



An Extended Guide · No. 1247

Clean Power for Sensitive Electronics

Protecting TVs,
computers, and gadgets

Tech Made Simple — Service Made Personal

BillsHomeTech.com · (330) 200-8042 · Atwater, Ohio

Free & printable — share it with someone who needs it



Book a visit —
billshometech.com/book

Hello, and welcome

If you've filled your home with the things that make modern life easy — a nice television, a computer, tablets, the internet, a shelf of smart gadgets — then keeping them safe when the power flickers is worth a few minutes of your time. That's exactly what this guide is about.

I'm Bill, and I run Bill's Home Tech here in Portage County, Ohio. I've spent more than 30 years helping folks get comfortable with their technology — patiently, in plain language, and at their own pace. Think of this guide as me sitting at your kitchen table, walking through it with you one step at a time.

In these pages we'll talk about what "clean power" really means and why your electronics care about it, the difference between the smooth power an inverter generator makes and the rough, cheap kind to avoid, and the handful of simple habits — a good surge protector, not overloading the unit, plugging in the right way — that keep your gear happy through an outage. No jargon, no sales pitch, just plain talk, whether you live in town or out in the country.

You do not have to read this all at once, and you certainly don't have to memorize it. Skip to whatever you need, keep it handy, and know that a real person is only a phone call away.

★ How to use this guide

Each page stands on its own. Read one, take what's useful, and come back for the next when you're ready. If a step ever feels fuzzy, that's on my writing — not on you — and you can always call me at (330) 200-8042.

What people mean by "clean power"

Clean power is the whole reason to spend a little more on an inverter unit when you've got electronics to protect. Here's what it really means.

Electricity from the wall arrives as a smooth, regular wave that rises and falls sixty times a second, steady as a heartbeat. Your television, your computer, and nearly every modern gadget were designed around that gentle, predictable wave. They expect it, and they run their best on it.

Clean power is simply power that looks like that — smooth, even, and close to what your wall gives you. An inverter generator is built to make exactly that kind of power. It takes the rough electricity its engine produces and rebuilds it, through the electronics inside, into that same steady wave.

The opposite is "dirty" or "rough" power — electricity with a jagged, uneven shape and little spikes riding along on top. A drill or a work light doesn't care one bit about that roughness. But a delicate circuit board, the kind inside a flat-screen TV or a laptop, is fussier, and prefers the smooth stuff.

That's the plain-English version, and it's the thread through this whole guide: an inverter generator makes clean power, and clean power is what keeps your sensitive electronics happy during an outage.

✓ You don't have to see it to trust it

Engineers can put this on a chart and measure exactly how smooth the wave is — and inverter units score very well. You'll never see the wave yourself, but you can trust that the same clean electricity your gadgets get from the wall is what they'll get from the generator.

"Low THD": the smoothness score

You may run into the letters "THD" on a generator's box or spec sheet. It sounds technical, but the idea behind it is simple and worth a minute.

THD stands for "total harmonic distortion." Set the fancy words aside and here's all it means: it's a score for how far the generator's power strays from that perfect, smooth wave. A low score means very smooth, clean power. A high score means rough, choppy power.

Inverter generators are built to score low — often below three percent, which is generally considered clean enough for sensitive electronics. Plain generators without the inverter electronics usually score much higher, meaning rougher power. So when you see a low THD number, that's the maker's way of promising the power is gentle on your gear.

I don't want you to memorize numbers or shop by them alone. But if you're comparing two units and one lists a nice low THD while the other doesn't mention it at all, that little detail tells you which one was designed with electronics in mind.

The short version: low THD, smooth power, happy electronics. It's the same clean-power promise, just with a number attached.

✓ A number you can ask me about

If you're staring at two spec sheets and the THD figures have you cross-eyed, that's a perfect thing to call me about. I'll read the fine print with you and tell you plainly whether a unit is a good match for your electronics — no charge for a quick question.

Pure sine wave vs. modified sine wave

This is the most important distinction in the whole guide, and once you've got it, you'll shop and plug in with real confidence.

That smooth wave we keep talking about has a proper name: a **pure** or **true sine wave**. It's the gentle, rounded shape your wall power makes, and it's what an inverter generator produces. Good battery "power stations" make it too. For sensitive electronics, pure sine wave is the gold standard.

There's a cheaper, rougher imitation called a **modified sine wave**. Instead of a smooth curve, it's a blocky, stair-stepped shape that only pretends to be the real thing. You'll find it in some bargain plug-in power inverters — the kind that clip to a car battery — and in certain inexpensive battery backups, the little boxes sold to keep a computer alive for a few minutes.

On simple things, modified-sine power is harmless. But feed it to sensitive gear and it can make a device run hot, buzz or hum, throw error messages, or wear out sooner than it should. It's not always a dramatic failure — often it's a slow, quiet toll on equipment that was built for the smooth stuff.

The happy news is that this is one worry an inverter generator simply erases. It makes true pure sine wave power, so the modified-sine problem never applies. When you shop for any backup power, look for the words "pure sine" or "true sine wave" on the label.

! The bargain inverter at the checkout counter

If you already own a small plug-in inverter or a cheap battery backup and aren't sure what kind of power it makes, don't guess with a nice TV or computer. Check the label for "pure sine," or call me and we'll sort out what's safe to plug into what.

What counts as "sensitive" electronics?

People often ask me which of their things really need clean power. Here's the simple rule, and then the list.

The rule of thumb: if it has a **circuit board** inside — a little green board with computer chips on it — it counts as sensitive, and it's happier on clean power. That covers far more of your home than it used to, because so many everyday things are quietly little computers now.

- **Televisions** — flat-screens are essentially computers with a picture, and among the most common things folks want running in an outage.
- **Computers and laptops** — desktops, laptops, and their power bricks, along with printers and external drives.
- **Tablets, phones, and their chargers** — the chargers themselves have delicate electronics inside, not just the devices.
- **Wi-Fi routers and modems** — small, low-power, and easy to overlook, but the whole household's internet runs through them.
- **Smart-home hubs and gadgets** — thermostats, video doorbells, smart speakers, security panels, and the hubs that tie them together.
- **Newer variable-speed appliances** — many modern furnaces, refrigerators, and washers have circuit boards and variable-speed motors that prefer clean power, unlike the simple motors of decades past.

If you're ever unsure, the circuit-board rule is your guide. When in doubt, treat it as sensitive and give it clean power — it never hurts, and with an inverter generator you're giving everything clean power anyway.

Why the old-style generator worries folks

You may have a big, loud, open-frame generator in the garage already, or be tempted by one because they're cheaper. Let me be honest and fair about the concern.

The old-fashioned open-frame generator — the loud kind that runs its engine flat-out the whole time — puts out rougher power than an inverter unit. Its wave is choppier, with more of those little spikes and dips riding along. That's just how it works; it has no inverter electronics to smooth things out.

For a lot of jobs, that's perfectly fine. Powering a work light, a drill, an air compressor, or a simple pump on a job site? A conventional generator does that all day long and doesn't owe anyone an apology. Rough power runs rough tools just fine.

The concern is with delicate electronics. Feeding them rougher power, with its spikes and uneven shape, can — over time — stress the sensitive parts inside. I want to be careful here: this is a real and sensible reason people choose inverter units for their electronics, but it is **not** a guarantee of damage. Plenty of TVs have run on rough power now and then and been fine. It's more about not taking the chance with gear you'd hate to replace.

So think of it this way. If your generator's main job is tools and outdoor work, a conventional unit's rougher power is no worry. If its job is protecting a house full of electronics during an outage, the clean power of an inverter unit is the gentler, safer choice — and that's exactly why these guides exist.

★ My honest take

I won't tell you a conventional generator will fry your TV — that would be scaremongering, and it's not true. What I'll say is that if you're buying a generator mainly to protect electronics, clean inverter power buys you real peace of mind for not a lot more money. That's a trade most of my customers are glad to make. Call me at (330) 200-8042 if you'd like to talk it through.

What clean power feels like day to day

Let's make all this concrete with the gear you actually own, because in daily use, clean power mostly means one lovely thing: you don't have to think about it.

When the power goes out and you fire up an inverter generator, your television comes on and looks just as it does on a normal evening — no flicker, no funny lines, no worry. Your computer boots up and runs your files the way it always has. The internet router blinks back to life and the whole family's phones and tablets charge as usual.

That "just works" feeling is exactly what you're paying the little bit extra for. You're not standing there wondering whether tonight's the night the generator's rough power finally hurts something. You plug in, it runs clean, and you get on with riding out the storm in comfort.

It's the same reason folks like these units for a camper or an RV, where everything inside — the TV, the microwave's electronics, the phone chargers — runs off the generator. Clean power means the rig's gadgets behave just as they would at home.

None of this means you can be careless — there are still a few sensible habits, and we'll cover them: a surge protector on top, not overloading the unit, and plugging in the right way. But the foundation, the clean power itself, is handled the moment you choose an inverter generator. The rest is just good housekeeping.

Still use a good surge protector

Here's a habit I want you to keep even with clean inverter power: put a good surge protector between the generator and your electronics. Belt and suspenders.

Clean power handles the shape of the wave — the smoothness we've been talking about. A surge protector handles something different: a sudden jolt or spike of voltage, the kind that can come from a hiccup in the generator, a motor kicking on, or a cord getting bumped. The two protections do different jobs, and good gear deserves both.

It's the same logic as wearing a seatbelt in a safe car. The inverter's clean power is the safe car; the surge protector is the seatbelt. You hope you never need it, it costs little, and the one time something surges, you'll be very glad it was there standing guard in front of your television.

You don't need anything fancy or expensive. A quality surge protector strip — the kind you'd use for a home computer — is plenty. Plug it into the generator's outlet (or the end of your extension cord), then plug your electronics into the strip. Look for a real **joules** rating on the box, which tells you it's built to absorb a surge, and ideally a little light that shows the protection is still working.

One gentle note: surge protectors do wear out after they've taken a big hit or two, and the cheap ones can quietly stop protecting while still passing power. If yours is old, or has been through a rough storm, it's worth replacing. They're inexpensive insurance for gear that isn't.

✓ Keep a spare in the generator kit

Toss a good surge protector strip in with your generator supplies, right next to the extension cords, so it's always there when you need it. That way you're never tempted to plug the TV straight into the generator just because the strip's in another room.

A power strip is not a surge protector

This one trips up almost everybody, because the two look nearly identical on the shelf. Knowing the difference protects your electronics — and your wallet.

A plain **power strip** does exactly one thing: it turns one outlet into several. It's a splitter with a cord. It offers your electronics no protection at all from a surge or spike — it just passes whatever power comes down the line straight through to whatever's plugged in.

A **surge protector** looks the same — a strip of outlets with a cord — but it has real protective parts inside that catch a voltage spike and soak it up before it reaches your gear. That's the one you want in front of a television or a computer, especially on generator power.

So how do you tell them apart when they're sitting side by side and look like twins? Read the box or the label. A true surge protector will say "surge protector" and list a **joules** rating — a number telling you how big a surge it can absorb. A plain power strip won't have that rating. Many surge protectors also have a small indicator light that glows to show the protection is still doing its job.

If you've got no-name strips scattered around the house feeding your electronics, it's worth a quick check. Plenty of them are plain power strips wearing no armor at all. Swapping the ones in front of your important gear for real surge protectors is a small, cheap upgrade that pays off the first time lightning cracks nearby.

★ Bring me a pile and I'll show you

If you're not sure which of your strips are the real thing, gather them up and I'll sort them with you in a few minutes — this pile protects, this pile just splits. It's the kind of small, practical thing I love helping folks get right. Call (330) 200-8042.

If you live in town: city and suburb

Most of my customers in town — Kent, Ravenna, Streetsboro, Aurora — have homes filled with electronics these days, and that's exactly where clean power earns its keep.

A typical house in town is quietly packed with sensitive gear: a big flat-screen and a sound bar in the living room, a computer or two in the home office, a game console the grandkids love, streaming boxes, smart speakers, a video doorbell, and the Wi-Fi router that ties it all together. In an outage, folks want to keep the essentials of that going — and every bit of it is happier on clean power.

For the **home theater**, clean inverter power means the television and sound system run just as they do on a normal movie night — no flicker, no fuss. For the **home office**, it means the computer and internet stay up so you can work, check on family, or handle a bill that won't wait. And for **streaming and gaming**, it means the boxes and consoles behave, instead of glitching on rough power.

Because you're on city water and city power, your outages tend to be shorter, and you likely don't have a well pump to worry about. That means a smaller, quieter inverter unit is often plenty to keep your electronics humming — good news for your budget and your neighbors' ears. Run it in eco mode out on the driveway or patio, always 20 feet from windows, with a surge protector between it and your gear.

! Apartments and condos are a special case

If you're in an apartment or condo with no safe outdoor spot well away from every window, a fuel generator usually isn't practical — and running one on a balcony or in a garage is dangerous. For keeping a laptop, the internet, and a few devices going, a quiet battery "power station" that charges from the wall and makes the same clean pure-sine power is often the better tool. I'm glad to help you weigh it.

If you're in the country on a well

Out in the townships — Atwater, Rootstown, Deerfield, Palmyra — country homes have sensitive electronics too, and often in spots you might not think of. Longer outages out here make clean power matter even more.

When folks picture electronics, they think of the TV and the computer. But a country property hides sensitive gear in working places: the **control box on the well pump**, with its circuit board and pressure switch; the **electronics in a chest freezer** full of a season's meat and garden vegetables; the **Wi-Fi router** and any **cellular signal booster** you rely on because the nearest tower is miles off. Every one of those has delicate parts that prefer clean power.

The reason clean power matters more out here is simple: **outages run longer**. When a storm knocks out a rural line, crews reach the country last, so you may be on generator power for a day or more rather than a few hours. The longer your electronics run on the generator, the more it pays to have that power be clean and steady the whole time.

! The honest truth about well pumps

Most home well pumps run on 240 volts, and the small, quiet inverter generators most folks picture put out only 120 volts — so they cannot run the pump at all. For a well you need a larger inverter unit with a 120/240-volt outlet, sized to your pump, and a proper way to connect it. Pairing two little units together does not fix this — two 120-volt units still only make 120 volts. I'll help you get the right size, and bring in a licensed electrician for the hookup.

So a right-sized inverter generator does a country home a lot of good — keeping the freezer's electronics and its contents safe, the internet and signal booster alive so you can check the forecast and reach help, and the household gadgets running clean through a long outage. For the well pump itself you'll want a larger 120/240-volt unit, sized to the pump, which is its own guide in this series. And a smart country habit no generator replaces: keep a few days of drinking water stored, because a generator that can't start the pump still can't make water.

The safety talk: carbon monoxide

Because an inverter generator burns fuel to make that clean power, it comes with one serious safety rule that has nothing to do with electronics and everything to do with your life. This is the most important page in the guide.

Every generator that burns gasoline or propane makes carbon monoxide, or "CO" — a gas you cannot see or smell. It is the one real danger with a generator, and it is completely avoidable. More people are hurt by running a generator in the wrong place than by anything else, so please read this page twice.

Outside only — no exceptions

Never run a generator indoors, and that includes the garage, the basement, a shed, a carport, or a covered porch — even with the door up or a window open. CO pools and seeps into the house. The only safe place is outdoors, in the open air.

At least 20 feet away, exhaust pointed away

Set the generator at least 20 feet from the house, and turn it so the exhaust blows **away** from any door, window, or vent. Don't tuck it against the wall to hide it or keep it dry — give it room to breathe and let the fumes drift off.

Alarms are your safety net

Put working carbon-monoxide alarms on every level of your home and near the bedrooms, and use ones with a battery backup so they work when the power is out. Test them now, before storm season, not during it.

Don't overload the generator

Here's a surprise for many folks: you can have the cleanest power in the world and still stress your electronics — by asking the generator to do more than it can.

A generator has a limit to how much it can put out, measured in watts. Plug in more than it can handle and it starts to strain, like a person carrying too many grocery bags. A strained generator can't hold its power steady — the voltage sags and dips, the lights flicker and go dim, and you get little brownouts. That kind of starved, unsteady power is hard on sensitive electronics, clean wave or not.

So the smoothness of the wave is only half the job. The other half is giving the generator room to breathe — running it comfortably below its limit, not right up against it. A generator loafing along at half its capacity makes rock-steady power. One pushed to its last watt makes nervous, dipping power that your gear won't like.

The fix is to size the unit to your needs with headroom to spare, and to be thoughtful about what you run at once. If the lights dim every time the refrigerator kicks on, that's the generator telling you it's working too hard — time to unplug something or step up to a larger unit. There's a full sizing guide in this series to help you get that right.

This matters most for the very gear this guide is about. A big motor starting up — a fridge, a furnace fan — pulls a large gulp of power for a second and can cause a dip. If a delicate electronic is sharing that moment, a surge protector and a little headroom on the generator both help keep things smooth and safe.

✓ Watch the lights for a warning

Your lights are a free power gauge. If they dim, flicker, or the generator's tone drops and strains whenever something switches on, you're asking too much of it. Ease the load, and your electronics get steadier power for it.

Plug in the right way: let it settle first

There's a simple, safe order for connecting your electronics, and following it protects them from the little bumps of starting and stopping a generator.

The moment a generator starts, and the moment it stops, are its least steady. As the engine catches and revs up, or coughs and winds down, the power can jump or dip for a second. You don't want a delicate television or computer plugged in and switched on during those wobbly moments.

So here's the order. **First**, start the generator with nothing plugged in, out in its safe spot 20 feet from the house. **Let it run and settle** for a minute or two, until the engine finds its steady rhythm. **Then** plug in your surge protector, and finally switch on your electronics — ideally one at a time, giving the generator a beat to adjust to each, rather than all at once.

Shutting down works in reverse. **Turn off and unplug your electronics first**, then let the generator idle a moment, and only then stop the engine. That way your gear is safely disconnected before the power gets wobbly again on the way down. Never kill the engine with everything still plugged in and drawing power.

It sounds like a lot written out, but it becomes second nature after once or twice: start it, let it settle, plug in; unplug, then shut it down. That gentle routine spares your electronics the roughest few seconds of a generator's day.

✓ Eco mode and big motors

If your unit has an eco or economy mode, flip it off for a moment when you're about to start something with a big motor, like a refrigerator, so the generator has its full muscle ready for the surge — then switch it back on. It keeps the power steadier for everything else plugged in.

The right cords, and a word on grounding

Two practical odds and ends that keep your setup safe: using proper extension cords, and understanding the generator's grounding.

Start with the **cords**, because they matter more than folks expect. Use heavy-duty outdoor extension cords rated for the load you're running and no longer than they need to be. A cord that's too thin or too long for the job drops voltage along its length, and low voltage at the far end is its own kind of unsteady power that electronics don't like. When in doubt, go a size heavier — a thicker cord never hurts.

Always use **three-prong grounded cords** in good condition, with that round grounding pin intact — never a cord with the ground prong broken off, and never a cheater plug that defeats it. That ground is a safety path, and your electronics and your surge protector rely on it to do their jobs properly.

As for **grounding the generator itself**: whether a portable unit needs a separate ground rod driven into the earth depends on the generator and how it's set up, and the honest answer is that it's spelled out in your unit's manual. Many modern portable inverter generators are built so they don't require a separate ground rod for ordinary use with plugged-in cords — but yours may differ, so follow what the manufacturer says. That's the reliable rule for anything to do with grounding: the manual is the authority, not a neighbor's rule of thumb.

If the manual's grounding section leaves you unsure, that's a fine thing to ask about before you're standing in a storm. Grounding done wrong is a safety matter, so it's worth getting a clear answer rather than guessing.

★ I'll read the manual with you

Manuals can be dense, and the grounding section is often the murkiest part. Bring me yours and we'll find the plain answer together, and I'll make sure you've got the right cords for your gear. For anything that touches your home's wiring, I'll bring in a licensed electrician. Call (330) 200-8042.

A battery backup for the fussiest gear

For a few especially delicate or important things — chiefly a desktop computer — there's an extra layer worth knowing about: a battery backup, sometimes called a UPS.

A **UPS** — that's "uninterruptible power supply" — is a small box with a battery inside that sits between the outlet and your device. Its trick is bridging the tiny gaps: if the power flickers for a second, or the generator hiccups, or you have to pause to refuel, the UPS keeps your device running smoothly on its battery so it never actually loses power.

Where this shines is a **desktop computer**. Unlike a laptop, a desktop has no battery of its own, so even a half-second flicker shuts it right off — and you lose whatever you were working on, or worse, risk scrambling its files. A UPS gives it a cushion, keeping it up through the little bumps and giving you a calm minute to save your work and shut down properly if needed.

One important catch ties back to what we learned earlier: **use a pure-sine UPS**. Many inexpensive battery backups make modified sine wave power — the choppy kind — which somewhat defeats the purpose when you're feeding a sensitive computer. Look for the words "pure sine wave" on the UPS, just as you would on a generator. Paired with clean generator power and a surge protector, a pure-sine UPS is about as gentle a setup as your electronics could ask for.

You don't need one on every gadget — a TV or a phone charger won't miss it. Save the UPS for a desktop computer or anything where a sudden shutoff would cost you data or a headache. For most everything else, clean generator power and a good surge protector are plenty.

✓ Layers, from gentlest to fussiest

Think in layers: clean generator power for everything, a surge protector in front of your good electronics, and a pure-sine UPS for the one or two things that can't stand even a flicker. Each layer is optional, but each one adds a little more peace of mind.

A special word on medical devices

One family of sensitive electronics deserves more than a passing mention, because a life can depend on it: medical devices like a CPAP or an oxygen machine.

The good news fits right in with everything you've read here. A CPAP, a BiPAP, a nebulizer, an oxygen concentrator — these have sensitive electronics inside, and the clean pure-sine power from an inverter generator is exactly the right, gentle kind for them. The very same clean-power reasoning that protects your television protects a breathing machine too. And the same warning applies: keep the cheap modified-sine gadgets well away from medical gear.

But medical devices are different in a way that matters enormously: they're not just sensitive, they're **life-sustaining**. That raises the stakes far beyond protecting a gadget, and it brings in questions no power guide should try to answer — how long someone can safely go without the device, how to run one overnight when the generator has to stay outdoors, and how to keep a proper backup of oxygen on hand.

Because of that, I've given medical devices their own full guide in this series, written carefully and with the seriousness they deserve. If anyone in your home depends on a CPAP, oxygen, or another medical device, please read that guide rather than treating it as just another electronic on the list. It walks through building a real plan with your doctor and equipment supplier, the safe overnight battery setup, and much more.

! Please plan with your doctor and supplier

A generator can be part of a medical backup plan, but it is never the whole plan and never a substitute for medical advice. Anyone relying on a life-sustaining device should build a written plan with their doctor and equipment supplier, register on the power company's medical list, and keep backup oxygen where it applies. See the medical-device guide in this series, and call me for the equipment side.

A few mistakes worth dodging

Most trouble with electronics on generator power comes from a short list of easy-to-make slips. Steer around these and you've steered around nearly all of it.

- **Plugging straight into the generator with no surge protector.** Clean power is the shape of the wave; a surge protector guards against spikes. Use both, every time, for your good electronics.
- **Mistaking a plain power strip for a surge protector.** They look identical. Check for a joules rating and the words "surge protector," or your gear has no armor at all.
- **Overloading the unit.** A strained generator makes dipping, brownout power that stresses electronics. Leave headroom, and ease off if the lights dim.
- **Switching everything on at once, right at startup.** Let the generator start and settle first, then plug in and power up your gear a piece at a time.
- **Using a thin or overly long extension cord.** It drops voltage and starves your electronics. Use heavy-duty, grounded, outdoor-rated cords, sized to the job.
- **Trusting a cheap modified-sine inverter or battery backup with sensitive gear.** Look for "pure sine wave." The bargain-bin box is fine for a lamp, not for your computer.

None of these are hard to avoid once you know them. Really, they boil down to three friendly habits: use a real surge protector, don't overload the unit, and let it settle before you plug in. Do those three, and your electronics will ride out an outage as happily as they run on a normal day.

Common worries, gently put to rest

Folks weighing all this carry a few worries in particular. Let's ease the most common ones, plainly.

Q: Will an inverter generator really keep my TV and computer safe?

Yes — clean pure-sine power is gentle on electronics, which is the whole reason to choose an inverter unit. Add a surge protector on top and run the unit with room to spare, and your gear is as safe as on a normal day.

Q: Do I still need a surge protector if the power's already clean?

Yes, please. Clean power handles the shape of the wave; a surge protector guards against sudden spikes. They're two different jobs, and your good electronics deserve both — belt and suspenders.

Q: Can I just plug my electronics straight into the generator?

You can, but it's better not to. Plug a good surge protector into the generator first, let the unit settle before switching anything on, and plug your gear into the strip. It's a small habit that spares your electronics the roughest moments.

Q: Is a cheap power inverter or battery backup okay for my laptop?

Only if it says "pure sine wave." Many cheap ones make choppy modified-sine power that can make sensitive gear run hot or wear out. When in doubt, check the label or ask me before you plug in.

How I can help

Sorting out which of your electronics need what, and getting a generator set up to protect them, is exactly the kind of friendly, no-pressure help I offer folks around Portage County.

I'm Bill, and I run Bill's Home Tech right here in Portage County. I'm a tech-help person, not a power company and not a pushy salesman — I help folks pick the right gear, set it up, and feel confident using it. With generators, that means helping you choose a unit that fits your home and your budget, showing you how to run it safely, and getting your internet, TV, and devices happily back on once the power's flowing.

I'll be clear about where my job ends. Choosing a clean-power generator, matching surge protectors and cords to your gear, setting it all up, and getting your TV, computer, and internet happily back on — that's right in my wheelhouse. But anything that ties a generator into your home's wiring, like a transfer switch, belongs to a licensed electrician, whom I'll gladly coordinate with. You get one friendly point of contact for the whole project.

Three easy ways to get help

- **An in-home visit** — a flat \$99 first visit. I come to you, here in Portage County, and every visit is 30-day come-back-free.
- **Remote help** — a flat \$49 screen-share, up to two hours, for the things I can sort out without coming over (it's free for Support Plan members).
- **A Support Plan** — \$39 a month for folks who'd like me on call all year.

Your clean-power checklist

Tear this page out and tuck it inside a cabinet door with your generator supplies. When the lights go out, you'll be glad it's there.

- ☐ An inverter generator that makes clean, pure-sine power — chosen with your electronics in mind.
- ☐ A good surge protector (not just a power strip) for each cluster of important electronics — check for a joules rating.
- ☐ Heavy-duty, grounded, outdoor-rated extension cords, sized to the load and no longer than needed.
- ☐ The generator sized with headroom to spare, so it's never straining when the fridge or furnace kicks on.
- ☐ A pure-sine UPS on the desktop computer or any device that can't stand a flicker (optional but nice).
- ☐ The habit down pat: start it, let it settle, then plug in — and unplug before you shut it down.
- ☐ Cheap modified-sine inverters and battery backups kept away from sensitive gear.
- ☐ The medical-device guide read and a plan in place, if anyone here uses a CPAP or oxygen.

Every one of those check marks is a small kindness to the electronics you'd rather not replace. Work down the list at your own pace — and call me for any part you'd like a hand with.

The short version

If you remember nothing else from this guide, remember these:

- Clean power means a smooth, pure-sine wave, close to your wall's power — gentle on TVs, computers, and anything with a circuit board.
- An inverter generator makes that clean power; the old open-frame kind makes rougher power that can, over time, stress delicate electronics.
- Steer clear of cheap modified-sine inverters and battery backups for sensitive gear — look for the words "pure sine wave."
- Clean power isn't the whole job: still use a real surge protector, don't overload the unit, use good grounded cords, and let it settle before plugging in.
- Medical devices like a CPAP or oxygen are a special case with their own guide — and I'm only ever a phone call away for the rest.

Clean Power at a Glance

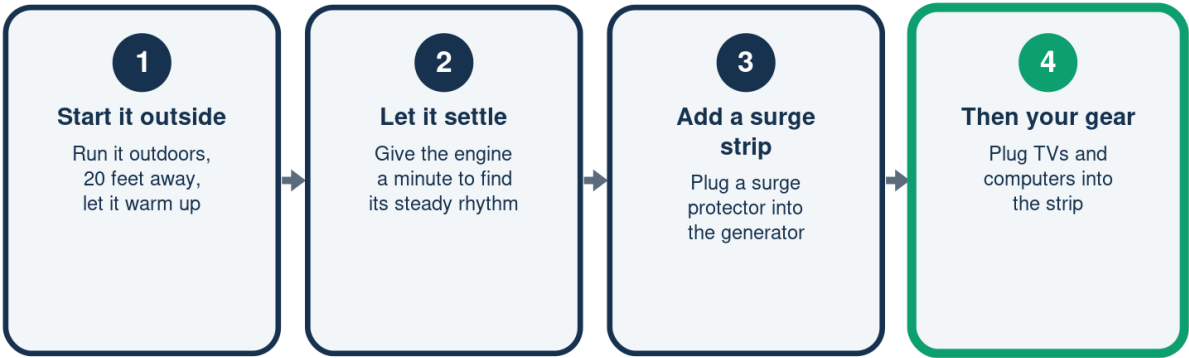
The plain-English version

	The short answer	Why it matters
What it is	A pure sine wave	Smooth, wall-like
Gentle on	TVs, computers	Anything with chips
Old-style unit	Rougher power	Can stress gear
Still do	Use a surge strip	Belt and suspenders
Don't	Overload the unit	Dips stress gear

Clean, steady power for delicate electronics — with a surge protector on top for good measure.

Powering Electronics Safely

A simple, safe order



Let it settle, protect with a surge strip, then plug in your electronics.

Pure Sine vs. Modified Sine

Two kinds of backup power

	Pure / true sine	Modified sine
Waveform	Smooth and even	Choppy, blocky
Electronics	Run normally	May run hot
Found in	Inverter units	Cheap inverters
Over time	Easy on gear	Can wear it out
Sensitive gear	The right choice	Best avoided

For TVs, computers, and gadgets, choose clean pure-sine power — that's what an inverter unit makes.

Which Power for Your Device?

Start with what you're plugging in

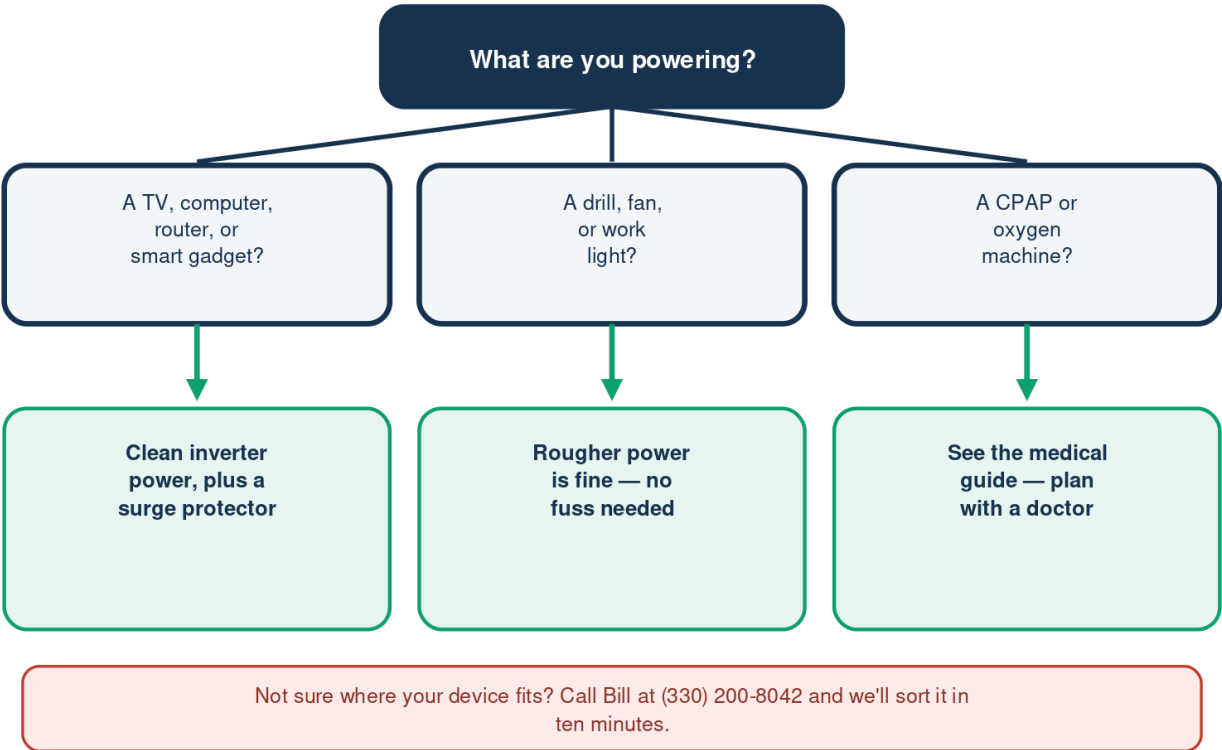


Illustration - a schematic, not to scale. Your setup may differ.



Need a Real Person?

You do not have to remember all of it.
You just have to remember you can call.
Friendly, in-home tech help — I come to you.

BILL'S PROMISE

If you are not 100% happy with a visit, I will
make it right — or refund it. No awkwardness,
no fine print. That is how I would want to be treated.

(330) 200-8042 · BillsHomeTech.com

Bill@BillsHomeTech.com · Mon–Sat 9:00 AM – 7:30 PM

— Bill

Prefer help without a visit?

Bill can screen-share and fix many things remotely — a flat \$49, free for Support Plan members.



A Note From Bill

A quick note from Bill.

I write these guides to make home tech a little less frustrating, and I do my best to keep every step accurate and up to date. Still, every home, device, and setup is a bit different, so I can't promise a guide will match yours exactly or fix your particular problem. These guides are for general information only — they're not professional, legal, or financial advice, and they don't replace your device's own manual or the manufacturer's instructions. Please go slow, use your own good judgment, and use everything here at your own risk. If a step involves electrical wiring, a gas appliance, a water heater, plumbing, or climbing a ladder — or if anything just doesn't feel safe — please stop and call a licensed professional (or give me a call at 330-200-8042). Bill's Home Tech and Bill Davis can't be responsible for any damage, data loss, or injury that comes from using these guides. Thanks for reading, and stay safe out there.

— *Bill*



Book a visit —
billshometech.com/book

Use of these guides is subject to our Terms of Use (billshometech.com/terms-of-use).

(330) 200-8042 · BillsHomeTech.com

Bill@BillsHomeTech.com · Mon–Sat 9:00 AM – 7:30 PM

For general information only — not professional advice. Use at your own risk. For electrical, gas, water, or ladder work, please call a licensed professional. — Bill's Home Tech