Mesh systems in commercial lighting controls and their advantages

There are a lot of lighting controls systems on the market today. Although people usually talk about each lighting controls system's function; the method of how each device in the system communicate with each other is also very important but rarely being discussed.

Some of the systems use traditional wired communication via Cat 5 cable. One example of this would be the Blue Box from LC&D. This kind of system is great for small to medium scale project, but rarely used in larger project due to the high labor cost it generates; the contractor would need to run long cables throughout the building. This kind of communication method is just simply not capable for such large projects.

That's why a lot of the lighting controls systems have developed a wireless communication method. One of the example of this kind of communication would be the Lutron Energi TriPak system. Each device of the Energi TriPak system communicates to its power pack wirelessly. This saves a lot of labor costs. All a contractor needs to do is install the power packs and sensors to its designed place and they are done. However, this kind of the system has a big problem when facing large rooms where each sensor is very far away from the power pack.

If the center broadcasting device is offline, then the users will not be able to control the entire zone. If the distance between the power pack and the other control devices in the zone is too large, then the wireless signal from occupancy sensor or a Pico switch will not be able to reach the power pack. Making the control of the zone impossible.

This is where the benefits of a wireless mesh network come into play. Unlike a traditional wireless network, a mesh network functions like multiple mini versions of broadcasting device on top of their normal functions. Each device is a node and can both receive and broadcast information. If one route is down, then the network can signal from other paths where it's online. This way, if the power pack is on the far-left side of the room and the wireless switch is on the other side; then the switch can talk to the occupancy sensor in between them and carry the signal to the power pack to switch (on/off) the light. With traditional wireless system, everything needs to wirelessly connect to the power pack; in a large space, like the example, it would be impossible for the wireless signal of the switch to reach the power pack.

One of the lighting control system that uses this kind of communication method is the XPoint Wireless from Acuity Brands. A zone of XPoint Wireless consists the Load controller and various sensors. Each device can both receive and broadcast signals, therefore making the system perfect for larger rooms where traditional wireless signals cannot reach to every single device.

Although there aren't many lighting controls systems that utilize mesh wireless network communication. It definitely is a perfect alternative to the traditional wireless lighting control systems. For more info on lighting controls visits our website **here**.

Here are some great articles related to the mesh networking with lighting controls.

Link Building Controls with a Mesh Network

Wireless 101: Mesh networking

COMMERCIAL BUILDING CONTROL WITH LUTRON VIVE

5 BENEFITS OF COMMERCIAL BUILDING CONTROL WITH LUTRON VIVE

Lite Rite Controls recently spoke with Chelsea Till, Senior Sales Engineer at Lutron about commercial building control with Lutron Vive. We wanted to find out what set **Lutron Vive** apart from other commercial building control systems. Here is our recent conversation:

Lite Rite Controls (LRC): Hello Chelsea and thank you for answering a few questions about Lutron Vive. Can you tell us what makes Lutron Vive offering superior to other commercial building control offerings on the market today?

Chelsea Till (CT):   Lutron Vive is a great solution for commercial building control for a number of reasons. One, most of the products have been available for about 10 years and have been installed in many different scenarios, including historical buildings, medical treatment facilities, government, education, and retail. The system is compatible with many different types of light sources and dimming protocols. Its wireless backbone is Clear Connect, which in my

opinion is one of the biggest and most important differentiators of our product on the market.

LRC: Can you tell us a little more about Clear connect and why it's important for commercial building controls?

CT: Clear Connect technology was developed before Wi-Fi was even available. 434MHz is a channel with specific FCC mandates that limit the total amount of communication time between devices. Because of these mandates, very few wireless devices use this channel, which means no interference with other systems. Another reason why 434MHz is the best channel for commercial lighting control communication is the increased distance the signals can travel and the types of materials it can travel through. Load Controllers have a 30/60 ft. rule and the hub can talk through any construction material within 71ft.

LRC: How long has Lutron been developing and testing Vive technology?

CT: Clear Connect was created sometime around 1997. Energi TriPak first debuted in 2008. The Vive hub was in R&D for about two years before the full launch of the product last November (2017).

LRC: So Lutron Vive's technology has an established track record. That's great. Is there a challenging job that Vive was used on and will you talk about how Vive worked through those challenges? **Applications for Lutron Vive**

CT: We had a 100-year-old high school with asbestos and lead all over everything. The hallways are over 250 ft. long. The school wanted to use sensors to shut off lights when no one was in the hallway. However, running wire is too costly because of the required abatement. Using wireless load controllers and the Vive hub, we ended up using time clock functionality to save energy. This solution was the most cost effective because of the decreased wiring labor, much less

asbestos and lead interference (if any at all), and we removed sensors from the hallways that could be damaged in a high school environment.

Another solution was using the **Pico Remote** to solve ADA compliance. The same 100-year-old school with lead and asbestos. We kept the switch in its current location but replaced it with a **Maestro Wireless switch (or dimmer)**. The Pico was then placed at the correct ADA height. This gave proper control to both disabled and non-disabled occupants.

LRC: Great solution for a difficult situation. Overall, what are customers saying out there about installation and programming?

CT: General feedback is that this product is very simple to install, simple to program, and simple for the end user to understand. One of the great things about this product is the rolling commissioning. Once you commission a room, that space is up and running and you can add other spaces at any time without disturbing the initial rooms. This product also allows you to build a system that's right for you, by starting standalone only and adding a hub later, or jumping in head first, right away.

LRC: Simple, affordable and scalable solutions for today's demanding energy codes, even under the most demanding circumstances. It's no surprise that Vive by Lutron is generating so much interest. Thank you for taking the time to answer our questions.

Enjoy this five minute video with Edrei about Lutron Vive.

VIVE VIDEO SUPPORT

Introducing a revolutionary wireless lighting control solution for new and existing commercial buildings. Vive wireless solutions offer a multi-strategy approach that accommodates your budget and performance needs now, and for the future of your building. Visit lutron.com/Vive today for more information.