

More function, less fuss

Wireless systems provide a full spectrum of features in a secure, cost-effective package.

the facts

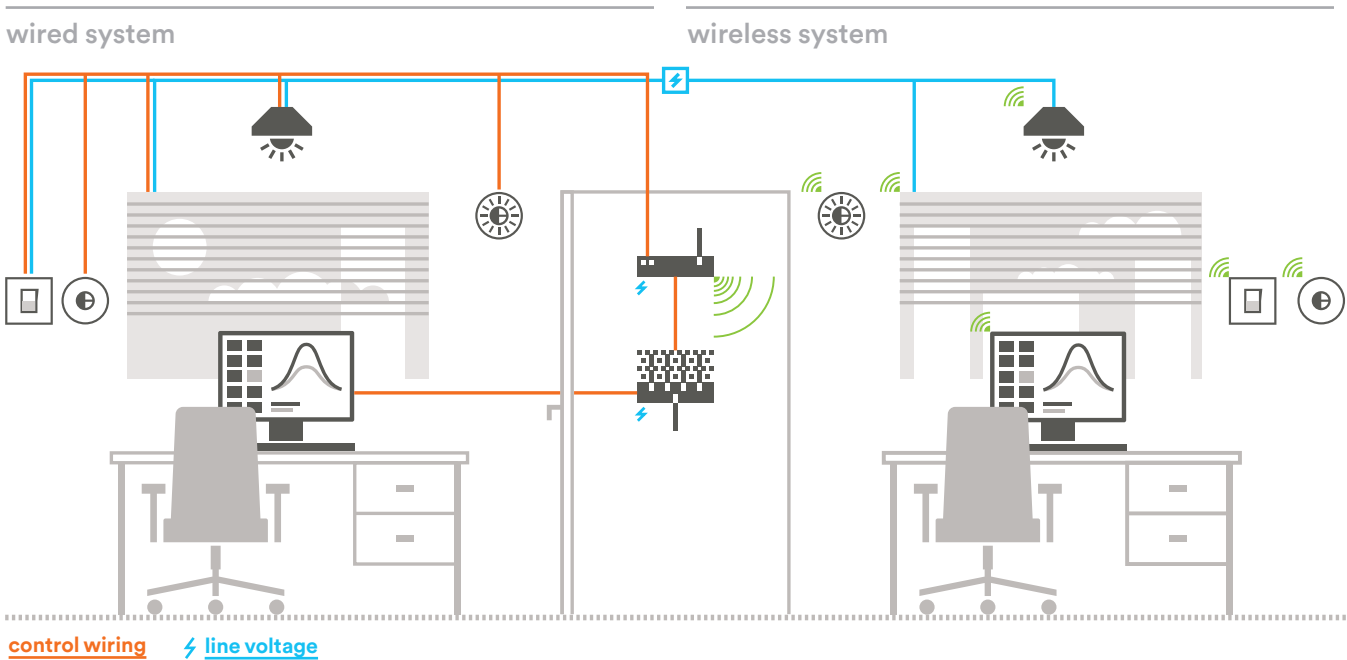
Wireless lighting systems eliminate wiring from switches, sensors, and gateways, and provide a high-level of security through encryption. While hardware costs are similar, wireless networks reduce disruption and installation costs, and retain features and reliability similar to fully wired systems.

how it works


Wireless systems use wireless networks to communicate with components, while wired systems uses low voltage, or “control,” wiring. Both types of systems use line voltage to send power to fixtures, shades, and servers, and both typically use control wiring to connect the energy manager to the server.


wireless system benefits


- Flexible
- Can be used in new construction or retrofits
- Can be combined with wired components
- Typically cheaper to install than wired systems
- Installation is often easier in “hard-to-reach” spaces and less disruptive to employees




 In a wired system switches and sensors communicate information to the energy manager via control wiring.

 The energy manager is wired to the server and receives inputs and returns commands to fixtures and shades. The server stores data and communicates with the GUI.

 The Graphic User Interface (GUI) allows users to adapt lights and shades to their needs.

 The driver or ballast responds to commands received via control wiring by changing the light output of fixtures, or by adjusting the position of shades.

 A wireless network connects all the components of the lighting system with fewer wires and greater flexibility. The components of the system communicate to one another via a wireless network instead of control wiring. Wireless and wired components may be combined. Some systems use separate energy managers for wired and wireless components.

living lab link: wireless systems

Encelium controls & Neo-Ray fixtures

A wireless network is a simple and secure way to quickly implement an energy efficient lighting retrofit. In this case study, installing a wireless control system and LED fixtures reduced lighting energy use by 86%.

products/systems

control system

Osram's Encelium control system was installed and tested as part of BE-Ex's *Living Lab* project, which explored the benefits of cutting-edge wireless control systems. The Encelium controls proved to be a flexible, cost-effective option, able to gather data from a range of lighting component suppliers and tailor lighting usage to meet changing requirements, thereby reducing the cost of churn.

lighting fixture

The Encelium system was paired with Neo-Ray's Series 23 fixture – a suspended LED luminaire with optics that reduce glare, maximize efficacy, and produce even lighting throughout a space. The fixture has separate dimming for uplight and downlight components, and can be deployed individually or in continuous rows. Companion recessed and surface mount versions offer a complete family of fixtures.

The Encelium control system included the following features:



wireless network



scheduling & tuning



daylight harvesting



occupancy sensors

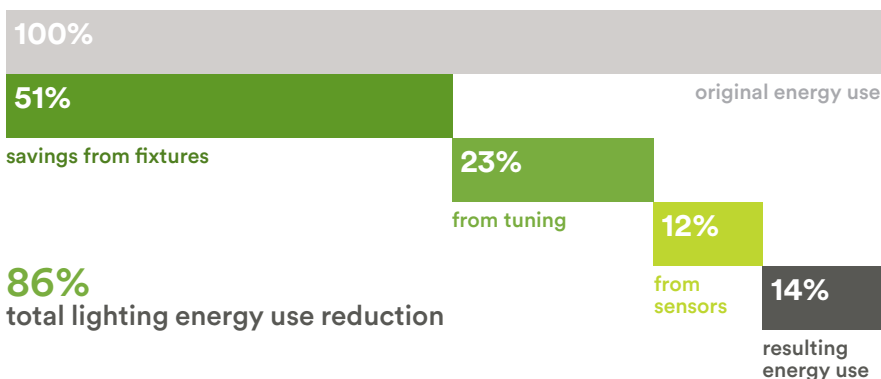


interactive controls



0-10 dimming

primary energy figures



The Neo-Ray fixtures reduced lighting energy use in the *Living Lab* space by 51%. The Encelium controls saved an additional 23% through tuning and 12% through occupancy and daylight sensors. The total reduction in lighting energy use was 86%.



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The *Living Lab* demonstration project was a collaboration between BE-Ex and Lawrence Berkeley National Lab. The project installed and tested multiple lighting technologies at Goldman Sachs' flagship Manhattan office, 200 West Street.

Learn more at:
be-exchange.org/resources/project/46