

guides

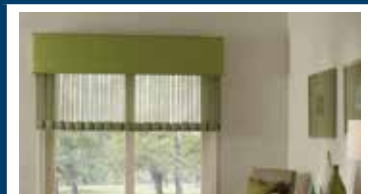
**electronic
HOUSE**

FOCUS SERIES

GREAT IDEAS FOR SMART LIGHTING & SHADING

- Getting started with smart lighting
 - Top reasons for motorized shades
- Wired vs wireless lighting systems
 - Inside an automated house
 - How to use lighting scenes
- How lighting scenes can add simplicity

Presented by



Smart home control is not something just for the wealthy or tech savvy. Automated lighting and shade systems are something every homeowner can appreciate, and they're easier and more affordable to add to a home than most people think. There are options for professional installation as well as simple do-it-yourself products. This special report explains many of the benefits of adding lighting and shade control and offers suggestions and examples on how you can get started.

4 Easy Ways to Get Started with **SMART WIRELESS LIGHTING CONTROL**



WIRELESS LIGHTING SYSTEMS and smart lighting products are popping up everywhere from long-entrenched manufacturers to Kickstarter-funded startups. With so much interest, and so much variety, it's easy to get overwhelmed. If you're ready to dip your toes in the water and want to try adding a little smart lighting to your home, check out these suggestions for easy smart lighting solutions.

Wireless Plug-ins. The easiest and least expensive products to bring a little smart lighting to your home is with plug-in modules, sometimes called lamp or appliances modules. Many come with apps to control the module with a smart phone, while others rely on a small remote. With a simple wireless lamp dimmer adaptor you can experience simple lighting control. Turn a lamp on or off without using the switch or dim the lamp to the desired illumination for your purpose. The best systems are expandable because you'll soon want to add more.

Smart LED Light Bulbs. Wireless LED bulbs are simple to use, but can be costly compared to some other solutions. The LED bulbs themselves use very little electricity to create light, though that's a bit deceiving since the built-in Wi-Fi radios also use a small amount of electricity, even when the light appears to be off. Wireless smart lights will work in most lamps (though the bulbs tend to be larger than standard incandescent or CFL bulbs). Some, like the Philips Hue, require a central control hub and your smart phone, while others connect directly via Bluetooth. Many smart LED bulbs can display a variety of colors, depending on how you set the color in the corresponding app.

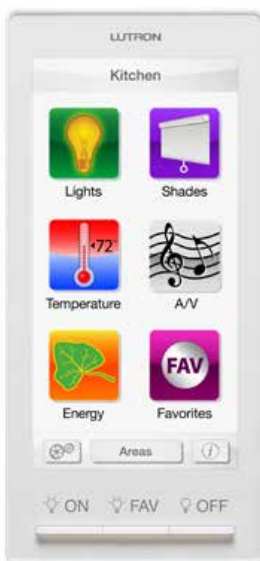
Wireless Wall Dimmers. Wireless dimmer switches are a lot like the wireless plug-in modules except that they get installed in the wall and power whatever outlets the switch controls. While that may seem like a small distinction, it's important because it not only adds control via the dimmer switches' associated app or remote, it maintains your original level of control. Smart home systems are best when they augment our control, not replace it. With a smart wall dimmer switch you can use either the app to turn off the lights from anywhere in the house, or just tap the switch in the same way you did before your smart home project began. Many wireless wall switches are part of whole-house control systems. Some can be installed on a DIY basis, while others require a professional.

Smart Home Automation Hub. If you know you want to control multiple lights and don't want to mess around with basic point-to-point lamp modules or switches, you can try one of the new hub-based home automations systems. Most of these are fairly easy to set up or you could have a professional do the setup and programming for you.. These hubs connect to your home network and use a smart phone or tablet app to operate all the wireless dimmers, outlet plugs or smart bulbs you need. They're also easily expandable, and most go beyond the control of lighting if you need them too.

WIRED vs WIRELESS

Lighting Control Systems

Which Smart Lighting Solution Is Best For Your Home?



GOING WIRELESS IS THE WAY to go, right? After all, you probably already have a wireless computer network in your home. You may have cut the cord on phone service—perhaps even cable TV. So why not go wireless with your smart lighting control as well?

With so much working wirelessly in your home already, why not go with a wireless lighting control system that lets you shut off all your home's lights from one location, dim lights and set cool scenes. It will save you the hassle of having to run wires from the keypads to a central processor, which is how most wired lighting control systems work.

"Every home in the future will have wireless products," says Roger Stamm from Lutron Electronics, a manufacturer of both wired and wireless lighting control systems.

So that's it. Wireless wins, right?

Not so fast. There are advantages and disadvantages of using both technologies. And what you ultimately choose could depend on several factors:

- Is your home already built or is it in the process of being built?
- What's your budget and what can you pay up front?
- The reliability of the system.
- The features and size of the system.
- And future add-ons and technologies.

Wireless lighting control is certainly in the here and now. And we're seeing more and more of it—with good reasons. But it's not the winner of the lighting world by default—at least not yet.

It looks like we're going to need a lighting technology smackdown between wired and wireless lighting. Let's go a few rounds and rate them in various categories—and you can judge which one best fits your needs.



Round 1: New Construction vs. Retrofit

A few years ago, the answer was easy. If you're building a new home or an addition and the walls aren't closed, you wire, wire, wire.

So why are we seeing more and more wireless systems in new homes? It could be that the walls were closed by the time a lighting system was specified. And let's face it: wireless systems free you from the hassle of running wires.

"Wireless is a must when all existing house wiring is done, and you don't want the disruption of pulling new wires," agrees Lutron's Stamm.

Wired also is best for large homes. Keeping a wireless network equally dependable across a large home can be difficult. You need to know that when you press the button to turn off your garage lights that they actually turn off—without you having to get out of bed to check.

Owners of smaller homes may opt for wireless, even if the walls are open and wires can be run. That's a personal choice, and may be tied to budget considerations.

Round 2: Cost Benefits

In total cost, it is generally perceived that wired lighting systems, by the nature of their typically larger sizes, and more demanding installation issues, are more expensive than smaller, wireless systems.

But guess what? In terms of the per-product pricing, wireless can sometimes be just as expensive. Wireless keypads and dimmers tend to be more expensive than wired ones because they need to contain the wireless radios for signal reception. Though, says Lutron's Stamm, "The cost of wireless devices has come down closer to the cost of the wired ones in a lighting control system."

Both formats still require programming, so for that the cost is the same.

With a wireless system, you can often start smaller to save money, and add on as you can afford it. “Wireless gives you the opportunity to start in one room or area, and easily add on in the future,” says Stamm.

Round 3: Reliability

This is where you can run into problems with some wireless lighting system, though wireless lighting technologies and their reliability have improved steadily in recent years.

“People still run wires for the feeling of reliability,” says Lutron’s Stamm. “And in some cases, wireless may not be suitable.”

For example, metal mesh in the walls for plastering can reduce the range and performance of wireless communications in a home—as well as the ability simply to switch on and off lights via a wireless control system.

Wireless lighting control technologies have improved significantly in recent years. Lutron’s RadioRA 2, for example, communicates over multiple channels to handle larger systems with more products. “New devices such as wireless occupancy and temperature sensors means more RF traffic,” says Stamm, “so we had to improve the technology to handle that traffic.”

Mesh networks like ZigBee and Z-Wave, in which each enabled device like a ZigBee or Z-Wave dimmer can become a redundant communicating network node like a repeater, have improved in their reliability as well.

Round 4: The Future

Hardwired lighting control systems are still the better bet for being reliable and more robust. These advantages are becoming slimmer and slimmer, however, as wireless technologies improve and become more cost-effective. If you have open walls and can afford a wired system, by all means go for it.

Budget, however, may be the knockout punch for wireless over wired for most: You can start with a wireless lighting system at a much lower cost, and build on it from there. Just check for potential interference and range issues—and you should be golden. The reliability and robustness of wireless systems have improved greatly.

As Lutron’s Stamm says, “Every home in the future will have wireless products.” And with many more retrofit home projects taking place today, you can see where this is going. But still, wire if you can.

Top 10 Reasons to Use **MOTORIZED WINDOW TREATMENTS**

HOME AUTOMATION AND LIGHTING CONTROL systems can make life much easier for you on a daily basis. One of the ways it can help is if you add your window treatments into the mix—you can motorize them and have them move at the touch of a button, or included on an automatic schedule.

Here are 10 reasons to motorize your window treatments:

1. **Convenience.** You'll be able to open and close the draperies, blinds or shades by pressing a button on a remote or have them open and shut automatically based on the time of day, the position of the sun or whether you're home.
2. **Synchronization.** The shades and drapes will all move and stop in synch, creating a neat and tidy appearance for your home.
3. **UV Protection.** You'll be able to better protect your furniture upholstery and wall art from fading by having the shades close automatically during the sunniest part of the day.
4. **Energy-efficiency.** You can set your control system to keep the shades open when it's sunny to help heat the house in cold weather.
5. **Privacy.** A timer can tell your shades to lower right before you hit the shower or go to bed.
6. **Security.** You can make your home look occupied while you're away by having the window treatments programmed to move randomly throughout the day.
7. **Daylighting.** The shades can open during certain times of the day to use natural light to illuminate a room, minimizing the need for artificial lighting.
8. **Movie viewing.** Create a dark viewing environment by blocking out the sunlight. Just press a button and the room fades to black.
9. **Ambiance.** Set the stage for a party or a romantic evening in a matter of seconds.
10. **Ease of use.** Hard-to-reach shades will be under your complete control.



Common SMART LIGHTING SCENES

MOST PEOPLE THINK of their home lights as things that get turned on, off or dimmed as needed, but not as a design and lifestyle element that can be programmed to fit your moods, activities or schedule. That's what smart lighting systems do. They can light your home and yard, but they can also turn a dull standard glow into an integrated part of the home environment.

One of the fundamental tools in lighting control is the scene. Scene controls or scene settings allow you to illuminate an area based on the lighting needs and activities you do there. Lighting scenes are not one-size-fits-all like the way that standard lights are used. Using lighting scenes in a smart lighting or home automation system also simplifies your routine by allowing you to activate multiple settings with one-button commands, or even better, based on preset schedules, or responses to installed sensors.

Scenes are commonly used in custom-programmed automation systems. Even some do-it-yourself smart home systems allow varying degrees of scene creation. One of the bonus elements of creating scenes in a home automation system is that they're not restricted to lighting alone. You can combine lighting scenes with temperature settings, security systems or home theater activities.

Scenes can be activated from touchscreens, tablets or smartphones, handheld remotes or wall-mounted keypads. Keypads with engraved labels are particularly practical because they require almost no instruction to know how to use them.

A key factor with lighting scenes is that the home's lights must be integrated into a control system, that way you can operate multiple lights, in different rooms and on different circuits, with simple programmed commands. It doesn't really matter if the smart lighting system is wired or wireless.

Here are some of most common and practical lighting scenes used in homes with lighting control or automation systems:



Night. A night scene (a lot of programmers call it Goodnight) turns off the entire home's lights at bedtime. You or your home automation installer can decide which lights go all the way off, which stay fully on (maybe a porch light or the light over the kitchen sink) and which get dimmed down. You might set a hallway or stair light to dim so late-night walkers can still see their way to the bathroom. You can combine the Night scene with your thermostat to automatically adjust the temperature for sleeping.

Morning (or wakeup). Do you want your lights to snap on to full brightness at 5:30 a.m. or would you rather they come on slowly to ease you into the day? A morning light scene might also turn on kitchen lights and turn off any outside lights. A home automation system could also turn on the TV to your favorite morning news channel at the same time.



Dinner. Do you need every room in the house lit up at dinner time or just the kitchen and dining room lights? A Dinner scene might light the dining room wall sconces and turn off the living room lights so the kids come in from watching TV. You could also use the Dinner scene to send an alert to the household, such as flashing the lights on and off quickly, to remind people (without having to shout) that dinner is ready.

Party. The scene could dim the lights in the family room to the right intensity level for conversation (or dancing) but not bright enough to expose all the dust you didn't get to wipe up. It might also illuminate countertop lights where the party food is located (or the bar).

Movie Time. Does your family like Friday movie night at home? Activating the Movie scene turns off all distracting lights around the TV or home theater screen (but keeps on a dim light near the fridge for snack breaks).

Vacation. Vacation or Away scene could be programmed to mimic the way the lights would operate were you at home. This is a great way to deter criminals. The Away scene can be integrated with the temperature controls and the home security system.

Reading. I have a Read scene in my media room, because when I'm not watching Star Trek movies I'm enjoying a book. The Read scene turns on the sconces closest to my chair but turns off all the room's other lights.

Lighting scenes are practical and creative, but you're not locked into them. If you want the room a little brighter, it's easy to just press the wall dimmer until it's set the way you want it.

Oceanfront Home **Opens Up** with **MOTORIZED SHADES**

46 electronically controlled Lutron shades lend privacy, energy efficiency and a cozy feel.



TUCKED INTO ITS NATURAL surroundings on the ocean's edge in Maine, this 6,500-square-foot home takes advantage of the view via huge floor to ceiling windows throughout. Its minimalist interior design allows the exterior to be the main eye-candy, but there are times when the owners feel more comfortable covering the glass—especially in the main public space where 12-foot-tall windows make the room feel as if it's part of the outdoors.



The custom electronics (CE) pros at System 7, Winchester, Mass., were able to turn this space into a private, enclosed, cozy space by installing 18 Lutron roller shades—one for each window. The hardware was carefully tucked into the wooden plank ceiling to remain completely undetectable. When the owners touch a button on a Lutron keypad or an icon on their iPad the shades quietly lower to cover the windows. The owners can stop them at any point or let them travel all the way down. They were all programmed by System 7 to move at the same speed,

in perfect alignment. The rollers were installed so that there's a 1-1/2 inch gap between each shade.

As important as the movement of the shades was the opacity of the fabric, says System 7 president Gerard Lynch. Lutron offers a huge assortment of fabrics in a variety of colors and weaves. For this project, System 7 hung sample swatches over the windows so that the owners could compare the opacity of each. "We brought weaves of 3, 5 and 10 percent and compared them at different times of the day, from both the inside and the outside of the house," Lynch explains. The owners chose the 5 percent weave, which is open enough to provide a hazy view of the landscape through the fabric. "It's a transformative experience," says Lynch. "When the shades are down you feel like you're in a completely different space. We used technology as a tool to produce a new feeling for the room."

The lights in this space are also controlled via the keypad and iPad, as is a Sonos whole-house music system that delivers audio to Sonance architectural speakers that sit flush with the wooden ceiling. System 7 tweaked the speaker bezels so that they'd resemble pegs that are commonly used to hold planks of wood together.

Although this family room exemplifies the high-level of craftsmanship and planning involved in integrating technology pleasingly into a space, there are many other areas in this house where technology lends a hand. In total, 46 motorized shades and 80 lighting loads are tied to the Lutron system. An Elan g! home automation system also operates the lights, as well as the thermostats and security system.

Thank you for downloading this Focus Series Guide on lighting and shading. Please visit www.techliving.com for other articles and helpful tips like this, and to find even more related content like these recommended articles below.

[Lighting control project worksheet](#)

[Top 10 Energy Saving Benefits of Light Control](#)

[Dimming CFL's and LED's Made Easy](#)

[How To Install a Dimmer](#)

[Remote Control Shades](#)

[ElectronicHouse.com](#)