q: How many batches can I make with my battery pack?

A: That would depend, of course, on the size of your pack. As a simple example, if you have a fully-charged 3000mAH battery pack, you would likely be able to make up to five complete batches before needing to recharge.

Q: Can I adjust the PPM level of my colloidal/ionic silver?

A: Yes, there are five selectable levels, ranging from about 3 PPM to almost 20 PPM as measured by a TDS or EC meter. Please refer to Adjusting Your SILVERengines proton for details.

Q: How long will my .999 fine pure silver wires last?

A: First, please be aware that these wires are *easily replaceable* (you can purchase a spare set at http://SILVERengines.com.) To replace the wires, just loosen the set screws on the back of your **SILVERengines *proton***, slide the old wires out, slide your new ones in, and *gently* but *securely* tighten the screws.

Having said that, you are not likely to need to replace your wires more often than once per year. Such a small amount of silver is actually used by the **SILVERengines *proton***, one set of wires should easily make you ~150 to 200 16oz batches of ionic/colloidal silver.

Q: Why are the pure silver wires bent into a "U" shape?

A: By keeping the tips of the wires up above the solution, a more even charge distribution is accomplished. This is important because keeping the charge evenly distributed helps in maintaining a uniform and very small resulting colloidal particle size.

Q: Someone told me that ionic silver is only good for external use. Is that true?

A: Actually, ionic silver is very effective both externally and internally. In fact, ionic silver is the form of silver that directly interacts with pathogens to destroy them. Furthermore, the body has a "built in mechanism" that insures that silver ions get from your mouth, safely through the acid of your stomach, and into your bloodstream. It is called "metalloproteins," and you can read about them here.

Q: Isn't silver a "heavy metal" that stays permanently lodged in the body?

A: Dr. Roger Altman, a PhD in Engineering Science, performed extensive tests to answer that question. Simply stated, the answer is "No," but you can read his complete paper here.

Restart?

Q: Is it possible to "restart" processing a solution without getting a "flashing red" or "flashing pink" error indicator?

A: Yes. Doing so is *not* recommended, however, because the **SILVERengines *proton*** will operate at a higher than optimum current density for a short period of time while it adjusts itself to the amount of silver already present in solution.

If you *must* restart the **SILVERengines *proton*** once in a while, simply power it up with its wires *out* of the water, and then place the **SILVERengines *proton*** in the water once the "blue blinking" phase has begun.

Savings!

Do you know that your **SILVERengines *proton*** will pay for itself rather rapidly if you consider the price of purchasing ready-made ionic/colloidal silver from a retailer?

For example, one popular brand of silver solution, "Sovereign Silver," sells on Amazon for about $265 per 10 PPM gallon.

At those prices, if you make *a mere eight* 16oz batches of ionic/colloidal silver using your **SILVERengines *proton***, you will have recouped more than the full retail value of your machine!

TDS and Electrical Conductivity (EC) Meters

TDS (Total Dissolved Solids) and **EC** (Electrical Conductivity) Meters, are compact and relatively inexpensive electronic instruments that indirectly measure the amount of material dissolved in water. Both types of meter measure the conductivity of the water. The TDS meter converts that to PPM (Parts Per Million), but assumes that salt (sodium chloride, or NA/CL) is being measured. You can estimate the PPM of ionic silver by multiplying your TDS reading by 2 to 2.5 for an approximation.

The EC meter measures conductivity in micro-Siemens (**µS**). If you multiply the **µS** reading by 1.1 you will get a somewhat more accurate PPM reading of ionic silver than with the TDS meter.

Reasonably priced EC meters are readily available from many sources. For example, this is an excellent EC meter option from Amazon.

The PPM range specifications for the **SILVERengines *proton*** listed elsewhere in this manual were derived by using an EC meter to measure batches of ionic/colloidal silver made with the **SILVERengines *proton*** and multiplying the uSiemens reading by 1.1 (see this link for the rationale).

Purchase Agreement

By choosing to purchase a **SILVERengines *proton***, you have entered into a private purchase agreement with the seller. This contract excludes all third parties including cities, states, countries, and all other governing bodies.

Should you for any reason disagree with this position, your entire remedy as a buyer is to return (see Returns) the **SILVERengines *proton*** within 30 days for a full refund.

Warranty and Service

Warranty: Should it fail, we will repair or replace your **SILVERengines *proton***, within One (1) year of the date of your purchase. Please contact warranty@SILVERengines.com

Service: Although your **SILVERengines *proton*** should give you many years of trouble-free service, technology sometimes fails. However, even after the warranty period has expired, we will gladly repair or replace your **SILVERengines *proton*** for a flat fee of $50.00.

Returns

You may return your **SILVERengines** *proton* within 30 days of your purchase for any reason whatever.

Returned units must be in like-new condition. Please send your request for a Return Merchandise Authorization (RMA) to: returns@SILVERengines.com

Specifications

The standard **SILVERengines** *proton* kit includes all the following:

- One **SILVERengines** *proton* automatic ionic/colloidal silver making machine
- Two six-inch long, 14 gauge, .999 fine silver wires
- One 16-ounce mason jar
- One support bracket with integral cord retaining clip
- One USB power supply and cable
- One two-inch black adhesive thermal stirring square
- One printed "Quick Start" instruction card with reference link to full documentation

SILVERengines *proton* Features and Benefits

- Operates on industry standard 5V micro-USB power
- Current is regulated and controlled by a microprocessor to produce silver ions and sub-micron sized silver particles in solution
- Current direction alternates automatically in order to minimize the need to clean the silver rods
- Shutdown is automatic and is not timed, but rather based on silver concentration in solution
- **Requires** distilled water for proper operation!
- Will *not* function with tap water!
- Five optional settings produce between about 3 PPM and 20 PPM solution strengths (TDS/EC)

DISCLAIMER

This content of this document has not been evaluated by the FDA. Nothing herein is intended to diagnose, treat, cure, or prevent any disease.

Contact Us

Please send any and all comments, questions, and observations to us at this address: info@SILVERengines.com

Your feedback and thoughts are *always* welcome, and *very* much appreciated!

Replacing Your **SILVERengines *proton***'s Silver Rods

Although ***the .999 fine silver rods*** on your **SILVERengines *proton*** last a *very* long time (typically making as many as 200 or more 16-ounce batches of nano silver), eventually the time will come when they need to be replaced.

When To Replace the Rods

When the rods are so thin (i.e. half or less the diameter of the ends of the rods that do not get immersed in the distilled water) that it becomes difficult to clean them easily by wiping with a paper towel, you may choose to replace them with new rods.

Removing the Old Rods

Using an "L" shaped 3 Millimeter Hex Wrench, insert **the long end** of the wrench (please see photo) into each of the stainless steel screws near the bottom of your **SILVERengines *proton***. Turning the screws counter-clockwise, you should feel them loosen immediately. Keep turning the screws until they are completely removed from the lower case, and set them aside. If you now look through the screw holes, you will see the ends of the silver rods crossing the screw holes, and behind them the surface of a Printed Circuit Board (PCB). Holding the **SILVERengines *proton*** in one hand, with the other hand (one at a time) gently twist the rods back and forth while pulling them away from the case. Continue twisting and pulling until each rod comes completely out of the case. If you have difficulty, you may wish to carefully use a pair of pliers to help the removal process along.

Inserting the New Rods

One at a time, take each new rod and reverse the process. Carefully insert the long end of the "J" shaped rod into one of the holes in the base of the **SILVERengines *proton***. Twist the rod back and forth while gently pressing it towards the case. Looking through the screw holes, be sure that the end of the rod *completely* crosses the hole.

Make sure that the other end of the "J" shaped rod curves towards and ends *in front* of the case, i.e. on the side with the logo and control buttons, as in this photo. Screw the stainless steel retaining screws back into the holes in the case, taking care not to "cross-thread" them. Again insert **the long end** of the wrench into the screws, and tighten the screws gently but firmly. **NOTE:** Be careful not to over-tighten because excessive pressure could crack the case. If you've inserted *the long end* of the wrench into the screw as illustrated, this is not likely to happen.

Checking Your Work

When you are done, the rods should be evenly spaced (1" [one inch] apart) from the point where they exit the **SILVERengines *proton*** case and along their entire length, as seen in this photo. Test to insure that the silver rods are connected well. Lay your **SILVERengines *proton*** on a table, and lay the Hex wrench across the silver rods. Plug the power supply into a wall outlet. After a brief Red-Green-Blue startup sequence, the lights should begin to rapidly flash Red. This indicates that the rods are connected to the PCB and that the **SILVERengines *proton*** has detected the temporary short circuit made by the wrench. If instead you see blinking Orange followed by blinking Blue, this indicates that you may need to tighten the stainless steel screws a little bit tighter. Do so, and then repeat this test.