

# Benefits of Using IEI LED Lighting

IEI LED Lighting

Benefits of using IEI Smart Lighting Solution

Applications of IEI Smart Lighting Solution

Compatible IEI Products



IEI Smart Lighting Solution  
Lights up your life

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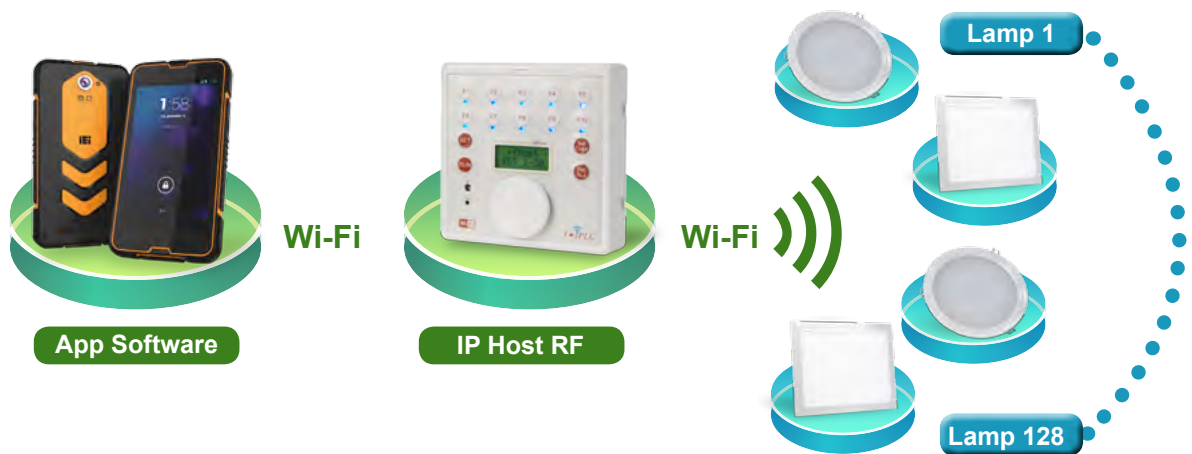
IEI Integration Corp.



# Benefits of Using IEI Smart Lighting Solution

A white paper that will help people understand why to use IEI Smart Lighting Solution and what benefits they can get

Many people have talked about LEDs for a long time. If people google “LED”, they will get thousands of results that are related to LED lights. All these results talk about the same thing: the history of LEDs and where people can buy them. However, these websites do not explain why we should change our traditional lights to LED lights. Some websites may tell people a few advantages of using LED lights, but they do not tell us how to use LED lights to truly improve our life. This white paper will explain the benefits of using IEI Smart Lighting Solution and how IEI Smart Lighting Solution can help us improve our life.



## Structure of IEI Smart Lighting Solution

Let's start with the basic structure of IEI Smart Lighting Solution setup. The IEI Smart Lighting Solution contains one control panel (IP Host RF) which acts as a wireless hub, and two different types of LED lights, ceiling panels and down lights. With the IEI setup, we can use our cell phone or tablet to control lights in an entire office or at home. (Refer to above illustration).

As we can see in the illustration, people can use their cell phones or their tablets via Wi-Fi to connect to the control panel (ipHost), which uses a 2.4G connection to control the lighting system of up to 128 lights.



# Benefits of Using IEI Smart Lighting Solution

Now, we have the basic idea of IEI Smart Lighting Solution, Let's move on to its benefits.

## ● Longer Usage Life

A lot of people, especially employees who work in administration department, complain about how often they need to change traditional light tubes or incandescent light bulbs for their companies and factories. As we know, the LED light has an outstanding operational life time, expectation of up to 100,000 hours. For example, if we leave an LED ceiling panel on for 8 hours every day, it can be used for another 20 years before replacing it. When people change their traditional lights to LED lights, they do not have to worry about changing their lights in several months or even years.



## ● Use Energy in an Efficient Way

Many environmental groups, such as GEF (Global Environment Facility), IPCC (Intergovernmental Panel on Climate Change), and UNEP (United Nations Environment Program) continue to bring up the topic of energy waste, and traditional lighting is an energy waste for sure. Most people don't know how much energy is wasted per day until they are reminded by environmental groups. When we use a traditional incandescent light bulb, only 20% of energy is converted to light, while 80% of it is converted to heat. So, what should we do to prevent this kind of energy waste issue happening again? The answer is easy. We should change our lights to LED lights, which guarantees that 100% of energy is converted into light. With LEDs, we can use energy without any waste.

## ● Save Money for People's Wallet

Some of European and American clients complain about how expensive their power bills are to run a business. As we discussed in the previous paragraph, when we change our traditional lights to LED lights, we can save 80% of lighting energy. In other words, we are saving money by changing a light bulb.

For example, a 60W incandescent light bulb costs 164 USD every 1,000 hours, while an LED light bulb costs 46 USD every 20,000 hours. The cost of a traditional incandescent light per hour is 71 times more expensive than the cost of an LED light bulb. Changing all the lights in our office and at home to LEDs is the simplest way to save money. (Refer to the chart below for better comparison of costs).

Light Bulb Style	Light Bulb Usage Life (hr)	Total Cost (USD)
10W LED Light Bulb	>20,000 hrs 	\$ 46 
60W Incandescent light bulb	1000 hrs	\$ 164



# Benefits of Using IEI Smart Lighting Solution

## ● Support Up to 10 Group IDs

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We often turn on or off the wrong light by accident. We then bother someone or get frustrated, trying to figure out how to turn on or off the right light. In order to prevent this kind of situation, IEI Smart Lighting Solution provides a group ID function to help people manage their lighting system. Each control panel can control up to 10 group IDs. People are free to group their lights by the way they like. People can also name their own group ID on their cell phones. The group ID function makes it easy to access and manage their lighting systems.

## ● Easy to Adjust Brightness and Color Temperature

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People who work in the office often complain about their lighting. Some workers do not like cold light (white color light), which makes people feel uncomfortable. They often complain about how bad the lighting is in their working area, so they need an additional lamp. With IEI Smart Lighting Solution, it is very easy to adjust brightness and color temperature of lights by controlling the lighting system through cell phones and tablets with one finger.

## ● Live Status Report

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When the administration department manages the company's lighting system, one thing they care about is its activity, such as which light is on, the power consumption and the current temperature of the light. Once the administration department has gathered enough information, they plan out how to manage all the facilities, such as air conditioning or a costly utility. With traditional incandescent lighting, there are no status reports. People can only check their electricity bill to calculate the usage of power, or physically check which light is on or off. IEI Smart Lighting Solution provides another way to manage your lighting system. People can use their cell phones and tablets to see a live status report, which contains connection activities, power consumption, and temperature of the entire lighting system.



# Applications of IEI Smart Lighting Solution

This article has mentioned many benefits of using IEI Smart Lighting Solution. Now it is time to show people where they can implement the IEI Smart Lighting Solution and how it can improve their daily life.

## IEI Smart Lighting Solution in Classroom



Why should we use IEI Smart Lighting Solution in classrooms? First, it lowers power consumption. Second, the LED lights have longer usage life. Third, the IEI Smart Lighting Solution can create an atmosphere that is closer to natural light for students, therefore protecting students' vision. Teachers can adjust color temperature and brightness of lightning based on their lecture materials. By using the LED natural light, students can concentrate more in the classroom, thus increasing their performance in school. For example, based on a research done by Harvard,

color temperature at 6500K~7000K is best for students to study mathematics and sciences subjects; color temperature at 3800K~4500K is best for students to study language and memory subjects; color temperature at 2500K~3000K is best for students to study art and music subjects. Different color temperatures for different subjects can be realized by the IEI Smart Lighting Solution which can help students not only create a suitable atmosphere to study, but also protect their vision by creating a light that is closer to natural light.

## IEI Smart Lighting Solution in Office



Why use IEI Smart Lighting Solution in offices? There are three main benefits. First, it has low power consumption. Second, it has longer usage of life. Third, IEI Smart Lighting Solution can create ambience and color senses to influence employee's mood. According to USA Business Weekly Report, a furniture manufacturer in the United States used the LED lighting technologies to create a virtual California beach atmosphere of working environment. All staffs were allowed to wear t-shirts and bathing suits to work. All

employees enjoyed 100% of fresh air and natural lights. With this new technology, the factory's production rate increased up to 15%. If the owner can save money, make employees happy, and improve employees' performance at the same time, then why not use the IEI Smart Lighting Solution?



# Applications of IEI Smart Lighting Solution

## IEI Smart Lighting Solution in Fishing Boat



Why use LED lighting on fishing boats or fishing vessels? First, it can save a lot of money on fuel and electricity. Based on Shen Sheng-Chih's research, the associate professor of National Cheng Kung University, regarding the LED lighting's development and opportunity in fishing industry, users can save not only energy, but also money. A regular fishing boat, equipped with mixed LED lighting (traditional incandescent light + LED light), can save 32%~42% on electricity, and 15%~25% in fuel. If the captain changes all fishing lights to LED lights, it can save 89% on electricity. Second, it can improve the working environment on the fishing boat or the fishing vessel. By switching to LED lights, UV radiation is lowered. Third, LED lights can reduce the burden on the environment, such as lowering CO<sub>2</sub> emission, since less fuel is consumed to power for the boat. With all these three benefits, why not use LED lights on a fishing boat?

## Conclusion

Many people are wondering why they need to change from traditional incandescent lights to LED lights. There are several benefits of using IEI Smart Lighting Solution: longer usage life, energy efficiency, ecologically friendly, supporting up to 10 group IDs, easy to adjust brightness and color temperature, and live status reports. When people install the IEI Smart Lighting Solution in schools, offices, even fishing boats, it can help them save not only energy, but also a lot of money. With all of these benefits, why not use IEI Smart Lighting Solution to save more money and improve people's life?



# Compatible Iei Products

## Modat-530 Rugged Android PDA

### Rugged Android PDA



- Stylish rugged design and ultra-light industrial Android mobile device
- Quad-core Cortex™-A7 1.2GHz processor
- 5.3" display PDA
- GSM 850/900/1800/1900
- Optional WCDMA 850/2100 (HSPA+, HSDPA 42Mbps, HSUPA 11.5Mbps)
- Micro USB port and microSD card slot (max. 32 GB) for maximum connectivity
- Android 4.2.2 OS
- NFC (device to device communication, card reader)

## 8.4" TFT LED Backlight LCD

### 8.4" TFT LED Backlight LCD with resistive touch screen with Intel® Atom™ N2600 1.60 GHz Processor.



- 8.4" TFT LED Backlight LCD with resistive touch screen
- 9V~28V wide range DC power input (for Intel® N2600 platform)
- Fanless cooling system
- Selectable AT/ATX power mode
- System memory up to 2GB SDRAM
- Built-in 802.11b/g/n Wireless LAN
- Built-in speakers
- One CompactFlash® slot
- IP 64 compliant front panel
- Iei One Key Recovery solution allows you to create rapid OS backup and recovery (Suggest over 4GB storage capacity)

## Light Industrial Panel PC

### AFL3 series is 7"-22" fanless multi-touch panel PC with stylish flat bezel design and ruggedized IP65 front bezel protection which is ideal for entry level display solution



- 7-inch HD 1024 x 600
- Flat screen with 6H projected capacitive touch supports multi-touch function
- 9V~30V wide range DC power input
- Fanless cooling system with dual-core Intel® Celeron® N2807 processor 1.58 GHz/2.16 GHz
- 2GB DDR3L Onboard RAM
- Built-in 802.11b/g/n wireless LAN
- Landscape and portrait screen modes support different applications
- Front panel is compliant with IP 65 protection standard
- Iei One Key Recovery solution allows you to create rapid OS backup and recovery (suggested with over 4 GB storage capacity)