



An Extended Guide · No. 1794

VA vs Watts: The Two Numbers on the Box

Which UPS rating actually matters, in plain English

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! Read this first — what a UPS can and can't do

First, the honest picture, so a UPS never disappoints you. A UPS — an uninterruptible power supply — is a battery backup box. When the power blinks or goes out, it keeps small electronics like your computer, your modem and router, or a medical monitor running without a flicker. But it is a short bridge, not a whole-home generator: it buys you minutes, not hours — time to save your work and shut down gently, keep the internet up through a brief blip, or ride you over until a generator or a portable power station takes over. Plug only small electronics into the battery side. Never plug in a laser printer, a space heater, a hair dryer, a microwave, a sump pump, or anything that makes heat or has a big motor — they draw far too much and can overload or damage the unit. A UPS has a sealed battery inside, so set it where a little warmth can escape, not sealed in a cabinet, and keep it dry. That battery wears out every few years and gets swapped and recycled at a battery drop-off — never put it in the household trash. This guide untangles the two numbers on a UPS box — VA and watts — so you buy the right size without any math homework.

Two numbers, one honest limit

Every UPS is stamped with two numbers — 'VA' and 'watts.' They confuse a lot of good people. By the end of this guide, you'll know which one actually matters and why.

I'm Bill, from Bill's Home Tech in Portage County, Ohio. This is one of the most common questions I get: 'It says 800-something-VA and a different watts number — which do I go by?' It's a fair question, and the answer is simpler than the box makes it look.

I won't quote you any specific numbers here, because yours depend entirely on your own gear and the unit you choose. What I'll give you is the plain idea, so any box you pick up makes sense.

★ The one-sentence answer

When in doubt, go by the **watts** number — it's the honest limit — and make sure your gear's total stays comfortably under it. The rest of this guide is just the 'why.' Call (330) 200-8042 if you'd rather ask.

Both numbers, on one page

If you read nothing else, here's the whole idea.

- ❑ A UPS lists two capacity numbers: VA (volt-amps) and watts.
- ❑ VA is the 'headline' number and is usually the bigger of the two.
- ❑ Watts is the 'real work' number and is the honest limit for your gear.
- ❑ Your gear's total must stay under BOTH — and watts is the one that runs out first.
- ❑ Leave headroom — don't load a UPS right up to its limit.
- ❑ These numbers are about how much, not how long — runtime is a separate question.

✓ Watts is your friend

If all of this blurs together, remember one word: watts. Keep your gear's watts under the UPS's watts, with room to spare, and you're safe.

Why there are two numbers at all

It seems silly to rate one box two ways. Here's the honest reason, without the engineering.

Electricity has a slightly split personality. There's the power your gear truly turns into work — light, heat, computing — and there's a little extra that sloshes back and forth without doing work. 'Watts' measures the real work. 'VA' measures the whole sloshing total. Because of that sloshing, the VA number ends up bigger.

Manufacturers print both because a UPS has a limit on each. You can hit the watts ceiling or the VA ceiling first, depending on your gear — and for the electronics folks put on a UPS, it's almost always the watts ceiling you reach first.

✓ A garden-hose picture

Think of VA as the water moving in the hose and watts as the water that actually reaches your garden. Some always sloshes in the hose — so the 'reaches the garden' number is the smaller, honest one.

Watts — the number that does the work

Watts is the measure of real power, and it's the one I trust.

When your computer's label says it uses so many watts, that's how much real power it draws to do its job. Add up the watts of everything you want to protect, and you know how many watts of UPS you need — with a little extra on top. A UPS whose watts rating comfortably covers your total will carry the load.

★ Watts is the honest ceiling

Of the two numbers, watts is the one that tells the truth about what a UPS can actually run. Start there, and the VA number will almost always take care of itself.

VA — the headline on the front

VA, or volt-amps, is the number makers love to put in big print — and it's a little bit of showmanship.

Because VA counts the whole sloshing total, it's the bigger, more impressive-looking number, so it's what you'll see splashed across the front of the box. It's not fake — the UPS really does have a VA limit — but it can make a unit look like it can power more than it truly can for the kind of gear you'll plug in.

! Don't shop on the VA number alone

Two UPS units can share the same big VA number and offer different watts. Since watts is what runs your gear, always find and compare the watts number before you decide.

Why watts is usually the smaller number

There's a tidy little reason the watts number comes in under the VA number, and you don't need arithmetic to get it.

The gap between the two comes from that sloshing power we talked about — engineers call the relationship 'power factor,' but you can happily forget that term. All it means is that watts is some fraction of VA, so the watts number lands lower. How much lower varies by the unit, which is exactly why you should read the actual watts figure rather than guess it from the VA.

✓ You don't need the math

You never have to calculate anything. The maker prints both numbers already. Your only job is to read the watts figure and keep your gear under it.

The rule: stay under both

Here's the whole buying rule in one breath.

Add up what you want to protect, then choose a UPS whose watts rating — and its VA rating — both sit comfortably above your total. Because watts runs out first for computer gear, if your watts fit with room to spare, the VA almost always does too. Aim to use only part of the UPS's capacity, not all of it.

! Right at the limit is asking for trouble

A UPS loaded to its very edge can overload, cut its runtime to almost nothing, and wear out faster. Leaving headroom is the difference between a UPS that serves you for years and one that struggles.

How to read what your gear needs

The numbers you need are already printed on your devices — usually on a little label.

- Look for a small sticker or plate on the back or bottom, or the last page of the manual.
- It may list watts (W) directly — if so, that's the number to add up.
- If it lists volts (V) and amps (A) instead, multiplying them gives a VA-style figure; jot it down and I can help you translate.
- A device's charger or power brick often has the numbers on it, too.

✓ Snap photos of the labels

Take a picture of the label on your computer, monitor, and internet gear and text them to me. I'll add them up and tell you what size UPS fits — no charge for a quick question.

Adding up what you'll protect

The method is simple arithmetic — and you can let someone else do the adding.

- ❑ List only the gear you truly need on battery — computer, monitor, modem, router.
- ❑ Find each one's watts (or volts and amps) from its label.
- ❑ Add the watts together for a grand total.
- ❑ Pick a UPS whose watts rating sits comfortably above that total.
- ❑ Leave the printer, chargers, and anything hot off the battery side.

That's the entire exercise. Our sizing guide walks through the same steps with more hand-holding, and shows how the total drives your runtime, too.

How the big VA number fools people

A quick warning about a common shopping trap.

It's tempting to grab the UPS with the biggest VA number and assume it's the most capable. But if its watts rating is modest, it may power less real gear than a different unit with a smaller VA but a healthier watts figure. The front-of-box number is the sizzle; the watts number is the steak.

★ Compare like for like

When you're weighing two units, line up their watts numbers — not their VA numbers — and compare those. That's the apples-to-apples that keeps you from over- or under-buying.

Two kinds of homes, two sets of needs

The numbers work the same everywhere, but how much headroom you'll want leans on where you live.

If you live in town or the suburbs

In town or the suburbs, outages are short, so you're mostly sizing to carry your gear across a brief blink — headroom keeps things easy.

- A modest UPS with watts to spare easily covers a computer and internet gear through the usual short blips.
- Because you rarely need long runtime, you can size for comfort rather than marathon endurance.
- If you add gear later, that headroom means you won't have to buy a bigger UPS right away.
- Stores are close if you do decide to size up.

If you are out in the country on a well

Out in the country on a private well, you may want extra headroom so you can add a phone base or a second piece of gear, and so the UPS isn't straining on shaky rural power.

- Give yourself generous watts headroom so the unit loafers along instead of running near its limit.
- Remember the well pump is far beyond any UPS — don't try to size for it; that's a generator's job.
- Extra headroom also leaves room to keep the modem, router, and phone base all on one UPS.
- Since restocking is a drive away, size with a little future room built in.

★ Want me to do the adding for you?

Send me your gear's labels and I'll total the watts and suggest a size with sensible headroom — no sales pitch. Call or text (330) 200-8042.

Capacity is not the same as runtime

This trips people up, so let's be clear about it.

VA and watts tell you how much a UPS can power at once — the size of the load it can carry. They do not tell you for how long. Runtime — the minutes on battery — depends on how heavy your load is compared to the battery's size: a light load stretches for a good while, a heavy one drains fast.

✓ Two questions, two guides

'How much can it run?' is this guide (VA and watts). 'How long will it last?' is our sizing-and-runtime guide. You'll usually want both.

Always leave a little headroom

The single best habit when reading these numbers.

Don't buy a UPS whose watts rating exactly equals your gear's total. Give yourself a cushion. That cushion means longer runtime, a cooler and longer-lived UPS, and room to add a device down the road without starting over. A UPS that's loafing is a happy UPS.

! A full-to-the-brim UPS disappoints

Loaded right to its rating, a UPS gives you almost no runtime and may trip off under a small surge. Headroom is cheap insurance against both.

Reading a spec sheet without the jargon

Here's what the common terms really mean, in a glance.

Term on the box	Plain meaning
VA / volt-amps	The headline number — usually the bigger one
Watts / W	Real power — the honest limit for your gear
Load	How much you've plugged into the battery side
Runtime	Minutes on battery — depends on the load
Power factor	Why watts comes in under VA (you can ignore it)

Keep this little table handy at the store and no spec sheet will throw you. The two rows that matter most are watts and load.

What the numbers don't tell you

Two honest limits of VA and watts, so you know what else to check.

- **They don't tell you runtime** — that's about the battery's size versus your load; see our sizing guide.
- **They don't reveal the battery's age** — an old, tired battery won't deliver its rating, no matter the numbers.
- **They don't cover surge behavior** — how the unit handles a brief jolt is a separate quality.
- **They don't name the sine-wave quality** — pure vs simulated is its own line on the sheet.

✓ Numbers plus judgment

The ratings get you in the right ballpark; the other guides in this series cover the rest — runtime, battery health, and power quality.

The method, step by step

Here's exactly how I'd size by watts at your kitchen table — with your numbers, not made-up ones.

First, I'd gather the label off each thing you want protected and write down its watts. Second, I'd add those watts into one total. Third, I'd look for a UPS whose watts rating is a comfortable step above that total — enough that it's never straining. That's it. If a label only shows volts and amps, we multiply those two to get a working figure and carry on.

★ This is a great five-minute visit

Sizing by watts is quick, and I'm glad to do it with you so you buy once and buy right. No charge to answer a quick sizing question by phone.

Common mistakes with the two numbers

The slip-ups I see most when folks read a UPS box.

- **Shopping on VA alone** and ignoring the smaller, truer watts number.
- **Loading to the limit** with no headroom, then getting almost no runtime.
- **Confusing capacity with runtime** — a big number does not mean a long time.
- **Forgetting the label is per-device** — you must add up everything on the battery side.

! The fix is always the same

Go by watts, add up honestly, and leave room to spare. Those three habits prevent nearly every sizing regret.

When to just ask for a hand

There's no shame in handing this one off.

If the labels are hard to find, the print is tiny, or you'd simply rather be sure, this is a perfect thing to ask about. Getting the size right the first time saves you the frustration of a UPS that's too small to help or too big for your budget.

★ A two-minute phone call can settle it

Read me the numbers off your gear, or send photos, and I'll tell you the size to look for. That's exactly the kind of quick help I'm happy to give at (330) 200-8042.

Common Questions

The VA-and-watts questions I hear most.

Q: Which number do I go by — VA or watts?

Watts. It's the honest limit for the electronics you'll plug in. Keep your gear's total watts comfortably under the UPS's watts and you're safe; the VA will almost always be fine too.

Q: Why is the VA number bigger?

Because it counts a bit of power that sloshes back and forth without doing work. Watts counts only the real work, so it lands lower — and it's the number that matters for your gear.

Q: Do I have to do any math?

No. The maker prints both numbers, and your gear's labels list what they need. You just add up the watts — or send me the labels and I'll add them for you.

Q: Does a bigger number mean it runs longer?

No — that's a common mix-up. VA and watts are about how much it can power at once, not for how long. Runtime is a separate question our sizing guide covers.

Q: How much headroom should I leave?

Enough that the UPS isn't running near its limit — a comfortable cushion. That gives you longer runtime, a cooler unit, and room to add gear later.

★ Still fuzzy on the numbers?

That's completely normal — the box makes it harder than it is. Call or text (330) 200-8042 and I'll make it click in a minute.

A simple checklist

Tape this near where you keep your receipts.

- ☐ Find the watts (or volts and amps) on each device's label.
- ☐ Add the watts of everything going on the battery side.
- ☐ Choose a UPS whose watts rating sits well above that total.
- ☐ Double-check the VA rating clears your total too.
- ☐ Leave headroom — don't load it to the edge.
- ☐ Remember: these numbers are 'how much,' not 'how long.'

✓ One word to carry

If you forget the whole list, keep the word 'watts.' It's the number that keeps you out of trouble.

Where to go next

You've got the two numbers down — here's what pairs with this guide.

- Want the 'how long' half? Our 'sizing and runtime' guide is the natural next stop.
- Deciding on a design? See our 'three types of UPS' guide.
- Ready to shop? The 'buying checklist' turns this into a one-page list.
- Wondering what belongs on it? See 'what to plug into a UPS.'

Read them in whatever order suits you — each stands on its own, and none asks you to remember the last.

You don't have to do this alone

You just have to remember that a friendly, patient person is one call away.

I hope this guide made the VA and watts numbers on a UPS feel a little less daunting and a lot more doable. Keep it in a drawer with your other home papers, come back to a page whenever you need it, and don't worry about memorizing anything.

When you'd rather have a hand, that's exactly what I do. I come to your home, work at your pace, and never make you feel rushed or silly for asking. A first visit is a flat \$99, and for the parts that don't need me on-site I can often help right on your screen for \$49. Every visit comes with a 30-day, come-back-free guarantee. Setting up a plug-in UPS is friendly, everyday work I'm glad to do with you; I don't do licensed electrical work myself, so for a hardwired unit or any panel or wiring work I'll help you line up a trustworthy local pro.

★ Bill's Home Tech — real help, close to home

Call or text me at (330) 200-8042, or visit BillsHomeTech.com. Serving Atwater and all of Portage County. 30+ years of patient, plain-English tech help — and if you're ever not 100% happy with a visit, I'll make it right or refund it. That's a promise. — Bill

VA vs Watts

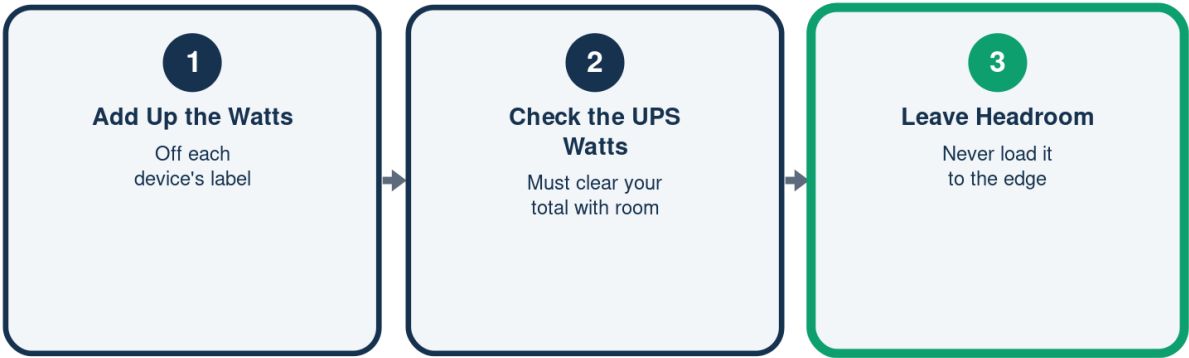
The two numbers, side by side

	VA	Watts
Nickname	Headline	Real work
Size on box	Bigger	Smaller
The honest limit	Part of it	Yes
You must	Stay under	Stay under

Shop by watts; it's the number that runs your gear.

Sizing by Watts, in Three Steps

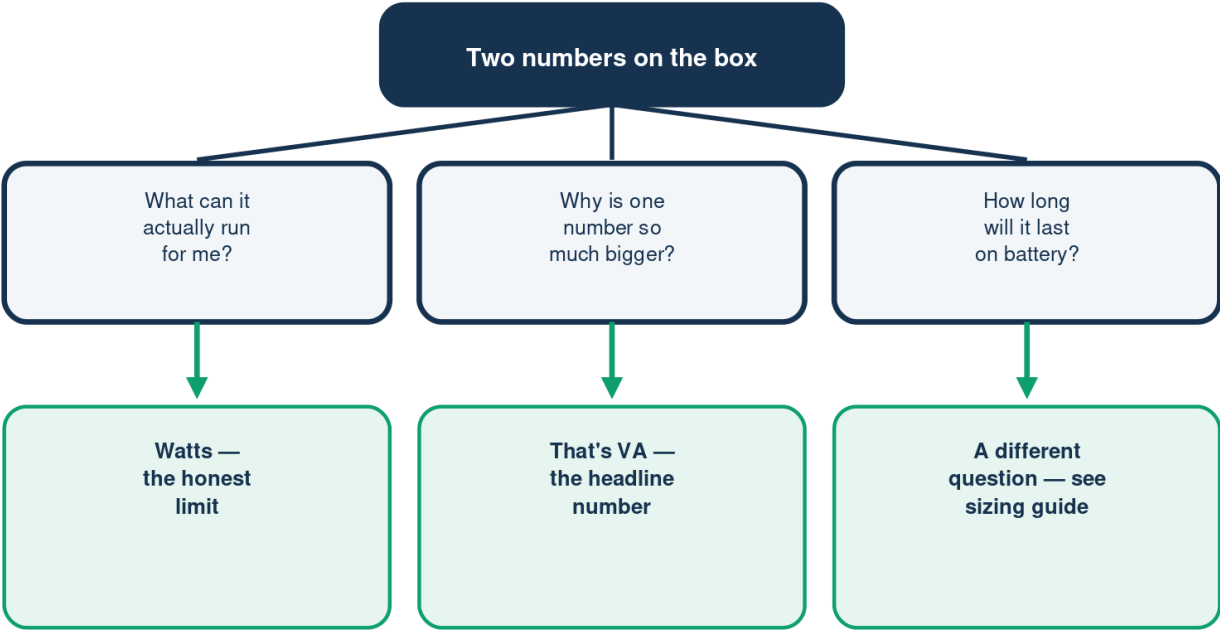
No math homework required



If a label shows volts and amps, multiply them for a figure.

Which Number Should Guide You?

A starting point, not the final word



Keep your gear's watts under the UPS watts, with room to spare.

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

Words on the Spec Sheet

What each term really means

	What it means
VA / volt-amps	Headline number
Watts / W	Real power — the limit
Load	How much you plug in
Runtime	Minutes — depends on load
Power factor	Why watts < VA (ignore)

The two rows that matter most are watts and load.



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A Note From Bill

A quick note from Bill.

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