SYNAPSE

WIRELESS NETWORK LIGHTING CONTROLS

BUYER'S GUIDE

OVERVIEW

Facility managers and property owners are searching for ways to reduce their energy use and lower their ongoing energy expenses. Energy costs continue to rise and many companies are searching for ways to improve the sustainability of their ongoing operations. Upgrading the facility to energy-efficient LEDs are a good first step. However, additional savings can be achieved by adding lighting controls to the facility and implementing additional energy-savings strategies.

As you begin researching the right lighting control solution for your facility, it's important to understand the features and capabilities of your preferred lighting control solution and what items are critical to the success of the project. There are a number of control solutions on the market today and selecting the best one for the job can get overwhelming.

There are three critical areas that are key to the success of the project:
- Selecting the right lighting controllers
- Choosing the best control network and gateway architecture
- Identifying the best system to scale and meet the challenges of your facility.

This guide was designed to help you ask the right questions as you lay out the requirements for your lighting controls project. It contains a short, but powerful, list of the key elements which help you to deliver the energy savings, lower costs, and customer satisfaction for your next lighting controls project.

CONTROLLERS – The following pages include key capabilities to consider when comparing controllers in different applications for wireless lighting control systems.

INDOOR CONTROLLER OPTIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Having a wide variety of indoor controller types provides options to help address both new builds and retro-fit applications across different fixtures types from different manufacturers.	Synapse offers a variety of control solutions to meet the challenges in both indoor and outdoor environments, including options embedded in luminaires from leading manufacturers as well as field-installable options.

Embedded
- DIM10-087-06
- DIM10-087-06-A
- DIM10-087-06-FW

Field Installable
- DIM10-220
- DIM10-220F

Zhaga
- ZHA-S1

OUTDOOR CONTROLLER OPTIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Having a wide variety of outdoor controller types provides options to help address both new builds and retro-fit applications across different fixtures types from different manufacturers.	Synapse offers a variety of control solutions to meet the challenges in both indoor and outdoor environments, including options embedded in luminaires from leading manufacturers as well as field-installable options.

Embedded
- DIM10-087-06
- DIM10-087-06-A

Field Installable
- DIM10-220
- DIM10-220F

Twist Lock
- TL7-B2 (Universal) 110-277VAC
- TL7-HVG (High Voltage} 110-480VAC

Zhaga
- ZHA-S1

CONTROLLER SENSOR SUPPORT

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
There are a variety of sensors available today to meet different application and design requirements within a fixture. Having the option to support a range of proven 3rd party sensors allows for maximum flexibility for customers and OEM partners.	At Synapse our controllers are designed to support a variety of motion and photocell sensors. Most of our controllers will support up to two external sensors. This includes many 0-24V sensors and the latest sensors that use the DALI-2 protocol to communicate directly with our controllers.

CONTROLLER ANTENNA OPTIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Internal antenna options are often included to help provide an easy option for fixture integration for embedded, bolt-on or twist-lock controllers External Antenna options for controllers help deliver a strong RF signal from the controller outside the fixture or housing that it may be contained within. This is important for embedded controllers that are often installed inside a metal fixture or in a location within a fixture that may not provide good RF signal strength.	Synapse embedded and bolt-on controllers include internal and external antenna options to provide extended range for both indoor and outdoor applications. The Following Antenna Kits are available- • KIT-ANT18-13-2.0 Indoor, Articulating, Black, 2.0 dBi Gain • KIT-ANT18-13-3.2 Indoor, Articulating, Black, 3.2 dBi Gain • KIT-ANT18-01 Outdoor Kit, Right-angled Antenna • KIT-ANT18-02 Outdoor Kit, Straight Antenna • KIT-ANT18-03 Outdoor Kit, Straight Stubby Antenna, -5dBi Gain • KIT-ANT18-04 Outdoor Kit, Right-angled Stubby Antenna, -5dBi Gain

CONTROLLER RANGE

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
A strong RF signal creates longer distances between controllers which helps form a redundant and robust mesh network. Having a strong signal strength from each controllers provides multiple communication pathways and connections between controllers in different areas of an environment. Longer distances between controllers helps the mesh network form multiple pathways around natural or manmade obstacles and obstructions for consistent performance and reliability.	The SimplySnap control system uses a mixture of controller types that use either internal or external antennas to provide maximum range when needed. • For external antennas, range is approximately 1,000 feet line of site. • For controllers with internal antennas the range is approximately 500 ft line of site.

CONTROLLER LED DRIVER SUPPORT

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Standard 0-10V drivers are still used in many fixture designs, however new intelligent drivers that use the DALI-2 communication standard are helping bring many new capabilities. The DALI-2 standard defines how components such as controllers, Drivers, and sensors communicate with each other in a standard/understood way to enable easy integration options across different brands.	Synapse has controller options that work with 0-10v drivers, and we are also DALI-2 certified to work with newer DALI-2 drivers and sensors. Synapse controllers can use DALI-2 protocols to send dimming commands, retrieve power data, discover LED Driver make/model information, and communicate with DALI-2 motion or photocell sensors.

GATEWAYS – The following pages include key features and capabilities to consider when comparing gateways across different applications for wireless lighting control systems.

GATEWAY CONNECTIVITY OPTIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
The gateway is a critical part of every lighting control system. Gateways need to have several connectivity options for both local access and remote access for fast and easy access.	The SimplySnap gateways include all of the following: • Wired Ethernet- for local or remote access • Cellular- for remote access • Wi-fi- local wireless access

GATEWAY NETWORK REQUIREMENTS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Some lighting systems are installed in environments without any internet options, or they may be installed at customers that have restrictions and security concerns that limit what can be connected to the outside world and to the local network. It is important to understand the network requirements and make sure the gateway hardware is capable of working with and without internet connections.	The SimplySnap lighting control system is successfully installed in many environments with and without internet access. The SimplySnap gateways can operate with an internet connection or in a stand-alone system with local wired or wireless access only.

GATEWAY ANTENNA OPTIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Gateways need to have good RF signal strength to reach the wireless controls that are part of their system. Unfortunately, gateways are often installed in wiring closets or in other interior rooms with poor signal strength to the outside world. External antenna options for gateways ensure good wireless signals across the system regardless of where the hardware is physically installed.	The SimplySnap gateways have several external antenna kits available with different cable lengths to provide good signal strength in a variety of settings. Outdoor antenna Kits include a cable option, large outdoor antenna, and a mounting bracket to create the best RF coverage in challenging environments where the gateway needs to be installed in a secure location that is not ideal for wireless signals.

GATEWAY RANGE

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
A strong RF signal from the gateway is critical for wireless lighting control systems. This hardware controls the system behaviors and sends commands out to specific zones or controllers. Having a strong signal strength for the gateway provides multiple communication pathways and connections between controllers in different areas of an environment for better performance and reliability.	The SimplySnap gateways use external antennas to provide maximum wireless range. • For extenal antennas, range is approximately 1,000 feet line of site.

MAXIMUM # OF LIGHTS AND SENSORS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
The number of devices supported per gateway is important if a single site needs to be controlled from one access point.	With Simply Snap we support up to 1000 lights and sensors with a single gateway. For larger sites or systems that are spread across very large spaces, we suggest using multiple gateways to provide the best coverage and then utilize SimplySnap cloud to merge them into a single map and system.

GATEWAY LOCAL CONTROL

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Direct push button control is required in many environments that for users without browser-based devices or user accounts. Push buttons provide control of the lighting system without any technology required by the user.	The Central Base Station includes 5 push buttons that can be configured to activate up to 5 scenes each. That provides a total of 25 system presets that users can activate quickly from the front panel.

SYSTEM CAPABILITIES – The following pages include important System requirements and features to consider when comparing wireless network lighting control systems across different applications.

LIGHTING APPLICATIONS SUPPORTED

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
A well designed control system can work across a variety of applications without any effort. This allows partners and customers to utilize the same control system across many types of environments without having to select different systems based on the use case.	Synapse supports a variety of both indoor and outdoor applications including: **Outdoor** • Parking Lots/Garages • Pathway and Roadway • Sports Facilities and Stadiums • College and Enterprise Campus **Indoor** • Industrial High Bay • Warehouses • Production Lines • Gymnasiums • Indoor Practice Fields

OTHER APPLICATIONS SUPPORTED

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
While some lighting projects only require basic lighting control, many projects for industrial companies or nation-wide enterprises require additional features that go "beyond the light." Lighting controls offer a ubiquitous infrastructure that can be utilized for IoT applications that provide additional value and capability to the facility owner.	In addition to supporting lighting control options, SimplySnap has several control and management solutions for manufacturing spaces. SimplySnap can also be utilized as an Energy Management Platform (also referred to as an Energy Management Information System) that can monitor energy use across various pieces of equipment in your industrial facilities. Additionally, SimplySnap has field-proven capabilities to manage and control energy use in HVAC and Compressed Air systems.

SYSTEM ARCHITECTURE

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
System design is often overlooked until it is too late. Many systems share similar features and capabilities to the average user, however the parts and pieces that make it work can differ dramatically. Any control system needs expansion capabilities and the ability to add to the system for more features or configuration options. It is important to understand how much effort and hardware is required to expand systems or to access multiple systems from one interface.	SimplySnap is designed with a modern cloud-based architecture that provides optional capabilities for customers without the IT or networking hassle. The SimplySnap Gateway can operate in a stand-alone manner without any internet connections, or it can leverage the cloud capabilities by adding a software license to enable more features and capabilities. No physical or virtual servers to install, no Windows software to maintain, and no ongoing server maintenance.

⚖ SCALABILITY OF PLATFORM

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Every location is different and demands a solution that is adaptable to many different situations. A lighting control solution should meet the routine application of a typical small parking lot, but should also be adaptable to control thousands of lights at a number of different facilities across the country. By standardizing on a single lighting control platform, installers, commissioning agents, and support teams won't have to be trained on many different systems for various lighting control situations.	SimplySnap was designed to address the lighting controls challenges in outdoor site/area and indoor industrial projects. Synapse's focus in on bringing these high-wattage, high-lumen output environments under control. SimplySnap can meet the requirements of a small, single site parking lot, but is also field proven to handle thousands of lights across multiple facilities – all in a single login and management platform. With SimplySnap, you won't have to cobble together multiple control solutions to solve the challenges of your outdoor site/area and indoor industrial projects.

📉 ENERGY REPORTS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Energy Reports provide the user with validation that the energy-savings strategies that are in effect are conserving energy from the baseline expectation. Often, energy reports are used for validating savings to comply with local codes or meet the requirements for rebates and financial incentives available from many utility companies.	SimplySnap provides access to Power readings from each lighting controller in the system. SimplySnap can also provide, through the cloud interface, access to power information by zone or for the entire facility. Furthermore, these readings can also be utilized to determine if a light is functioning properly (consuming the amount of power that is expected), and if an anomaly occurs, will alert the user of unexpected behavior.

🔌 DEMAND RESPONSE

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Demand response provides ways for local utility companies to reduce the load on their electrical grid by calling on heavy industrial users to reduce their energy consumption. This prevents brown- and black-outs during heavy usage periods. Demand response is a requirement in a number of areas. Plus, some organizations utilize demand response as an energy-reduction method for emergency or back-up power situations, in order to reduce the load on secondary power sources.	SimplySnap supports various methods of implementing demand response for accommodating a particular region's, utility company, or in-house electrical engineer's strategy for reducing electrical load. SimplySnap is compatible with variety of demand response gateways commercially available in the market, manual activation through the UI, or a programmatic interface via the SimplySnap API.

☀ DAYLIGHT HARVESTING (OPEN LOOP)

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Daylight harvesting is a requirement in many parking garage applications, such as California's Title 24. Other regions include similar specifications or are required by the energy-conscious facility owner. When implemented around the perimeter of the parking garage, daylight harvesting can save energy while still maintaining the designed illuminance of the facility.	Unlike most controls providers on the market today, SimplySnap utilizes an "open-loop" daylight harvesting algorithm that measures the amount of natural light coming in from the edge of the parking garage. Open-loop daylight harvesting was specifically designed for parking garage and high-bay applications.

☑ CERTIFICATIONS

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
It has been said that "when things don't work as they should, it means that standards are absent." Industry standards and best practices work to ensure delivery of quality products that perform as expected, while holding the manufacturer accountable through periodic reviews and re-certifications to keep their products and services compliant. • Listing on DLC's Qualified Product List is required by many utility companies and other organizations to qualify for rebate and incentive programs. • Adherence to various ISO standards is an internationally recognized formula that describes the best way of doing something.	Synapse's lighting control solution, SimplySnap is listed on the DLC's Qualified Products List for Wireless Network Controls for both Indoor and Outdoor Applications. Synapse's Quality Management System, which outlines how the company delivers quality products, ensures on-time delivery, and meets customer requirements, is certified to meet the standards of ISO 9001:2015 Synapse's Information Security Management System, which outlines how the company secures its sensitive data, is certified to meet the standards of ISO 27001.

🏁 COMMISSIONING SERVICES

WHY IS THIS IMPORTANT?	WHAT DOES SYNAPSE OFFER?
Many lighting controls projects require the creation and configuration of zones, scenes, and schedules. Plus, some sites utilize comprehensive energy-savings strategies that incorporate sensors, demand response, or daylight harvesting. Setting up these features requires specialized knowledge and experience on how to address issues when they arise.	Synapse offers a full-suite of professional commissioning services that can be tailor-fit to your specific projects. Our team based in Huntsville, Alabama offers project management assistance, For most projects, such as many single-location parking lots or outdoor sports facilities, Synapse can commission remotely with limited on-site assistance needed. Synapse also offers full, on-site commissioning services for large installations.

synapse

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