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By: Michael Hall



Product: [Blue Line Innovations PowerCost Monitor -- Wi-Fi Edition](#)

Price: \$249

Pros: isn't obtained from a power utility and doesn't require [installation](#) by electrician; easy setup; tracks current and long-term consumption patterns online via Microsoft Hohm

Cons: Wi-Fi adapter, while due for an update, is currently based on the antiquated 802.11b standard, which may have problems connecting to some g/n routers; Hohm charts currently reflect estimated rather than actual energy rates

The first step to reducing your consumption of something is to know exactly how much you're using and how you're using it. If you want to reduce your cable TV or mobile phone costs, for example, you need only check your monthly bill to see what channels you get or how many minutes you're using, and with that information, make an informed decision about how best to cut back.

But when it comes to your electric bill, all it will tell you is that you used a big pile of something called kilowatt hours and how much each one costs; you're left in the dark (pardon the pun) as to how much you used on a given day or time, and there's no indication as to how the relative power consumption of your various household appliances and devices contributed to the overall amount you were charged. Trying to curtail your usage and shrink your bill under those circumstances is at best an exercise in guesswork.

But with a [PowerCost Monitor Wi-Fi Edition](#) from Blue Line Innovations, you can replace speculation about your usage with cold, hard data. It continuously monitors your power consumption to show you how much you're using at any given moment--and more to the point, what it's costing you. Better yet, it uploads your usage data to the [Microsoft Hohm](#) energy [Web site](#), where you can track it over extended periods of time.

While a handful of forward-thinking power utilities give customers the ability to monitor usage via smart meters and other specialized equipment, the \$249 PowerCost Monitor Wi-Fi Edition is one of the few power-consumption meters that you don't need to obtain from your power provider and that doesn't require a [installation](#)

by an electrician. In fact, getting the PowerCost Monitor up and running doesn't require any tools or special skills aside from a screwdriver and the ability read an electric bill.

Installation

The PowerCost Monitor Wi-Fi Edition consists of three separate components:

- a sensor unit that attaches the power meter on the outside of your house
- a display unit which stays inside and reports power consumption data it receives from the sensor over a low-frequency wireless band
- a Wi-Fi gateway that sends the consumption data to Microsoft Hohm

The PowerCost Monitor's sensor unit is compatible with a wide variety--albeit not all--power meters. (See [Blue Line Innovations' site](#) for more details on power meter compatibility.) The battery-operated sensor operates passively -- it clamps onto a power meter and uses LEDs to read its spinning disc or optical port. Attaching the sensor isn't difficult, but it takes some effort to align it properly and make sure it stays that way as you tighten the clamp, as this tends to shift the sensor slightly. The sensor's 2 AA batteries, which are included, can be changed without removing the device, and Blue Line tells us they're good for between 8 and 12 months of life.

After physically installing the sensor, the display unit must be configured with information from your meter and electric bill in order to accurately calculate your power consumption and the charges accrued. The PowerCost Monitor can do the math no matter how you pay for power: be it a flat rate, a tiered rate (one rate up to a certain consumption threshold and a higher rates for additional levels of consumption), or via a time-based scheme (where you pay more or less for power depending on the time of day).

Once the sensor is installed and display unit is configured, a sequence of button presses on each gets the two devices synched up, and within a minute or so the display unit starts spitting out numbers. All told, setting up the first two pieces of the PowerCost Monitor -- from reading the instructions to physical [installation](#) to information gathering and entering it into the display unit--took all of about twenty minutes.

Knowledge is Power

Once the display unit is up and running, you'll begin to see your household's power consumption in a new way. The display unit reports your current and cumulative power consumption in both kilowatts (kW) and dollars/cents per hour (a button press toggles between the two readings), and while the information isn't quite delivered in real time, it's pretty close -- figures are updated approximately every 30 seconds. As you watch the

current consumption figure ebb and flow -- and the cumulative figure creeping ever northward -- you can't help but find yourself being more judicious in the use of power to keep both numbers as low as possible.

Because the PowerCost Monitor doesn't tie directly into your electrical lines, the only way to gauge the consumption of a particular appliance is via extrapolation. A button on the display unit will let you temporarily reset the current consumption figure to zero before you turn a given appliance on, much like you would set a food scale to subtract the weight of a plate or bowl. It's not a foolproof method of isolating an appliance's consumption, given that the number can be skewed if another appliance or device comes on while you're taking the reading, but in most cases it will give you a reasonably accurate answer when you want to know how much it costs to fire up the dishwasher, big-screen TV, air conditioner, etc. Blue Line says that smart plugs, which can precisely measure the consumption of a specific device (at least those that use a wall outlet), will eventually be available as PowerCost Monitor add-ons.

Going Online

The last -- and arguably most useful -- component of the PowerCost Monitor Wi-Fi Edition is its eponymous Wi-Fi module. The small circular device is about the size of a bagel (complete with a hole in the center) and has a mounting point should you care to hang it on the wall. Like the display unit, it communicates directly with the sensor via low-frequency (433.92 MHz) wireless but also uses your Wi-Fi and Internet connection to relay consumption information to Hohm.

Configuration of the Wi-Fi module is handled via a downloadable utility which walks you through connecting the unit to both the sensor and your Wi-Fi network, and then associating it with a Hohm account. (Not surprisingly, linking to Hohm requires a [Windows Live](#) account.)

Hohm charts the information it receives from the PowerCost Monitor, and just like the display unit, Hohm gets its updates about twice a minute so the information presented is always up-to-date. In addition to current figures, you can view data for the previous 6 hours, day, month, or year, so once Hohm's been collecting data for a while, interesting and informative patterns will emerge. You'll clearly be able to see when your consumption tends to peak, and by contrast, what your overnight baseline is; i.e. the period when consumption generally drops to its lowest point. You'll also see how much your consumption changes by day, time of day, season, etc. When you hover the mouse over any point on the graph, you'll see exact time and consumption figure for that particular moment.

Like the display unit, Hohm can display consumption data by kW or cost. The latter figure, however, doesn't currently reflect your actual cost based on the pricing information you enter into the PowerCost Monitor--rather, it's an estimate derived from the average power rates for your ZIP code. That's due to be fixed in an upcoming Hohm update (the site's officially in beta, and so is still a work in progress).

Wi-Fi Woes

As it turns out, we had some difficulties setting up the Wi-Fi gateway, which seemed to stem from the fact that it actually uses the antiquated 802.11**b** wireless standard. Getting such devices to work with 802.11g/n access points often requires that an access point's configuration be tweaked to accommodate the older standard (such as running in mixed mode for backward compatibility), and at the very least, adding an 802.11b device to your G or N [network](#) will constrain the performance of the newer devices running on it.

Moreover, due to different ways router manufacturers implement 802.11b compatibility, there's also the potential that the Wi-Fi module may not work properly, or at all, with some hardware. Case in point is the bizarre problem we encountered when connecting the Wi-Fi gateway to a Netgear WNDR3700 router. While it was able to connect to our wireless network and beyond to Hohm, we could not determine what IP address it had been assigned by the router, and even after setting it up with a [static IP address](#), that address could not be pinged or reached by a browser. This prevented us from directly accessing the Wi-Fi Module's status page, which provides information including the quality of the signal from the sensor as well as the sensor's battery life. No amount of tweaking of the Netgear's settings could eliminate the problem, though it's worth mentioning we did not experience it with another router (non-Netgear) we tried.

Such headaches should be eliminated by a G-based Wi-Fi module Blue Line says is in the works and should be released in the not-too-distant future. To avoid potential performance compromises or setup hassles, we'd recommend holding off on the PowerCost Monitor Wi-Fi Edition until the new Wi-Fi gateway is released. (The model number of the current hardware is BLI-31000.) Another option is to buy the PowerCost Monitor sans Wi-Fi, and since the Wi-Fi gateway is available separately, buy that piece later. Going this route will likely cost \$10-\$20 more in the end, though.

Wi-Fi Gateway compatibility issues notwithstanding, the PowerCost Monitor Wi-Fi Edition represents a relatively easy and inexpensive way to get some real insight on how much electricity you're using so you can start using less.