

Smart Building Management Platform | Lighting Controls



SMART FROM THE START

Simplified and scalable to futureproof smart building control investments.

Toggled iQ™ is a smart lighting brand born from Toggled, a front-runner in bringing cutting-edge LED technologies to market and from the leading provider of enterprise-class software, Altair.

OVERVIEW

The Toggled iQ smart lighting system is **technologically advanced**, **easy to install and maintain**, and **upgradeable** based on current and future lighting control needs. Designed for solution providers, system integrators and contractors, Toggled iQ has been specifically developed to simplify and accelerate the installation and commissioning process as well as enable end-users to easily customize and control their lights.

Toggled iQ is a **connected mesh system utilizing Bluetooth Low Energy (BLE)**. This technology is embedded into each lamp and sensor, creating a scalable and secure network from which users can control their lighting system locally through iOS and Android devices or remotely with a Toggled iQ IoT gateway.

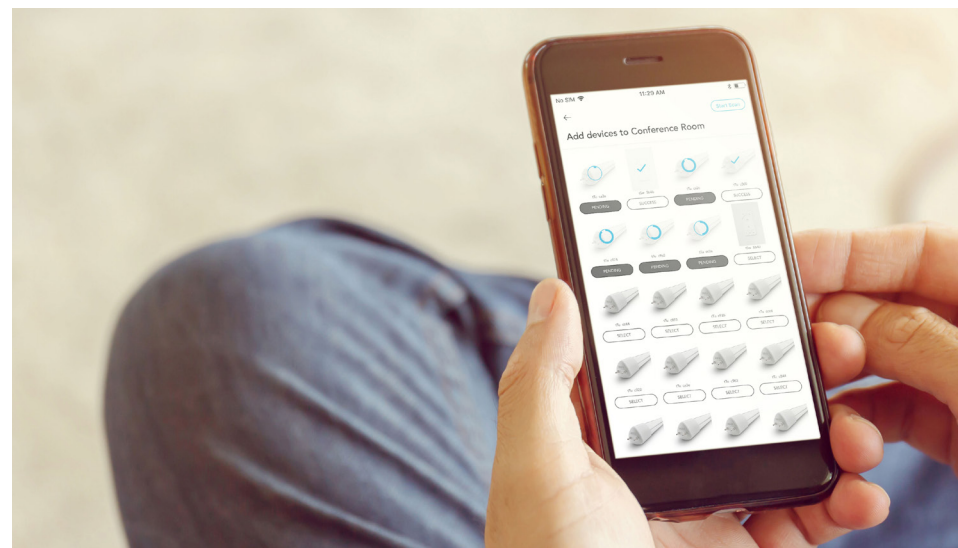
As end-users' smart lighting needs change and grow, the Toggled iQ system can provide the product upgrades to match at a pace they are most comfortable with. This helps to **lower perceived initial risk factors** and **allows customers to adopt smart lighting at their preferred pace**. A smart lighting system install could start with a couple of LED tubes and a sensor or initiated for a large multi-story high-rise building featuring the entire line of controlled lighting products and extensive back-end analytics.



SCALABILITY & REDUNDANCY

Toggled iQ is designed to scale using a **technology that provides for over 32,000 connections on a single network. Large-scale light dimming** is now easily attainable without the need for multiple dimming switches. A gateway is not necessary for local configuration or control so **end-users can control the entire network through their iOS or Android device** as every Toggled iQ lamp, sensor and switch contains a Bluetooth Low Energy chip. This allows for redundancy in communications and protects against a single point of failure.

With this simple and powerful architecture, customers can **commission systems as small as one device** and extend over a period through additional devices as needed.



SIMPLE & FUNCTIONAL

From its inception, Toggled iQ was **designed with end-user functionality and long-term customer satisfaction at its core**. It is truly intuitive and easy to learn and apply ensuring manageability without the fear of disregard. The Toggled iQ smart lighting control app allows commissioning many devices simultaneously to expedite installation and enables easy long-term customization and ongoing customer management features like zoning and scheduling.

The wireless **Toggled iQ sensor** effectively **detects motion, enables daylight harvesting and carries out temperature and humidity sensing** which can be monitored with back-end analytics if desired.



The **Toggled iQ Gateway** allows lighting control systems to **communicate with other communication protocols** (including BACnet BMS and ZigBee) as well as **control lighting within existing BMS schedules**.



FUTUREPROOF

Customers have the option of jumping “all-in” from the start of their smart lighting controls experience with large-scale implementation or adopt to it over time, based on their comfort level. All Toggled iQ products are **upgradable and compatible with each other** so whenever the customer is ready to implement an upgrade it will be an easy and seamless experience.

The **Toggled iQ app updates over-the-air**, so customers are always ensured to have the latest features and functionality of the software available as updates are released.



RETROFIT FRIENDLY

In addition to Toggled iQ being an ideal LED smart lighting control solution for new building scenarios, it was originally designed to retrofit into existing fluorescent fixtures. This allows for an additional layer of savings to be factored in as **fixtures can be upgraded and repurposed, reducing associated hardware and labor installation times**. This is especially convenient when the surrounding environments cannot be disturbed.

Customers that have already taken advantage of upgrading to Toggled direct-wire LED technology only need to upgrade the lamps to Toggled iQ – no additional rewiring necessary.



Toggled iQ is a wireless system that **does not require additional wiring for implementation** once the lighting products themselves have been installed. This allows for quicker overall installation times and ultimately faster project completions for installation partners. Installers and System Integrators have the option of using **Android or iOS mobile devices to commission and customize** the system based on their customers' needs. Lighting hierarchies, zones and sub-zones can be established to tailor each installation. An **intuitive app interface** makes creating and customizing lighting controls simple and quick.



Multiple layers of economical savings can be generated based on the level of implementation of the Toggled iQ system.

- Toggled iQ's foundation is built upon utilizing direct-wire LED technology which allows for the **elimination of fluorescent ballast systems and energy savings, up to 60%**.
- Toggled iQ sensors allow for **tighter building control capabilities** which can provide substantial energy savings (motion sensors, daylight harvesting).
- **Automated and manual dimming** ensure minimum light levels in absence of any activity in the zone resulting in energy savings
- **Occupancy & daylight harvesting** features allow for a more economical management of lights during occupied and unoccupied times as well as the ability to automatically adjust light levels based on customer requirements in specific spaces.
- Creating **pre-set schedules** to change light levels based on time of day or day of week.
- **Back-end building analytics** allow for proactive management of available resources as well as maintenance savings.



Toggled iQ is also more than lighting, it is extendable to other IoT enabled smart building solutions. Leveraging the Toggled iQ IoT gateway, systems integrators, building owners/operators and smart building service providers and contractors can **deploy and configure many popular smart building use cases in a scalable and simple manner**. Toggled iQ supports a host of common IoT protocols to implement remote sensor monitoring, HVAC control, meter data collection or leak detection. There's no need for additional point solutions that work independently and increase complexity.



HVAC



Remote sensor monitoring



Energy management



BAS data pump

Toggled iQ smart building products are a convergence of two cutting-edge Altair Engineering divisions, Toggled LED Lighting and Altair SmartWorks.

Toggled Lighting. All lighting components were designed and engineered within the Toggled LED Lighting division which was established in 2007 and to-date has manufactured and distributed well over 2 million high-quality LED products. Holding nearly 100 LED specific patents, Toggled strives to lead the LED industry in bringing future lighting technologies to market that are focused on end-customer usage and long-term satisfaction.



Altair SmartWorks. Powered by advanced IoT technology and system infrastructure from SmartWorks gives Toggled iQ its smart edge. Altair SmartWorks is an open-architecture environment that drives the innovation fueling sustained competitiveness for some of the world's most innovative companies.

Altair Engineering. Established in 1985, Altair is a global technology company that provides software and cloud solutions in the areas of product development, high performance computing (HPC) and data analytics. Altair has 2,000 scientists and creative thinkers in 25 countries serving over 5,000 customers.



Bluetooth Low Energy (BLE)	Low energy usage wireless mesh network system (Security, speed, scale)
Direct-Wire Technology	Direct-wire lighting components contain internal drivers which allow for the elimination of inefficient fluorescent ballasts. Bypassing fluorescent ballasts eliminates associated buzz and flicker and generates energy savings up to 60% over standard fluorescent systems.
Large-scale Dimmability	Allows system (0-10) dimming capabilities, up to 32,000 devices, without the requirement of multiple dimming switches.
Individual Device Addressability	Platform flexibility allows for control of any lamp individually allowing for more custom lighting control scenarios, scenes and schedules.
Automatic Daylighting Controls	Allows sensors to detect room lighting changes as they occur and adjusts the room lights accordingly to match a pre-set lighting level. Pre-set levels can be set via the Toggled iQ app during the commissioning process as well as at any point in the future.
Zone Control/Grouping	The Toggled iQ app can be used during the commissioning process to group room zones as needed. Future modifications are also possible via this same app.
Scheduling	Scheduling wizard in the mobile/web app allows users to create specific operating schedules from a single lamp to an entire portfolio. Local device scheduling through the Toggled iQ switch is possible without the requirement of a gateway or INTERNET connection,.
Minimum Light Level	Great for stairwells, fire exits and parking garages, minimum light level functionality enables users to set up specific lamps/fixtures/zones to be at a specific minimum light level when there is no motion detected. Lights will not turn off.
High End Trim	Optimize energy consumption by setting a maximum trim to a lamp/fixture/zone when full output is not required.
Continuous Dimming	Enables light levels to be raised or lowered over a specified range, and the change in lighting state is smooth (ideally transparent or virtually unnoticeable), using an automatic energy-saving control strategy.
Occupancy/Vacancy -Partial On	Detects when a space is unoccupied and accordingly automatically turn OFF (or dim) the lights, thereby saving energy. The device may also turn the lights ON automatically upon detecting the presence of people, providing convenience and a potential security aid.
Auto Time Shutoff	Tune Toggled iQ lights to shutoff when no motion has been detected after a specified period of time.
White Color Tuning Capable (CCT—Correlated Color Tuning)	6" and 8" Downlights can change the color of LED lighting for a variety of purposes such as presentations, comfort and well-being. Dim to warm is the capability of reducing the color temperature of a light source in proportion to the intensity. Ranges from 2700K to 5000K.

CLOUD ENABLED

Cloud-Based Device Management and Control	Capable of cloud-based lighting management and control by installing Toggled IoT gateway. <ul style="list-style-type: none"> • Access to broader set of customized scene creation • Create energy reports • Get notified when a lamp is not operating • Participate in demand response programs • Manage portfolios of buildings through the web app
Demand Response	Capable of receiving demand response signals from a utility (or similar) to automatically manage preferred lighting loads. Specific demand response lighting management settings are enabled through a Toggled Gateway and cloud-based connectivity.
Analytics & Reporting	With the IoT gateway connected to iQ lamps and sensors, users can create custom reports and analytics including: <ul style="list-style-type: none"> • Energy reporting • Anomaly detection • Space utilization • Alerts/alarms sent via email