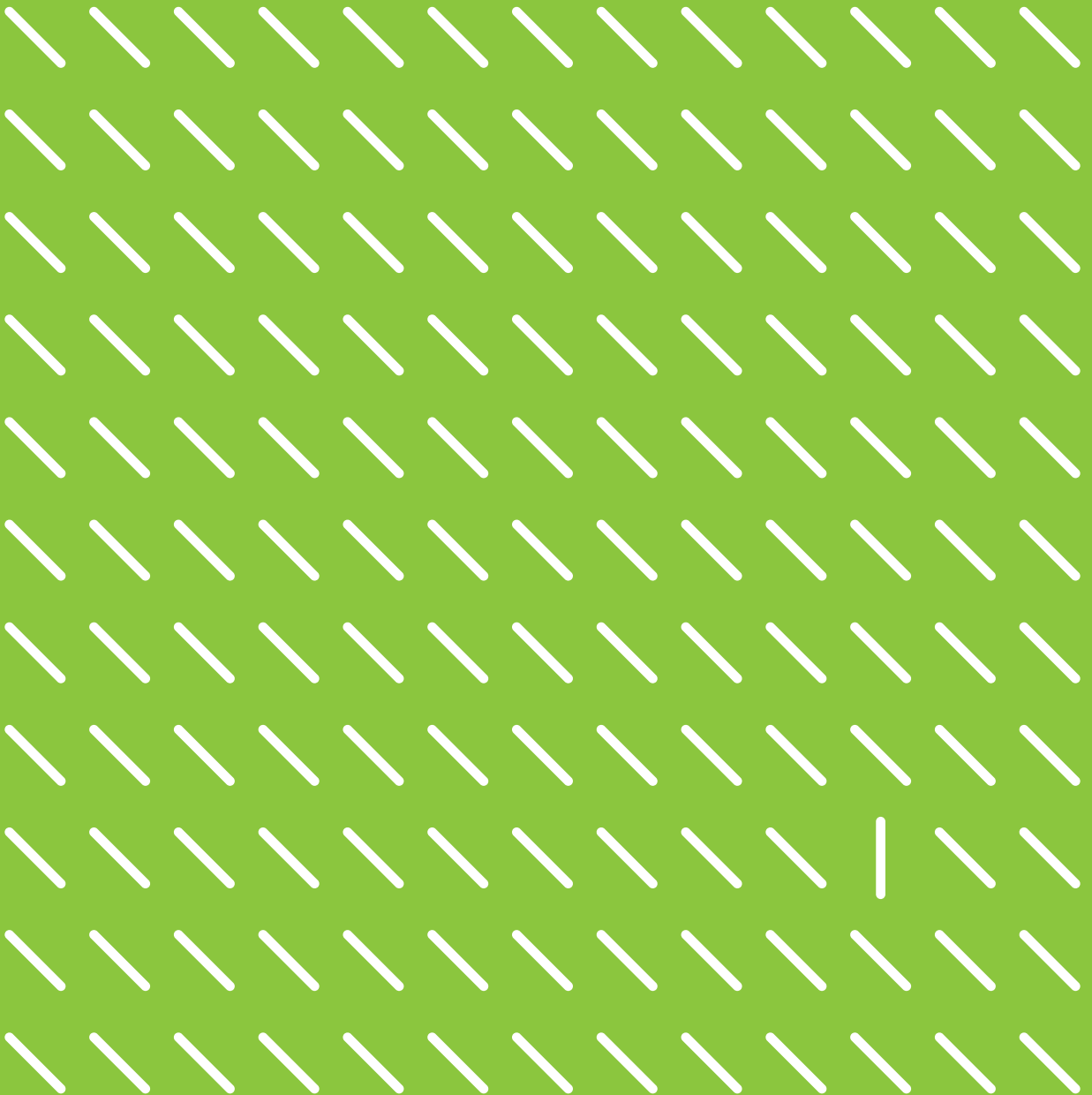


# LIGHT OF TAIWAN



TAIWAN GREEN TECHNOLOGY  
LIGHT UP THE WORLD WITH LED

台灣綠能科技 LED點亮世界



## INTRODUCTION

In the olden days, environmental issues were considered as high-moral appeal from advanced countries, but with extreme climate change causing influences around the world, as well as higher frequency, the environmental concept of "Cherish our planet" has turned into an ecumenical value. Internationally, the operation of "Green trade" has made the market currency of products and services able to accelerate more eco-friendly. Take European Union (E.U.) as an example, there are three major environmental orders, namely, RoHS, WEEE and ErP, they are iconic examples of promoting green trade, if any regulated product willing to penetrate E.U. market, it is essential to fit with basic environmental appeal, such as low toxic, economical and energy-saving. The motivation is to implement the whole green supply chain, through the production of green products.

Since Taiwan is an export-oriented country, that facing more environmental standards in the future is inevitable, it may be a challenge for us, but even, an opportunity. For this reason, the Bureau of Foreign Trade, Ministry of Economic Affairs (MOEA) had initiated "Green Trade Promotion Project", and the "Green Trade Project Office, MOEA" (GTPO) was established in 2011, assisting industries and manufacturers to receive every potential markets that brought by other countries' "Green Policy", anticipating the growth of Taiwanese green trade.

The progress of Taiwanese green industry has always leading the world, especially when it comes to quality and application of LED, that there is no competitor. Taiwanese LED products are able to hold the crown in worldwide market, the key factor is persistent testing and verifying. On this monograph of "Light of Taiwan", essential manufacturers in every field of LED industry has been interviewed, this includes 15 enterprises, namely, China Electrics, NuPOLAR, GESO, Ligitek, Bright, iST, Unity Opto, Nan Ya Photonics, Jan Cheng, TYC, Epistar, LEADRAY, Lextar, Shunchi and Umi, delivering every enterprise's history, product characteristics, and future goal. Between the lines, we can see enterprises' knowledge, including the trend of International green trade, as well as the future, while pursuing their companies' growth.

This GTPO published monograph has not only print in Chinese and English in parallel, hoping Taiwanese LED manufacturers' strive can be seen, in detail, it introduce every requirement of LED application, such as automotive, industrial, fishing and professional company that experts in city's luminary plan, as well as LED verifying organization, we expect that Taiwanese glorious LED industry will be shown to the world in a differ tent look, creating new miracle of green trade.

# TLLIA

## Taiwan LED Lighting Industry Association

### STREET LAMP STARTED, WORLDWIDE LIGHTED

While energy saving & carbon reduction was progressing like wildfire around the globe, green energy has been developed rapidly, and LED lighting has earned the reputation of “Light for 21 century”, becoming desirable on the market. Without exception, Taiwan had joined the wave of green energy, listing LED luminary optoelectronics as one of key developments of domestic green energy industry, as well as pushing Taiwanese LED industry’s progress, through governmental projects. Since mercury-vapor street lamp suffers from high consumption and low efficiency, the fate of been phased out is inevitable, once the LED technology has matured, at this point, the Executive Yuan has submitted ( 綠色能源旭升方案 ), hopefully with the help of markets from public sectors, it will provide gains for the industry, accelerate the growth, the Taiwanese LED lighting Industry Association, or TLLIA, was assembled by various LED street lamp manufacturers in that time period, working together that strive for more comprehensive standard in acceptance, fairer competitive environment, as well as bigger market to share. After few years of efforts that hand in glove, coordination with authority had eventually comes to a success, improving Taiwanese market’s CNS 15233 street lamp standard , unifying specification, as well as street lighting’s acceptance regulation. In addition, cooperation between Taiwanese and Chinese LED industry has been promoted, by signing agreements of (LED 照明標準互認 ) and (LED 照明示範應用合作 ), promoting Taiwanese LED into worldwide. Being established on the basis of Taiwan LED Street Light Industry Alliance, approved by Ministry of Interior in 2012, then promoted into TLLIA, purposing to integrate experts in regions of industries, authorities and academics, creating platform for trades exchanging and cooperating, and aiming global market as goal, hoping that Taiwan will turn into the LED industry’s base that capable with international competitive strength.

### HORIZONTAL ALLIANCE. MORE VALUE THROUGH INTERFLOW

After successfully accumulate experts in the whole industry, we categorize according to themes, including indoor, outdoor and special lighting (e.g. plant light, industrial light

and automotive light), adding with intellectual control territory, arranging TLLIA into a more comprehensive alliance. Besides LED factories, horizontal alliance is what TLLIA is attempting to, endeavoring to integrate with all sorts of industries. For instance, in 2015, TLLIA had cooperated with Taiwan Transportation Vehicle Manufacturers Association, by closer interaction between the two, creating Taiwanese automotive LED platform, building the bridge that beneficial for both, connecting two potential markets. TLLIA has currently playing the role of service platform, not only manufacturers can seek for business opportunities through TLLIA, but use it as a channel with the government, after all, there are more vantages when negotiating with the authority, if one represent as a member of TLLIA. Moreover, professional knowledge’s share and deliver is one crucial part, professionals are occasionally been invited to deliver speeches in TLLIA, members can be given with latest news.

### UNITY IS STRENGTH!

Have you ever notice, when Taiwanese manufacturers are participate international exhibitions, they tend to face the dilemma that striving alone, without supports from unions or governments like other countries’ have? At this moment, if the company is not strong enough, chances are it will be ignored in the crowd. Another motivation to TLLIA is to build up the strength from Taiwanese manufacturers, going hand in hand, and raising visibility in the exhibition, penetrate markets all together. For instance, in Taiwan International Lighting Show 2015, TLLIA had been shared an independent showroom, exhibiting latest LED products from TLLIA’s members, with the theme of “Prospective technology, intellectual lighting”, as well as arranging partitions of automotive, indoor, outdoor, special and intellectual lighting. Besides, various speeches were given in the show, including themes of plant lighting, green energy, special application of LED luminary and CIE in the field of traffic light. During exhibition, TLLIA had further held “International cities’ lighting & LED technology trend forum” with Photonics Technology & Industry Development Association, worldwide experts were invited to give speeches, aiming city lighting, devoting to promote domestic LED industry abroad, as well as establishing trade’s interflow and coordinating platform.

### WORK TOGETHER, TOWARD THE WORLD

The core of Taiwanese LED industry is “technology”, however, when manufacturers were distracted by price-oriented, TLLIA is responsible to guide them back on track. The majority of TLLIA members are engaged in special lighting that are small minority, and that is the main difference between us and China, the global factory. We are developing toward differential and innovative, we may all own different characteristics, but coordination is essential, if we want to head abroad, and that, is the ultimate goal of TLLIA.



#### INNOVATION AND DEVELOPMENT: FROM INCANDESCENT TO FLUORESCENT TO LED

China Electric (CE) is the first private enterprise of Kuomintang (KMT), and had just celebrated its 60th anniversary in Taiwan. In 1955, CE started manufacturing incandescent light bulbs, and sold under TOA Lighting brand. Since then, there was no significant technological breakthrough in the lighting sector until fluorescent lamp was introduced to the public. The fluorescent lamp offers dramatic improvements in efficiency and energy use. The main difference is that while incandescent bulbs emit light by heating the filament present in the bulb, fluorescent lamp generate light by sending an electrical discharge through an ionized gas. Japan was one of the leading nations in the development of fluorescent lighting technology. In order to seek for better lighting technology and improve efficiency, CE seeks to develop cooperation with Mitsubishi Electric and became its first overseas investment company until today. CE offers a comprehensive line of lighting fixtures and fluorescent lamps. More than 2/3 of our clients are operating as independent hardware stores. This sets us apart from our competitors as it allows us to engage in the retail sector directly. In 1989, CE established a new fully automated lighting manufacturing facility in XinYin to reduce labor costs and minimize production expenses. T5 fluorescent lamp became an increasingly popular development in the early 1990s. From T9 (9/8 inches in diameter) fluorescent to T5 (5/8 inch in diameter) fluorescent, CE has overcome many technical challenges and was able to increase its production rate by producing one unit per second while maintain the defective rate under 0.5%. In the earlier days, CE focused on improving productivity; from coating, vacuuming, to temperature management, every process could alter the performance of our fluorescent lamp. As a result, we depended on our technician working round the clock to monitor and improve our production processes to make sure all our production requirements are met. As the fluorescent technology continues to evolve, the demand for energy-efficient light bulb began to rise. CE introduced compact fluorescent lamp (CFLs) and soon occupying a relatively large market share in the lighting sector.

#### COOPERATE TO COMPETE GLOBALLY

Since 2008, CE begins its international expansion by setting up branches in Vietnam, Suzhou (China) and Xiamen (China). This process is very time consuming and we are certain that there will be many obstacles to overcome in the future. CE plans to engage in overseas markets by focusing on building brand awareness in emerging markets and aim to maximize sales through channel partners. In addition, we will continue to improve our productivity and research and development of Lithium iron phosphate battery.



Currently, CE is interested to engage in developing countries such as Philippine, Vietnam and Burma. Based on our expertise in the lighting sector and retail experiences in Taiwan, CE will continue to seek for opportunities to grow and diversify our business by expanding and engaging in oversea markets. Recent studies have shown that the rising cost of China labor has been setting off alarms among foreign investors. Since most of CE's lighting products are made from our fully automated production facility in Taiwan, and the fact that labor costs continue to rise in China, CE currently has no intention of moving our manufacturing into China.

**PROBLEMS IN ENERGY**

The decline in fuel cost is only soothing an expense on consumers, decreasing storage of fossil fuel energy is still an issue that cannot be ignored. With the sense of eco-friendly green energy over the world, that how to save energy is what we looking for. In this case, the most direct relation between light usages is electric, and CE has a rather strong technical background on this, hence, for years we work on combination between light and electric, also arranging the region in electric heat. As for energy saving, in theory, if power stations could generate electric based on demand, there would not be any wasting. However, with most power plants excessively generating, how we save these excess is a crucial issue. For instance, how to combine generator with storage system, effectively save excessive energy, maximize the lifecycle of batteries, making consumers will not abandon batteries before running out, causing energy waste and higher cost. This could be reduced by developing rechargeable batteries. In other countries, every charging station's battery has a detectable IP, when it is been detected as low efficiency, it will automatically be recycled; this is something that worth for us to follow, saving energy. Even if using solar energy, it requires procedures to maximize efficiency.

**AUTHORITY'S SUPPORT IN ELECTRIC AND GREEN ENERGY**

Governments play a crucial role in setting the regulations and requirements for energy efficiency. Such policies can help to stimulate investment in energy efficiency from the private sector and accelerate implementation. However, up until this point, we have not yet seen any clear policy from our government authorities and we are struggling to move forward. We believe the term "energy saving" should focus on helping cut down electric and other utility bills rather than just promote energy-efficient labeled products. The lack of energy awareness among general public has been the main obstacle when it comes to energy savings in Taiwan. This is mainly because the average cost of electricity is considerably low in comparison with other countries. The price difference between

on-peak and off-peak hours is not significant and therefore, authorities as well as general public remain hesitant to whether implementing new energy efficiency policy is necessary. Currently, Taiwan has sufficient electricity supplies to meet its demand. On contrast, country such as Philippine is experiencing power shortage. As a result, perhaps creating an energy saving environment is much more needed in these countries that lack of power.





LED 山型吸頂燈 -  
LSPXX14 系列  
[LSPxx14s.eps]



- 工藝美學造型，可更自然的融入於照明場景之中。
- 光源採用 LED 線型模組燈板，可快速導熱，光輸出效果佳。
- LED 光源專用光學及供電設計，燈具機能更見完美發揮。
- 小弧面大面積口型燈罩設計，佈光更廣更均勻。
- 符合 CNS 15592 光生物安全 [無風險] 標準，無藍光危害風險。
- BSMI 驗證登錄合格，台灣製造、品質保障。

LED 路燈 -  
LRW005 系列  
[LRW005s.eps]



- 燈體及散熱器一體成形，可直接快速將熱傳導至水波形散熱鰭片上透過空氣對流將熱量散出，可確保 LED 光源模組發光效能與使用壽命。
- 使用高品質世界大廠 LED 晶粒，高穩定性電路佈線設計，再配合三合一專用二次光學透鏡組成最佳 LED 光源模組，可提供最穩定與高效的道路照明。
- 高密閉 IP66/67 防水封裝式電源供應器，功率因數達 95% 以上，通過 CNS 安規及 ENEC、CB 安規認證，是具高度可靠性及安全性的電源供應模組。
- 演色性 Ra>70，可提供比水銀燈與鈉光燈更加清晰與自然舒適的道路照明，其相對於水銀路燈節能約 70%，鈉光路燈節能 50%。
- 全系列保固 5 年，具 IP66/67 防塵防水能力，17 級 (61m/sec) 抗風能力及 15 年耐酸蝕能力 [海岸氣候下]，通過 BSMI 驗證合格。

# NUPOLAR-LIGHTS

## 太極光光電



# NuPOLAR-LIGHTS

新北市五股區五工二路 116 巷 18 號 3 樓

T +886-2-22984936

F +886-2-22984955

E [polarlightled@gmail.com](mailto:polarlightled@gmail.com)

[www.polar-lights-led.com](http://www.polar-lights-led.com)

### THE DEVELOPMENT

Five years ago, it was a meaningful challenge and decision, to step into such a unique LED-applied market. No trace to follow on techniques, and no obvious clients to target on markets, this was literally a life-size gamble for NuPOLAR-LIGHTs. When special application LED becomes a company's developing goal, many items and applications jump into one's mind, suddenly, various clients come in with demands that territory related, but production had never meet the time limit from requiring. After prolonged striving, NuPOLAR-LIGHTs had finally made a good start on its reputation in plants, breeding, biomedicine and agricultural lighting territory, with professional know-how and extensive experiences, we take it as a core background, stepping into creating LED agricultural plan and system development, aiming goal as creating "biological farm-factory" that profitable for our clients, rather than conventional plant factory. As for the sealing skill of "Hybrid COB LED", by using its technical character to simulate sunlight, making LED not only LED itself, but with multiple functions. Strictly speaking, the generation of lighting application is coming, it is a breakthrough, and a discovery, that how we use the principle, finding secrets inside undiscovered regions, NuPOLAR-LIGHTs insist that discovering more, creating an extraordinary world of LED-functioned. So far, our first step is setting a flagship showroom called "Conroots" inside Wugu district, Taipei city, bringing our concepts to our consumers, letting them able to purchase agricultural products that reasonably priced, rich in nutrition and safe to eat, and strengthen cooperation with factories with alliances, soon various LED-application stores will enter the market, moving forward with technological core and purpose of public service.

### CONCEPT, POSITION AND CORE VALUE

Using "public benefit" as a starting point, doing right things for the public, naturally God would help us, also constantly standing in consumer's shoes, thinking about what they need. Nowadays we want not only reliable quality, but high extra-value, in our showroom; customers can get everything they want to know about the food, and a promotion in knowledge. Our position is technology, biology, agric and life, they go hand in hand, influencing our lives, and as for the brand "Conroot", is toxic-free, healthy and good life, both of them will eventually bonded up to technological healthy life. The core value of NuPOLAR-LIGHTs, is applying LED photonics in advanced techniques, such as special regions, biophotonic system, agricultural techniques, biophotonic plan and biophotonic technology etc.

### CHALLENGES AHEAD

Climate – Severe changes in our climate, flood, drought, earthquake and typhoon



causing food chain's failure, food stocks are decreasing, we have to take preparation for the deficit.

Terrain – Contaminations in field and water, soil overuse causes barren and hill reclamation are key factors.

Human – Industrial development, greenhouse effect and multiple pollution, ended up with raising average temperature. Massive creatures will be vanished in 20 years due to genetic modified agriculture.

With these concern, by supporting agriculture with technology, that farming can keep going on, science technology farm will be a great solution.

**CREATIVE INDUSTRY IN TECH, AGRIC, CULTURE AND FOOD**

So far, NuPOLAR-LIGHTs owns over 30 patents around the world, these are crucial capitals for our country, and if countries are willing to develop our system, in the future, we will maintain the principle of moving worldwide, partly practice technology transfer to our cooperating strategy's companies, expending development, hoping that once again push LED techniques' standard to the limit. We expect that NuPOLAR-LIGHTs is the creator of techniques, not just a producer, putting prime cost mainly in developing, let agriculture focus from transformation to skill promotion, jump out the frame, into the generation of "Creative agriculture". When our knowledge standard raise, so do the concept of health, and it is time for agric-fever, as more and more bio-farm alliances opening, public find their lives in agriculture, we are closer to each other, thanks to participation for whole family, inheritance in spirit and multiple commercial development would also change, and that is the positive affection to the whole economical growth in Taiwan. Agriculture is more than the word itself, it is a new meaning that related to life, combining concept of creative culture and the spirit of creative food, it is a trend that match up to creation and time, that is the key concept of NuPOLAR-LIGHTs's brand, "Conroots".



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# NuPOLAR-LIGHTS

新北市五股區五工二路 116 巷 18 號 3 樓

T +886-2-22984936

F +886-2-22984955

E polarlightled@gmail.com

www.polar-lights-led.com

### 蔬活養生箱



蔬活養生箱為太極光光電專為家庭、辦公室和商用空間設計的產品。

擺設於辦公室和商用空間，不僅能綠化工作空間，紓解壓力，也可以讓洽商賓客有更好的印象。

在家庭中，不但讓家人們輕鬆體驗種植水耕蔬菜、香草等植物的樂趣，更可以淨化室內空氣，提升生活品質。蔬活養生箱可以依照需求作堆疊，變成兩層或三層的小型植栽種植區，滿足全家人的蔬菜需求。

### 創意空間綠屏風



太極光光電運用全球獨創 LED 混光技術，於開放空間取代牆面，結合園藝綠美化，設計出「創意空間綠屏風」，利用交錯的種植槽體和植物生長 LED 燈，使空間和光線更有變化，滿足視覺的感「光」享受。依照需求或喜好，種植香草、觀葉植物或蔬菜，不但可淨化室內空氣，植物自然散發出來的香，更是最天然的芬多精。摘取綠屏風上的香草和蔬菜入菜，讓家人品嚐最原始的滋味。太極光光電的創意空間綠屏風，讓您我的生活空間真正擁有觸覺、視覺、嗅覺、味覺的感官體驗。



#### TIME BREEDS GSEO, ROCK SOLID

Established in 1990, the GeniuS Electronic Optical, or GSEO, is settled in Central Taiwan Science Park, based on optical lenses' design and making techniques, combining with LED industry, pushing photoelectric application into a new level. During 1990s, photoelectric industry can roughly be separated into two technical regions, the traditional glass polishing process technology, and the new-material optical plastic molding technology, by using leading-edge design ability and process developing skills, GSEO became the first optical company that integrating glass and plastic into hybrid lens, with the benefit of high transmittance from the glass, and non-spherical surface technology from the plastic, in the same time. This technology development had resulted in a huge breakthrough in optical industry. With the technology changing, GSEO had also moved from designing/making lenses for mobile phone, into developing LED optical zoom torch, and started the first page of LED luminary's development, becoming one of the few professional LED company with optical strength.

#### WIDELY DABBLE, UNTIL EXPERT TERRITORY

The ODM cooperation between enterprises takes a certain percentage in company's LED development. Will GSEO, which has a long developing history, ever considering that create an independent company with their brand? Although brand can bring economic benefit of high margin, after cautious estimation, we have decided that let it grow stably. Since being an OEM parts manufacturer, we are good at designing the product well in the first place, and providing goods that are high price-performance ratio. We do not expect to get attempt in everything, but choose one that we are good at, and then play it the best. As for current LED industry, if enterprises are still mainly focus on consumer LED, Taiwan will stick into a dilemma that the brand is less advanced than countries like Japan or Europe, while the price is less attractive than Chinese, we have to go our own way. Through brand and professional clients, we built our insistence that hardly change since day one, which is "High quality products with professional technology". Because we have professional technologies that applying light to the extreme, compare with others, we usually stand out in the crowd, when there are demands of "special lighting". Besides lighting territory, we also integrate with the field of intelligent control, practicing R&D for intelligent street lamp; or integrating with fishery, plunge into special lighting territory for fishing. However, due to our current environment, promoting intelligent street lamp is not rapid, compare with China. In current stage, GSEO will list "fishing light" as one of our main developing direction.



**LED FISHING LIGHT, THE NEW GENERATION IS COMING!**

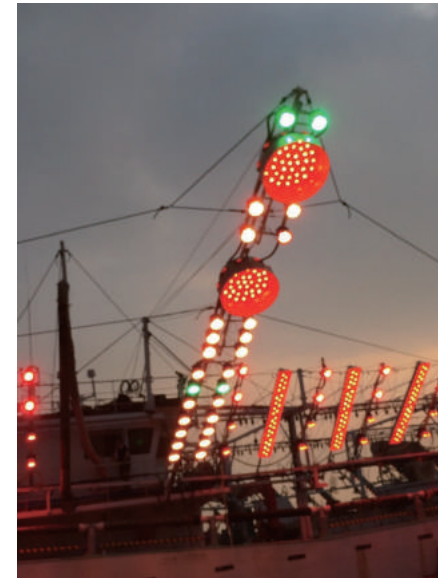
Being an island, the development of fishery is obviously one crucial part of Taiwanese economy. As a country that having most catch of mackerel pike in the world, using traditional fishing light mostly seems to be less economic, in the world of advanced technology. For a long time, traditional fishing light are suffer from high consumption (30% of the total energy need for one trip of fishing), fast light evanescence and high damage ratio (extreme working environment of humidity, heat and salt), forcing ship-owners build new ships, enlarging electric generators for more power, coping with massive consumption from the light, and higher catch for market demand, but rather than passive solution, start it form the basic can solve the problem more completely. By discovering the demand, GSEO had started a further development few years ago, with excellent lighting design, all the way from material, LED package to unique optical design, eventually came up with “New generation LED fishing light”, less weight, less consumption, and more tolerant to bad working environment. If domestic fishers can all replace traditional light into “GSEO LED fishing light”, we are looking for hundreds of millions of fuel cost can be saved. “GSEO LED fishing light” had fully passed the extreme environment test on the sea, average catch for mackerel pike can reach 500 boxes, over twice as more than before, this excellent result shows great promising that brake the myth of LED light is not suitable for pike catching. Besides pikes, GSEO had also started developing squid light, hopefully with the skill and experience from fishing light, into squid’s. So far, there is good news from squid fishing boats that participating in the test, over 100 tones of catch in a single day. It may be a small scale test, but hopefully we can soon test and verify in action, setting brand new record.

**NEVER STEP IN UNTIL READY, FAILURE IS NOT AN OPTION**

When the resource is limited, even if we see potential markets, we will not rashly plunge into too many territories, if they are not our core developing business. We do not get into it before making fully prepares in every aspect, striving for stable growth is GSEO’s develop strategy since day one. Our future developing direction is variable usage, with different regions and different light. From designing, green energy integration to biological light, GSEO has all participate. But basically we stay in a character of optical parts supplier, a provider with decent techniques and products; little by little we promote our reputation in professional market, with the help of positive feedback from clients. GSEO, we may not be the biggest, but strive for the best.



## 秋刀魚船 12 米 集魚大燈



- 玉晶光電的 LED 集魚燈重量輕、體積小。
- 在 12m 的秋刀魚大燈上可以安裝超過 3 萬瓦的玉晶光電 LED 燈具。
- 在同樣亮度規格下，如果安裝其它的 LED 約需 700 kg 但玉晶光電的 LED 集魚燈不到 200 kg。
- 讓 12m 秋刀魚大燈要擁有超省電且高亮度的燈具，變成是一個可行的方案。





# LIGITEK ELECTRONICS

## 立碁電子



新北市樹林區博愛街 238 號

T 886-2-7703-6000

F 886-2-7703-6286

E [ligitek@mail.ligitek.com](mailto:ligitek@mail.ligitek.com)

[www.ligitek.com](http://www.ligitek.com)

### LIGITEK, THE LEADER IN POWER-SAVING ILLUMINATION

Born in 1989, the Ligitek was a professional manufacturer, that expert in optoelectronic elements, permanently developing green energy as their business goal. Ligitek uses LED illuminant element as a standing point, extending to module design and making power saving luminaries, insisting the concept "Innovation & Profession". The difference between others is customization, a business mode that case by case, Ligitek, hews out their own path, in this competitive LED market. "Love the earth with care" is Ligitek's motive power to pursue permanent developing, inside we have professional R&D (Research & Development) team, and advanced automotive production line, pursuing company's permanent development and growth. Also, we are devoted to eco-friendly lighting's invention, making the best product with "care", and touch everyone in the world. For our strategies, besides strengthen the basis, that are "Process developing" and "Cost/Yield control ", Ligitek holds the "Key material & parts", and established "integrated R&D", boosting our advantage on the market.

### SOLAR POWER EXPERT & LED LIGHTING SYSTEM INTEGRATION

Ligitek has been established for over 26 years. Since LED element making, we keep developing experts, promoting technical region and developing product's application, satisfying market demands inside and outside Taiwan, we run our business smoothly, by efficiently using our resources, keep improving quality and skills, eventually we have won the quality that clients are pleased. Moreover, we never forget contributing to our society. As for the R&D, we keep improving LED's illuminated efficiency, and developing toward innovative applications, such as applying LED into platform warning light for mass transportation, that clients were impressed by the quality, resulted in a worldwide topnotch, demands were keep coming in, bringing Taiwan's LED toward international market. Our clients are mainly from public construction's bidding by national governments, and jobbers/retailers, from 27 metro station's LED illumination in Dubai, and ground-base/rooftop solar panels supplying for New Zealand, Korea, Germany, Spain etc., all the way to 12 Taiwan High Speed Railway stations' platform edge warning light system, and LED bulbs for Taipei Grand Hotel, any clients with demands of solar power, LED lighting and its control systems' integration, could be our potential customers. Besides, Ligitek has even use LED in in-car Head Up Display (HUD), using its principle of optical reflection, projecting driver's information in detail on the windshield in front of the driver, deducing frequency that leaning one's head to check, enhancing safe and visibility while driving.

### LOVE IN PEACE, LIGHT UP THE HOPE

Besides company's business progress, Ligitek has also keep an eye on underprivileged regions in international communities. Since 2011, when "Jasmine Revolution" that strives for democratic liberty broke out, tens of thousands of Syrian citizens were sacrificed, however, if there is a constant light in the dark, it will bring a sense of safe to the people, but in Syria, where most basic constructions were destroyed, any single light will be extravagant, besides the flame of war during nights. Considering this, Jordan's commercial office of the R.O.C. (Taiwan) had work with Ligitek, integrated 7600 sets of solar panels with LED lighting/charging system; this can be used not only for lighting, but charging mobile devices, by embedded USB charging port inside. This product was donated to Syrian refugee camps, in the name of "Taiwan's Pride". It may look compact, but combining with low-consumption LED, "Taiwan's Pride " only takes about 6 hours of daylight charging, and able to generate 8 hours of illumination, let the middle east region will not be isolated from this civilization of technology, due to wars.

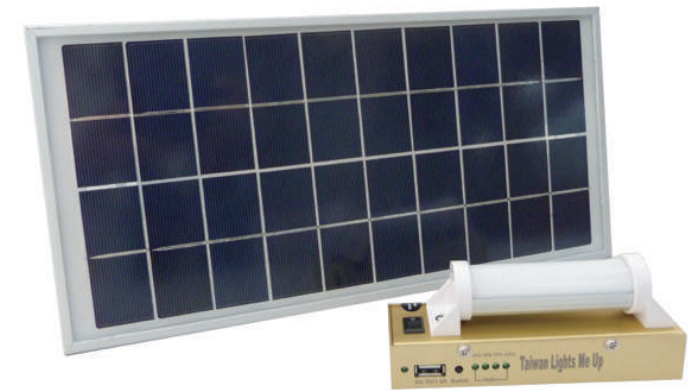
### FOOTHOLD ON TAIWAN, BROAD VIEW TO THE WORLD. LIGITEK

The conventional lighting industry has been existed for hundreds of years, from the initial illumination, advanced to high-tech industry that integrating with solar power and intelligent control, and staying close to optical health, as well as ergonomics. Since we have comprehensive R&D and producing environment, with decent technical team and stable atmosphere in the company, our products have become enterprises' leading index over the world. The current stage is green lighting, that extended from power saving and eco-friendly, has become the mainstream in illumination market, Ligitek uses professional and innovative application products to satisfy clients' multiple demands in luminaries, and constantly developing green technology products that is environmental friendly and energy saving, leaving a cleaner life for our next generation. In the future, Ligitek will focus on two major regions, LED and solar power, combining with intelligent control system. By these two flagships industry's integrating, hoping that brings a totally different lighting experience to our customers.





太陽能板照明  
Portable solar  
charged LED  
lighting system



利用太陽能板吸收電力，也可透過是電轉換直流電充電，電力可由 USB 輸出 5V 或讓省電 LED 燈發光發亮。

Take advantage of solar cell panel to have power or through AC to DC to charge. It is available for USB or LED lighting applications.

抬頭顯示器  
Head-Up Display  
Module



- 速度顯示 Speed information
- 轉數顯示 R.P.M information
- 電壓顯示 Voltage information
- 水溫顯示 Water temperature information
- 速度和每分鐘轉數校對 Speed & R.P.M proofreading
- 高每分鐘轉數、啟動報警功能 High-R.P.M. launching warning function
- 頭燈開關警告 Head lamp switch on warning
- 亮度調整 Brightness adjusted for ambient light conditions



## PIONEER IN LED TRAFFIC LIGHTS

Bright LED has been in LED industry over thirty years since established. If we take a decade as an index of company development; it can be approximately categorized into three stages: initial stage, growth stage, and mature stage. During 1981~1991 when LED industry was still in its infancy in Taiwan, Bright LED already developed and manufactured traditional indicators and infrared sensors using LED. Even though LED had not been widely adopted in industrial and electronics areas at that time, Bright LED had built up strong foundation for LED business and became prime, innovative LED leader. In 2001, after a decade of effort, the Industrial Technology Research Institute (ITRI) and related industries commenced to look for ways to apply LED to "eco-energy" region and at the same time Bureau of Energy also subsidized top five capital cities to execute the project of replacing all traditional traffic lights with LED traffic lights. This was counted as pioneering action of the world. Hence, Bright LED took this opportunity and became first publicly listed company that applied LED in infrastructure. Since then, we undertook many LED lighting infrastructural projects, including LED full color display project in Syueshan tunnel and others.

## SYSTEM INTEGRATION (SI)

What make Bright LED stands out from the crowd are unique patents, value added services and differentiation. This is the concept called "System integration" (SI), which is to combine the system with LED products and integrate into one. Eventually, SI could create infinite added values. Besides SI, Bright LED's another feature is the firm connection among parental and subsidiary companies. One subsidiary's products can be applied by eighty percent of other subsidiaries, which is a rare operating pattern in the industry. One of successful examples for traffic lighting design and invention that Bright LED actually led and participated in is "The little green man", which is famous and can be seen everywhere in Taiwan. Traffic lighting is not as easy as it seems. From choosing what wavelength ejected from the light to the circuit board design behind requires experts from different professional areas to collaborate together to accomplish and this is also a part of SI. Rather than manufacturing industry, LED is more like "Innovative industry", which varies dynamically. In 2014, the municipality of Hsinchu city replaced their old mercury-vapor street lamps with more eco-friendly LED ones. They also used our "LED intelligent Streetlamp Maintaining and Control System", embedded with Geographic Information System (GIS). If there is any malfunction, this system will notify our technicians and report problem to them immediately, so shorten the old, prolonged procedure of maintenance and reduce management costs for municipality. In addition to this, Bright LED cooperates with Secom security, teaching them some basic maintenance techniques for better efficiency. This is one of our successful SI system examples with high éclat and reputation.



### DIVERSIFIED MARKETS BESIDES LED

Recently, Bright LED has launched aesthetic medical field, but rather than making our own products, we customize LED light with specific wavelength and light form based on demands and needs from medical institutes. Furthermore, products like “Shadowless light” and “Dustfree light” are also our targeted niche market. Although there may not be massive quantities in demand, technical threshold and quality requirement give us advantage to be successful. Bright LED takes actions to transform aggressively within recent years. We increase sales revenue of invisible LED products up to 44 percent, not just by continuously serving in remote control market, but also getting intelligent electric and water/gas meter market. Bright LED had already announced new infrared module products for sweeping robots this year and will continuously look for any new opportunity in invisible LED field.

### THINK OUTSIDE THE BOX, CREATE MORE GREAT VALUE

Not only Bright LED, but most of foreign LED manufacturers are facing unfair competition in China, because of local authority's favor to local Chinese manufacturers. The authority restricted standards in favor of locals and raised them till certain levels. Afterwards, they opened the market to foreigners with not many opportunities left. Our strategy is to change sales pattern because every market has its own preference. For instance, cities in certain coast (Such as Beijing, Shanghai, Guangzhou and Shenzhen) prefer high-end products, while some second tier cities prefer goods that tagged with lower prices. The opening of Bright LED showroom in Taiwan is another new sales pattern, where we display our products and welcome publics, designers and distributors to shop and get their needs altogether with one stop. In recent years, Bright LED had transformed from processing factory into foreign investment company with factories and production lines standing by. We are ready to penetrate markets through local dealers. Every market has its own preference and uniqueness. We value each single market, listen to its needs, and provide the most suitable solution combing with systematic integration. Eventually, LED industry will and must become innovative industry and create infinite value to the world.



BRIGHT LED ELECTRONICS  
佰鴻工業



新北市板橋區和平路 19 號 3 樓  
T +886-2-29591090 ; +886-9-78-831516  
F +886-2-29547006  
E [nina.huang@brtled.com](mailto:nina.huang@brtled.com)  
[www.brtled.com](http://www.brtled.com)

## 平板燈



## 路燈



# INTEGRATED SERVICE TECHNOLOGY

宜特科技



宜特科技  
INTEGRATED SERVICE TECHNOLOGY

新竹市埔頂路 19 號

T +886-3-5799909

F +886-3-666-2793-5

E sales@istgroup.com

www.istgroup.com

## IST. LEADER OF ELECTRONIC VERIFYING SOLUTION

As for every firm, product's reliability verification plays a crucial role. With the endorsement, large enterprises can build up consumer's confidence, while younger brands can use the test report as a persuasive method. iST is a worldwide well-known laboratory that accredited by credible institutes, such as IEC/IECQ, TAF, TUV NORD and CNAS. With the trend of outsourcing for international manufacturers, iST also plays the role of third-party notarization lab of quality testing, and obtained qualification of verifying/certifying from major brands and associations, like TI, Lenovo, Cisco, Delphi, Continental Automotive, ISTA and HDMI. Proceeding from Hsinchu, iST has expanded operations over the world gradually, including China, Japan and U.S.A., hoping to give its clients a higher quality of technical service that is more comprehensive, rapid, advanced and innovative, growing together with international trend.

## VERIFICATION FROM SEMICONDUCTOR INTO LED

Founded in 1994, iST had started its career with IC circuit debugging and modification, and gradually expands new services, including failure analysis, reliability verification, material analysis etc., building comprehensive service of complete verification and analyzing engineering platform. Clients are covered from upper reach IC design to end products. With the rising of Cloud Intelligence, Internet of things (IoT) and Internet of Vehicles (IoV), iST has not only concentrating on core service, but keep an eye on international trend, expanding multiple services, building LED/automotive electronic verification platform and high-speed Integrity Services. In 2009, iST has plunged resources into LED lighting verification that leads its competitors. At that time, Taiwanese LED factories were in the place of takeoff, usages of LED were mostly backlight display for television only. When LED development heats up and introducing in lighting in recent years, demands had built up rapidly; people then started to notice the importance of verification. From Epitaxy (EPI), package to end products, iST has planned optical measuring system, base on different category's demands, practicing verify analysis, integrated solutions such as helping clients to tell the difference of before/while/after reliability test, life estimating and quality improvement. Besides, on the failure analysis, iST created an effective analyzing procedure in LED depreciation, discolor, rubber material malfunction and package problem. Thereafter, the LM-80 approved method that submitted by Illuminating Engineering Society North America (IESNA), uses experiment project for LED product's life, and the "Energy Star" certification issued by EPA, uses experiment result from LM-80 as the standard of indoor-outdoor lighting fixtures. During the certification, the most important Lumen maintenance requires LED element factory submits 6-thousand-hour test data of the element, based on IESNA TM-80 test method, then lighting factory estimates Lumen maintenance based on IESNA



TM-21 method, with that, consumers will have a clear idea of the lighting's life. Also, in the end of July, 2011, iST had passed the approved qualification from US Environmental Protection Agency's authorized institute- Taiwan Accreditation Foundation (TAF) in LED LM-80, since then, iST formally initiate LED LM-80 verifying service. However, it is not just purchase an LM-80 machine, and then run the test. Since every LED element is different from form and consumption, before verifying LM-80, it requires electronic circuit design on test board for different types of LED element, while build quality of the SMT matters radiating efficiency during the test, therefore, both of which will affect the test result.

iST has years of substantial experience in reliability test, failure analysis and material analysis, in order to help its clients match up with international demands, expand market range, and bring into line with the world. iST introduces integrated experiment equipments that fit for IESNA LM-80, providing comprehensive verifying test service for LED factories. Responsible in CSR, introduce lead/halogen-free for clients. Since 2006, EU had legislated laws to regulate limited use of hazardous substances, consumer's electronic product over the world had also raised a burst of upsurge of lead-free. In 2014, EU had further included medical electronic equipment industry into the range of hazardous substances' regulation, this means more medical electronic equipment manufacturers have to think about reliability verification plan of planning lead-free making transformation, in order to sell in European market, especially high reliability requirement that medical electronic equipments need to be concerned. In this supply chain, no one can be excluded, when it comes to product's quality control. During different phases, product's reliability verification requires the help of failure analysis technology to find defects, and even solve it. Since 2004, iST has assisted various international manufacturers, including Taiwanese and Chinese, proceeding lead-free products and reliability verifying analysis, accumulating years of experience, become the only lab that provides complete supply chain's reliability test and failure analysis for Taiwan and Mainland China.

#### **CAR ELECTRONIC VERIFY WITH DEKRA, PROCEEDING TO THE NEXT 2 DECADES**

After several years of development, not only become the premier third-party notarization lab in Asia, iST went even further into automotive verification. In July 2015, iST and DEKRA built a joint venture called "DEKRAiST", providing services such as LED, PCB, PCBA and system reliability verification, strengthen both parties' world-leading testing and certification in fields like automotive, LED and medical electronic. DEKRA is the world's largest automotive safety identify & test authority, every year they check and inspect the quality of 26 million new cars before leaving the factory, besides automotive inspection for well-known European car makers, DEKRA also has

the qualification of licensing CE-Marking, the pass of European market, playing the role of inspector of medical equipment, lighting and consumer products that import to Europe, market share of first and third in the world in lighting verification and medical electronic inspection. In the beginning of DEKRAiST, it focuses on rooting market territory and integrating both companies' profession. While clients of DEKRA are mostly worldwide car manufacturers and OCM parts factories, customers of iST are first-tier car manufacturers and OEM automotive parts suppliers. Since DEKRA has certain advantages of knowing most car makers worldwide, creating a new company from both parties can push iST into the front of these manufacturers, and drive all of their upper reach suppliers, such as element factories and ECU module factories to conduct verification in iST. To iST, working with DEKRA as DEKRAiST means this 21-year old company will once again sails from Taiwan, abroad European market's territory, bringing the next 20 years for iST, take a firm step in globalize test & verify. Looking forward, iST will continue to pursue a better company, and keep walking toward the goal of sustainable business in economy, society and the environment.





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INTEGRATED SERVICE TECHNOLOGY

新竹市埔頂路 19 號  
T +886-3-5799909  
F +886-3-666-2793-5  
E sales@istgroup.com  
www.istgroup.com

LED 與車用零組件  
檢測服務



LED 與車用零組件檢測服務，已在 2015 年 7 月正式切割至「德凱宜特」



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新北市三重區光復路一段 88-8 號 10 樓

T +886-2-29993988

F +886-2-29993910

E [mkt@unityopto.com.tw](mailto:mkt@unityopto.com.tw)

[www.unityopto.com.tw](http://www.unityopto.com.tw)

### MARKET-LEADING INSIGHT, RISE OF LED LIGHTING

Since been established in 1993, the Unity Opto has constantly focus on R&D application in infrared and used to be the largest optical mouse manufacturer in the world. With visible light technology matures day by day, development can be this fast in decades. From LED indicator, mobile phone keyboard backlight, backlight display on laptop computer, right up to recently popular jumbo-size LED TV. Unity Opto has take the lead from domestic competitors, becomes the first group of Taiwanese manufacturers that into overseas LED television supply chain, thanks to highly sensitive in the market. Unlike traditional single LED, television screen's backlight is displayed in strip, being the category of medium power LED, developing this is beneficial for us when entering the field of lighting, because in the meantime, occidental companies are mainly for high power, the medium display market is much clearer, a basis that domestics expand their production capacity. LED illumination has been developed for a while, with its benefit of low consumption and longevity, it is been highly anticipated worldwide. Initially, LED was having big gap between conventional lighting, but with companies over the world work day and night, price tag of the chip has dropped dramatically, it nearly touched the sweet point of traditional one's price in 2013. Since then, people named 2013 as "First year of LED lighting", and this is the moment when LED has literally applied to general use, and our development will enter a new phase.

### THE LED CYCLE

We reckon that LED development must pass three phases of "LED cycle". Phase one, replacement. In this region, people are more likely to accept the idea that LED is more economical and eco-friendly than traditional lighting, and there are those who are willing to replace incandescent lamp into LED lamp, and total replacement in tube further. Because the illumination of LED is completely different from traditional one, coordination, which is phase two, is also important. Suitable luminaire with professional design not only massively increase efficiency in light source, thermal dissipation design is also vital to longevity of LED. Phase three, development after integrating intelligent control, which is what we are doing now, that already has a initial draft, but still immature. The long-term business strategy of Unity Opto is making high additional value products in "current mature" stage, pursuing stable growth in first priority. Thus, we develop sphere light bulb and luminaries in current, and quantity of delivery on premium smartphone's backlight products are gradually growing, as well.

### HOLD THE CROWN OF BULB, 100% TAIWAN MADE PREMIUM LIGHTING

Many years ago, Unity Opto had expand business territory into occident, because local market has smaller demand, we ended up with significant result of over 15 million sphere

light bulb exported, and achieving at 30 million in 2015, holding the crown of bulb export in Taiwan. Besides, Unity Opto had set producing operation in New Taipei Industrial Park, emphasizing the strategy of 100% Made In Taiwan, adopting demands from occidental hyper markets. And high specification, quality and high color rendering index, can reach over 90% of natural chromaticity, even more suitable for house living environment, compare with traditional lights. People might wonder, why not do the investment in China, since it is the largest market in the world? Taiwanese LED industry are technique and quality oriented, while Chinese is big, but not the best choice for us, considering price and environment, rather than Japan and occident with higher CPI (Consumer Price Index), are where we pay attention on. If not able to conquer in this industry or owning brand, we eventually will fall into situation of OEM and competence with China.

**INDEPENDENT VERIFYING UNIT, EXPERTS IN THE ODM**

What makes Unity Opto different from competitors, is that besides invisible R&D experience, we own the one certified lab in the industry, which is qualified the certification in light source and luminaire by Energy Star, making us able to offer complete test report, digitize the R&D and verify standard of lighting, ensuring it fits the developing goal and demand, in requirements such as color, brightness or color rendering index, it can be developed due to different character, bonding LED package with lighting together, rapidly response demands, shorten the time to hit the market, achieve the goal of high quality and performance that we pursue. In the future, rather than having private brand, Unity Opto will jump out the frame of OEM after a further mature technique, by integrating midstream and downstream manufacturing line for more stable quality and quantity, going hand in hand with distributors, turning into a business model of ODM, we will return to market as “Distributor brand”, providing consumers a more advanced lighting experience.





### LED Bulb 60W



This dimmable light bulb with 90 CRI is the perfect product to replace the very popular 60 W incandescent bulb. Color temperature options of 2700K and 4000K with dimming capability offer the most comfortable ambience for your room.

### LED Shop Light 5 feet



This dual 5 ft LED shop light brings a significant sales in the consumer market , it is an excellent solution for high ceiling applications. With it's efficient high lumen output of 4,600 lm results in substantial energy savings without compromising light level or quality, plug and play also make user easily to install.





### NAN YA: RECONSTRUCTING, FOR PERMANENT OPERATING

The Nan Ya Photonics was the predecessor of a special investigation group inside Nan Ya Plastics until the end of 2003, considering the LED industry's growth, it established the independent Nan Ya Photonics Inc., becoming a subsidiary that invested by Formosa Plastic Group (FPG). In the beginning, we mainly produced epitaxy and crystalline grain for upper reaches in LED industry, but the development was below what we expected, with the competitive strength weaker than others, the business was not impressed, and to make matters worse, the financial crisis in 2008 made our business sank into new depth. In 2010, after years of striving, we work as a strategy union with Epistar, the topnotch upper reach LED manufacturer, combining advantages from both, established LED lighting special investigation group, besides the original epitaxy/grain department, flinging into market development, promoting power-saving LED products.

### GREEN POWER DEVELOPMENT WITH FPG VANTAGE

Nan Ya Photonics has inherited FPG's management and financial system, combining substantial grain production techniques from Epistar; we were initially struggle in the "Light Ocean Strategy" that dumping products into Mainland China with low price, this made us to think again, about our future. During discussions, considering that FPG is focusing on staple raw material production, we have decided to start again from industrial lighting as our goal, and leading with highly safe/reliability 23~120W extension light (Explosion-Proof Luminary), providing lights for petrol-mechanical, semiconductor industries and mining; Also, using FPG's multi-polarize production vantage, we plunge in industrial lighting industry's market, including 42~300W flood light, 42~250W patio light, 20~70W panel light etc.. The FPG has across the foot of petroleum, chemical, plastic material, semiconductor, textile, power plant, hospital, school etc., while providing to domestics, we export our products with good reliability, to ensure everything left from Nan Ya are safe and reliable. Because lighting for industries and families are very different, the choice of source is critical, but from its structure, heat sinking to installation is way beyond the territory for average LED material suppliers, it requires supports from professional team to accomplish the job. Therefore, Na Ya Photonics is also arranging professional regions, through our innovation, transforming from hardware supplier to total solution provider, giving our clients omnibus products and services for hardware, software, safety, construction and investment.

### EXPERTS IN INDUSTRIAL AND DANGEROUS ZONE LIGHTING

Explosion-Proof LED luminary is mainly used in various dangerous places, such as petrochemicals, refineries, power stations, wafer factories, food processing, bunkers, etc., these factory buildings many contain hazardous gas or explosive and inflammables,

therefore, every equipment requires flame-proof design, a highly professional market. When it comes to products that are LED-lighted, power-saving and long-life are their advantages, using it in explosion-proof luminary is even better. With its energy saving and simple mechanical design, dramatically reduce weight and making cost, price tag are no longer higher than conventional one, in modern times, that natural sources are draining, exactly how we use them efficiently is the task that we all face to. With lights last longer, maintenance cost for factory buildings decline, and less rubbish will be made, thus, promoting LED explosion-proof luminary is a prospect that everyone is a winner. Nan Ya is striving for this prospect as well. In order to make more manufacturers adopt this epoch-making innovation, Nan Ya Photonics has made fully preparation, with the actual assembling inside every FPG's factory, we got faster, and more comprehensive experiences, modifying to fit demands from communities, increasing reliability. While we promote to our clients, we describe lesson the price, but provide statistics of shorter investment recovery period and cost saving during the use, these are mainly the reason that motivate clients to accept this new model and products.

**TOTAL BUSINESS SOLUTION MODEL. INNOVATION FOR NEW PATTERN**

Although LED explosion-proof light is just the beginning, Nan Ya will still moving forward to commercial and home lighting in the future. Our innovation in lighting is not only merchandise research, but proving our very own "Total Business Service"(Omnibearing lighting solution) for every user. While going deep in every territory, importing with six major procedures, namely, "Investigating, simulating, solving, estimating, confirming and servicing", providing comprehensive suggestion from the aspect of fitness and performing estimation, is now widely used in every industry's region. We will keep investing in lighting experts' development in every territory that related to power-saving lighting, practicing Nan Ya Photonics' brand value, of decent lighting, reasonably costing. consumers a more advanced lighting experience.



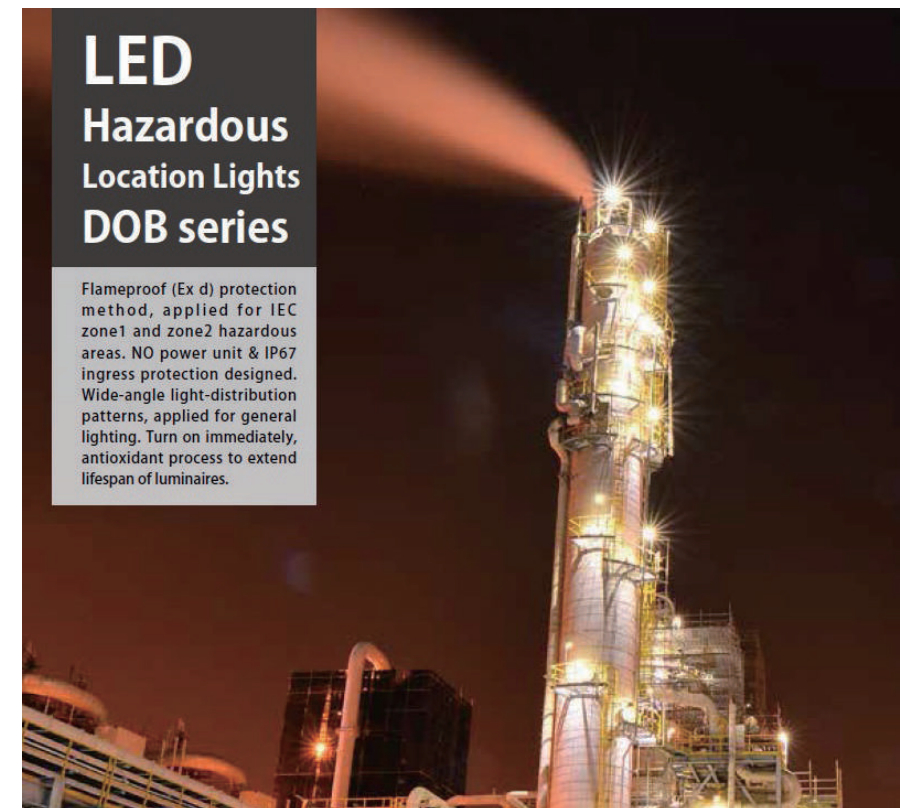




LED Floodlights  
Projection type 3D series



LED Floodlights  
Location Lights DOB series



# JAN CHENG LIGHTING

## 展晟照明



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台南市安南區工業一路 86 號

T +886-6-5118899

F +886-6-2503956

E [international@jan-cheng.com.tw](mailto:international@jan-cheng.com.tw)

[www.jan-cheng.com.tw](http://www.jan-cheng.com.tw)

### THE HISTORY

Jan Cheng Lighting has been engaged in illuminative industry for nearly three decades, even though Dancelight, Jan Cheng's brand, has been established for just six years. Established in 1987, Jan Cheng had started from retailing, and then across to wholesaling, and go even further, to establish a private brand. Their clients are given with substantial additional value, thanks to the total solution from development, production and distribution channel. Since various products are unable to be offered by international brands as OSRAM and PHILIPS, in this occasion, the concept of building a Taiwanese owned brand was hatched, with the help of experiences and knowledge of lighting, Dancelight was born. Jan Cheng owns vantages of both product and quality, for products, the multiple lighting applications is based on our already-owned illuminative technology, as well as trading experience. Thus over 300 LED produces were developed, including indoor/outdoor and outdoor construction-use, while renewing products for every half a year, as a life cycle, in order to stabilize quality. As for quality, a certain standard of quality is undoubted, since the brand comes from Taiwan. Apart from that, what makes Jan Cheng stands out from competitors is that besides major product sales, Jan Cheng further assists clients for the distributing, and builds up their own distribution channel.

### WORKING TOGETHER, TOWARDS THE WORLD

Currently, our distribution channels can be seen in over 30 countries, mostly in emerging markets, such as Southeast Asia, Middle East and Central/South America are the main focus, so as to promote Taiwanese private brand. High-intermediate consumer group inside the market is our main source, these group of people may have a preference in international manufacturer, but since Taiwanese made products own the reputation of quality, Dancelight is always on the list of most desirable brand. In the market of price-oriented, the extraordinary design and quality makes Dancelight stands out from the crowd. After all, quality cannot be compromised, if the brand wants to be recognizably from others. Also, there are currently various luminaries smuggling from China to Southeast Asia, due to custom avoidance, the issue happens even more regular in emerging markets. Considering this, Taiwanese authority is responsible that signing free trade agreements with other countries, to create a market that able to compete fairly. In the Southeast Asian market, Chinese dominate the business, no matter which country, competition from China is inevitable, and therefore, private brand's promotion is the main effort. Jan Cheng hopes that more countries will recognize Dancelight, the Taiwanese brand.



## HORIZONTAL ALLIANCE, MORE VALUE THROUGH INTERFLOWING

Jan Cheng's main development in Taiwan is residential, commercial and outdoor lightings. "Transformer", the fully adjustable down light, is Dancelight's flagship product, nowadays LED can be integrated with the housing, compare with separated assembling in the old day, results are increased convenience in installation, and the aesthetic appearance. Considering the horizontal alliance, Jan Cheng's integration of products, channels and participants are maintaining, but professional luminaries is still the core business, Jan Cheng has also set an independent team that experts in business of horizontal alliance. Our clients sell products into many regions, with a healthy 600 thousand lights sale inside the country. At this point, years of efforts from Jan Cheng can finally be seen. We are able to manage our own trade, chiefly because our very own logistic system that huge cost has been plunged into, then transplant the experience overseas, results are terrific. The biggest challenge for Jan Cheng in overseas market, is the dumping of Chinese products, not only the quality has been quickly catch up, authority's policy of support is the main reason why a single Taiwanese maker was having a hard time fighting against. Since Southeast Asian are less recognized about Taiwan, when Jan Cheng visits overseas dealers, the first thing to do is once again introduce Taiwan, to avoid foreigners mistake Taiwan and Thailand as a same country, due to similar pronunciation. With the result, building our Taiwanese private brand is first priority, and let it shine overseas, that no mistaken from other countries, such as Thailand.

## IN THE FUTURE

As for company's business, with clients and market are growing, our long-term concept, is since market's quality is uneven, due to poor LED products, when new markets need a promotion, we constantly provide products with suitable quality to consumers. Because minor difference in price are not that significant, if there is one with better quality, people are willing to pay more for purchasing. As for inner training, Jan Cheng has not only promoting home-made products to clients, but assisting them how to promote it successfully; we have our own concept to follow when selling our own products, hoping that this will be beneficial for the society, not just for our own business benefit.





9W 黑鑽石 LED 嵌燈

LED-25091



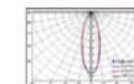
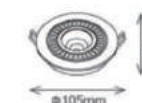
1. 360 degrees rotation
2. Adopts Cree COB chip
3. Full-voltage driver. Easy to install.



Φ90mm  
360 degree LED Spot / Downlight

Model Name	LED-25091
LED Chip	CREE
Input Voltage Range	100V-240V
Driver	External (included a Meanwell driver)
Power Consumption	9W
Color Temperature	3000K
Luminous Flux	440LM
Color Rendering Index	≥ 80
Lifetime(hrs)	25000 hrs
Body Material	Aluminum body
Beam Angle	32°
Installation Size	Φ90mm
Dimensions	Φ105mm H:25mm

Φ90mm



9" 變型金剛投射燈

LED-25076DR1 ( white )  
LED-25076WR1 ( warm white )



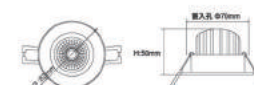
1. Adopt CREE Chip
2. The vacuum plating reflection lampshade enables uniformity of illumination, creating a comfortable glow.
3. Compared with same-sized downlight, this light is brighter and more energy efficient.
4. Full-voltage driver. Easy to install.



GRAND Series  
Φ70mm 9W Downlight

Model Name	LED-25076DR1   LED-25076WR1
LED Chip	CREE
Input Voltage Range	100V-240V
Driver	MeanWell driver
Power Consumption	9W
Color Temperature	6000K±10%   3000K±10%
Luminous Flux	450LM   400LM
Color Rendering Index	≥ 80   ≥ 80
Lifetime(hrs)	25000
Body Material	Aluminum Body, Glass Diffuser
Beam Angle	30°
Adjustable Angle	10°
Installation Size	Φ70mm (2.8 inches)
Dimensions	Φ82mm H:50mm
Applications	Basic Lighting :Living Room, Shop, Department Store.

Φ70mm





# TYC BROTHER INDUSTRIAL

## 堤維西交通工業



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台南市安平工業區新樂路 72-2 號

T +886-6-2658780

F +886-6-2639608

E [tyc\\_service@tyc.com.tw](mailto:tyc_service@tyc.com.tw)

[www.tyc.com.tw](http://www.tyc.com.tw)

### THE ORIGIN

Current global warming and ENSO (El Nino Southern Oscillation) have caused dramatic change in human, biosphere and environment, issues are appearing one after another. "Carbon reduction" has been recognized as a priority challenge faced by each government worldwide. Advanced countries have progressively began to phased out those inefficient and high energy consumption lighting products, making way for the market expansion of energy efficient lighting market. TYC Brother Industrial, a world class automotive lighting manufacturer, has established High-performance Luminaire business division since 2008, by means of self-developed techniques, combining fields of lighting, mechanical, electrical, thermal and intellectual control. With a highly experienced R&D team focus on design and engineering process including the use high-end optical design software, products are developed for different markets, such as a series of spot light, office light, concourse light and street light, inspiring great potential in green lighting.

### BUSINESS FOCUS

TYC's High-performance luminaire divided into two categories :

- a. Commercial lighting
- b. OEM

In the market of competitive lighting, TYC provided total services starting from professional planning, decent lighting and engineering, all-in-one business sales from design to production supply. Through TYC's good reputable sales in automotive lighting, it helps us to develop high performance luminaire products to meet different market demands, as well as OEM customers requirements. An actual project, successfully developed by TYC for Taiwan High Speed Rail cars, consisted of T8 LED light tubes , LED headlights and maintenance station lighting. The safety regulations and technical requirements were much rigorous than the general lighting considering it belongs to the public transport system. Moreover, Japan's Ministry of Railway was impressed by our technical capability, and by joining the International Union of Railways, TYC hopes the success of Taiwan technology and products can also be recognized internationally.

### IT'S A LIGHT, AND IT'S AN ART

In the future, TYC developed lighting not just as functional products, but has become a craft. TYC is now actively developing light guide technology, extensive application of the light guide, in addition to the lighting functions, enhance the design and increase brand recognition aside from the luminaire product. Such as, urban lighting in Shanghai, after planning the transformation of the light source, making night in Shanghai more charming than day time, becoming China's famous "City That Never Sleeps". If street

lamp can be combined with light guide, through a simple embellishment of light, it can create magnificent features. Market's sensitivity is one of the qualifications to success, no matter car lights or eco-light; marketing demand is our goal. TYC will use it's original advantages, with technology expertise, product development, we hope to create reputable recognition in the energy-saving luminare industry worldwide.







LED 投光燈  
Flood Light



50-E004  
180W LED Flood Light

IP66	RoHS	UV	25°	60°	120°
Material	Aluminum alloy, Iron				
Voltage	100-277V				
Module input current	700mA				
Operating temperature	-40 °C ~ + 70 °C				
Storage temperature	-40 °C ~ + 80 °C				
CCT	4500K±300K				
CRI	70+				
Lifetime of LED	50,000hrs				
Power Factor	>0.95				
IP code	IP66				
Net Weight	7.6kg				
BeamAngle	25° / 60° / 120°				
Power consumption	180W				
Luminous efficacy	87.5lm/W				
Flux	16517 lm				

水上水下集魚燈  
LED Fishing Lights /  
Underwater



50-E009  
LED Fishing Lights

IP68	RoHS	UV	25°	50°	120°
Material	Aluminum alloy, Iron				
Voltage	AC 90-305V , 47-63Hz				
Output Voltage	DC 48±5V				
Operating temperature	-20 °C ~ + 50 °C				
Lifetime of LED	20,000hrs				
Power Factor	>0.9				
Model number	50-E009	50-E009	50-E010		
Power consumption	250W	200W	1000W		
Module input current	4.45A	4A	17.8A		
CCT	6500K	BLUE	BLUE		
Optical wavelength	N/A	450~460nm	450~460nm		
CRI	70+	N/A	N/A		
Flux	>20,000 lm	>3,000 lm	>12,000 lm		
LEDs	CREE MHB	CREE XTE	Lighten		
BeamAngle	25° / 120°	25° / 120°	50° / 120°		
IP code	IP67	IP67	IP68		
Net Weight	4.796kg	4.796kg	12.62kg		



50-E010  
1000W LED Underwater Fishing Light

# EPISTAR

1996 - **20<sup>th</sup>** 16  
ANNIVERSARY

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新竹市新竹科學工業園區力行五路 5 號

T +886-3-5678000

F +886-3-5678755

E [sales@epistar.com](mailto:sales@epistar.com)

[www.epistar.com](http://www.epistar.com)

## LEADER OF LED CHIP THAT BROUGHT UP BY THE TIME

The establishment of EPISTAR can be traced back to 1980s, in that period, the mainstream of Taiwanese LED industry was packaging, that most of LED chips were imported from Japan, on the other hand, Japan was implementing protectionism, making exports of LED chip under limitation, this resulted Taiwanese LED manufacturers growing slow. Considering the problem, Taiwanese authority authorized the Industrial Technology Research Institute (ITRI), hopefully that able to own the technology of LED chip production by ourselves. At the moment, The Metal-organic Chemical Vapor Deposition (MOCVD) was a growing technology, compare with the already matured Liquid-phase Epitaxy (LPE); EPISTAR was established under the atmosphere of this new technology, by using this new technique, and with the help of financial support from mainstream packaging houses, EPISTAR had became the supplier, experts in providing LED chip for domestic packaging houses. Initially, EPISTAR only produced epitaxy wafers, while the rest of the production was done by other chip factories. But because most of the chip houses at that time were not familiar with MOCVD's newer structure, chances are brightness and efficiency were under expectation, therefore, many clients purchased LED chips directly from EPISTAR. Little by little, EPISTAR had become the mainstream company as providing LED chips, and won the title of biggest LED chip supplier worldwide in 2015.

## EXPERT IN LED CHIP AND CO-ACTIVATION SERVICE MODEL

EPISTAR's prolonged R&D has focused on developing and optimizing manufacturing technologies of LED chips, making it fit for any LED application domain, leading the world with various LED production techniques, as well as understanding and innovation of material characteristics. Recently, EPISTAR had developed a special service pattern, called "Co-activation Service model", the core concept of the pattern is "virtualized vertical integration". Mainly by EPISTAR's extensive know-how in the industry, experience of manufacture, and the coordination, offering most suitable product that match up terminal clients' demands, all the way from the design of LED chip. In this pattern, EPISTAR mainly receives the order, and does the coordination, choosing packaging house and module vendor, according to clients' demands, creating optimum supplying chain, and distribute products as EPISTAR's brand, or providing OEM. For instance, the chip for portable LED projector in 2015, DoB (Driver on Board) etc., these are part of successful cases of Co-activation Service Model. EPISTAR convinces that only by following this pattern, the company will pave the irreplaceable way in this competitive worldwide LED industry.

Note: For more information, please visit [www.epistar.com](http://www.epistar.com), entering "Case study".

**WORK TOGETHER, GROW BIGGER. TOWARDS WORLD'S TOP MANUFACTURER**

The current scale of EPISTAR has undergone with several times of merging, the reputation of “King of merger” was earned inside the industry and media, when it comes to integrating resources of both companies, and creating synergy in a short period, EPISTAR is the expert. In these several times of merging, EPISTAR reckons that “Merger” was operated between two companies, rather than “Mergers and acquisitions” (M&A). The difference between two, is that merger has two teams go hand in hand; integrating efficiency will be increased, creating a more pleasant atmosphere between two. The M&A, on the other hand, will create a master-slave relation. For example, the first merger was in 2005, with United Epitaxy Company (UEC), it was separated into two departments, red light and blue light, according to their products. Also, the organization had been cunningly arranged, by crossing both of their administrating technicians, according to their professional status. By following this pattern, results are entirely fused, and learning each other’s techniques rapidly, ended up with an impressive synergy. Having this successful case, EPISTAR follows the same procedure in every merging progress, slowly but surely, a scale of five thousand employees was achieved. Thanks to merging, various patents and techniques are accumulated and even substantial productivity as the backing, impressing mainstream manufacturers overseas, this is a crucial vantage for EPISTAR, able to step ahead, towards abroad.

**TECHNIQUE + SERVICE, PAVE EPISTAR’S OWN WAY**

In the olden days, LED was recognized as an “high-tech product” that only been used in advanced occidental countries, therefore, when it comes to LED, International brands would usually be mentioned, such as Philips, Osram and Panasonic, causing market share for Taiwanese is difficult to get. To make matters worse, countries like China or South Korea, authorities are strongly supporting their own domestic trades. The competition between EPISTAR and other competitors, in recent years, is like David versus Goliath. This shows the hard time when Taiwanese brand trying to standout from crowd in the world. If Taiwanese manufacturers want to stand still in the market, the only way is by owning superior techniques and innovative services. For a long time, EPISTAR has focus on fields of LED epitaxy and LED chip production, creating full spectrum production line, from short-wavelength UV to long-wavelength IR, as well as “Co-activation Service Model” that rapidly reflects market demand, not only providing LED chips, but technologies and professions, offering solutions to all kinds of LED applications. In recent years, EPISTAR has vigorously achieved cross patent authorization with various international companies, breaking through patent barrier, with the help of largest productivity vantage worldwide, EPISTAR is the iconic LED brand in the world.





EPISTAR  
晶元光電

# EPISTAR

1996 - **20<sup>th</sup>** 16  
ANNIVERSARY

新竹市新竹科學工業園區力行五路 5 號

T +886-3-5678000

F +886-3-5678755

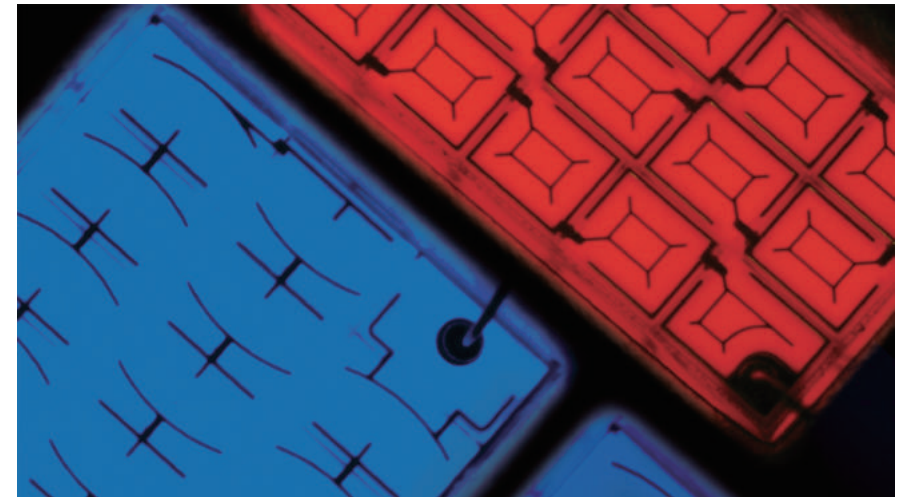
E sales@epistar.com

www.epistar.com

磊晶機



HV





***LEADRAY***

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苗栗縣頭份鎮工業路 101 號

T +886-3-7612219

F +886-3-7612119

E [salesinfo@leadray.com](mailto:salesinfo@leadray.com)

[www.leadray.com](http://www.leadray.com)

#### NOVICE IN LED, TARGETING AT HARDEST BREAKTHROUGH

Mr. Chen Kueifang, founder of LEADRAY, was initially running business as a systematic furniture company, he seized the trend of LED by chance, witnessed the rapid growth of the industry, just like Moore's Law describes. The illuminated efficiency of LED is keep improving, thanks to manufacturers' striving in development, and we can have a clear view of unlimited developing potential and future from LED industry. Ever since Thomas Edison invented the first light bulb, lighting has played an important role in our lives, every country's energy development start from here. Nowadays, however, in the time of draining energy, we focus on lighting's development, because of energy, and LED was born. In order to respond the "Mercury Lamp Sunset Project" held by Industrial Technology Research Institute (ITRI), reaching better power management and application, nearly 700 thousand mercury lamps will be eliminated in this country. This gives a great boost for Taiwanese LED industry, providing verifying platform and opportunity for LED lighting. Chen, who was not initially trained for this region, chose street lamp as the point of getting into LED, mainly because of the issue of Chinese National Standard (CNS) No. 15233 standard, which is the world's first standard, particularly set for street lamps, with this standard, everyone has a benchmark that judging if one's product has reached certain standard, it is a guarantee and approval for every company. Moreover, since street lamps are used in public places, whether it is good or bad quality can be easily seen by public. In other words, this is a way that earns reputation rapidly, but highly risk, but once it is breakthrough, other problems will be solved in no time.

#### RELIABILITY IN THE FIRST PLACE, EVEN JUST CREATING

LEADRAY is the first one who comes up with the idea of separating light source from power control unit, and practices it in actual product. Because for most LED street lamp's failure, the problem is the power converter, rather the light burnout, the original CNS 15233 regulates that both light source and power control unit should be attached together, if it fails, it will require overhead working truck to maintain it, this cause extra cost in after-sales service, and affects local traffic's fluency, hence, LEADRAY has come up with another installation, by moving the power converter down to the base of the lamp. Besides the cost in maintenance, high-power light source comes with the defect of high heat, by moving power converter down to the base can increase its longevity. Lighting is closely linked with us, it can further proved when entering the time of intelligence, there is another benefit for isolating light source, which is street lamp can go even further, able to attach with intelligent control technology, becoming intelligent street lamp, or even base station for telecommunication etc., starting anew page for "New street lamp" generation. As for future street lamp, we have plenty of ideas, but no matter what they are, "reliability" is always the key, deciding whether it lives long in the market

or not, thus, LEADRAY's every developing base is high reliability in the first place, with that , we will have the chance to practice in the future.

**EXCLUSIVE TECHNIQUES IS OUR KEY TO SUCCESS**

In this hard and competitive LED industry, why LEADRAY, that is only 70 employees, can rule the LED street lamp market, with the record of over 50% market share, while surrounded by other companies? LEADRAY did it by means of holding their very own key techniques, established the best LED light source reversal radiation platform system, with the credit for highest stability of their product inside community. But Chen, who came up with this idea, was not a researcher that trained in this region, the eight-year R&D had plunged with huge money, just for the patent of radiating, because Chen clearly knows that only by holding patent skill of heat dissipating, it can shorten the volume and weight, decreasing production's cost further, and this is why LEADRAY can win so many bids in street lamp purchasing. After successfully found the complex material that able to dissipating heat, LEADRAY has got patent certification from Europe, U.S.A., China and Taiwan, attracting CREE that looking for us, becoming strategic partner, ended up with the first solution provider in Asia-Pacific region. Besides the exclusive radiating technology, LEADRAY also owns special patents on the structure of the lighting, able to reach IP67 waterproof standard, thus, our street lamp works perfectly fine, after prolonged torture from the sun and rain, creating excellent yield rate.

**ROOT IN TAIWAN, LIGHT UP THE WORLD**

Since street lamp construction is a bidding that more local, relation with all circles is vital, besides price and quality. While being a novice in street lamp territory, LEADRAY had already aiming five domestic major dealers, and working closely with them, by providing high quality lamps, dealers help us create routes in local market. Besides, LEADRAY takes serious attention in after-sales service, any problems from clients can be solved in no time. Thanks to decent quality, we create stable customer source in a few years. But the key point is that LEADRAY's emerging stock market plan is hatching, hopefully by letting our partner dealers purchase stocks, closing the distance from production, all the way to dealing, increasing their loyalty, creating stable coordination.

LEADRAY takes a broad view to the world, "Next up, light up the world!"



**LEADRAY**

苗栗縣頭份鎮工業路 101 號

T +886-3-7612219

F +886-3-7612119

E salesinfo@leadray.com

www.leadray.com

### CamberRay



- 通過美國 UL、LM-79 及臺灣 CNS15233 認證。
- 100% 技術由賀喜擁有，對未來故障排除反應快，維修快。
- 燈具與安定器分離，大大降低未來維護成本。
- 重量輕，安全性高，方便安裝。
- IP67 的出廠要求。
- 17 級風洞測試要求。
- 燈罩抗 UV、紫外線，不容易碎裂，增加燈具壽命。
- 增光液使用讓光源透光率增加約 10% 亮度。
- 通過鹽霧測試要求。
- 2013 年榮獲精品獎。

### VegaRay



- 重量符合 UL 規範，輕達 1.7 公斤
- 光源不閃爍無紫外光不吸引蚊蟲，更能確保客戶使用環境安全。
- 燈具耐衝擊，無傳統燈具玻璃散裂問題，安全性無虞。
- 超高流明 (105 流明 / 瓦 5000K)。
- 專利機構設計結合精品造型之美，台灣設計，台灣製造。
- 移植路燈散熱技術，獨特光學設計及鰭片式散熱結構，延長 LED 燈粒使用壽命。
- 採用高功率 LED 晶片及專利散熱技術。
- 為客戶省下至少 50% ~75% 的電力消耗。
- 2015 年榮獲精品獎。



# SUNFLY SOLAR TECHNOLOGY

陽昇綠能科技



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台南市仁德區義林路 256 巷 168 號

T +886-6-2490688

F +886-6-2498139

E [com.sunfly@gmail.com](mailto:com.sunfly@gmail.com)

[www.sunfly-solar.com](http://www.sunfly-solar.com)

## SUNFLY. THE RISING STAR OF LIGHT GUIDING

Wang Yuan-Hong, manager of Sunfly Solar Energy, explain that "Daylight Tubular Device LED", or DTD, is using natural light as indoor luminary, by guiding sunlight indoor during daytime, power consumption of high wattage lightings during peak time can be dramatically dropped, while low wattage LED is been used nocturnally, with over 70% of electricity will be saved, compare with normal industrial halogen lightings, or 400W high pressure sodium lights that commonly used. What makes Sunfly feel proud about, is even though devoting to the field of DTD lately, rather than foreign competitors, the company is confident to tackle the problem of daylight lacking, by using embedded LED technology, and thanks to its special embedding technology, longevity of embedded LED is been extended, result in more economic efficiency.

## GREEN ENERGY INTEGRATING PROJECT WITH PROPER PLAN

From a mother company that experts in compound constructing material, to a extended coating subsidiary branch, Sunfly Solar Energy was established under gradual development, hoping that combine products between the two, achieving application of green energy's integrating arrangement. Based on the original light guide material, that rather than conventional LED light bulbs, five circular LED have been introduced, to make sure that light guide, the primary usage will not be affected. The all-on-roof operation, meaning clients' work operation will not be suspended, due to installation and maintenance, as conventional lighting suffers from. When facing with various competitors, Sunfly can still holds its market share, chiefly because the independent production line of Physical Vapor Deposition (PVD), resulting reflection panel material with better quality (98.5% of reflection rate), but lower cost. Every single square inch of sunlight can be used in maximum, to compete against Chinese manufacturers' low-price strategy.

## INNOVATIVE PRODUCTS

Besides participating exhibitions, Sunfly can usually be seen inside industrial parks, seeking for any potential buyer, as well as collecting intelligences that how to make the product more refined. Light guide material, as implied by name, it is mainly powered by light, any circumstances, including lack of daylight due to climate, or shadow from any shelter, will significantly affect light guide LED. One thing Sunfly did noticed, that some clients' buildings are not built inside industrial parks, but urban area that full of tall buildings, even so, giving up potential buyers, because suffer from sunlight lacking is not an option for Sunfly. In order to sort out this problem, a new system has been developed, called (Constant Light System), it operates by sensing outer sunlight, automatically adjust the brightness of embedded LED, resulting brightness inside the building

maintained. Unwilling to accept that light guide can only been used in lighting, Sunfly is devoting to new product’s development. For instance, the energy consumption can be more efficient, by assistance of battery; or by combining with exhaust fan, integrating with Ambient Assisted Living, making the space more flexible to use. However, since combining with battery will raise the cost on production, as well as maintenance, while water vapor that inhaled by exhaust fan will affect PVD, these theories are still in the stage of testing, but may be doable.

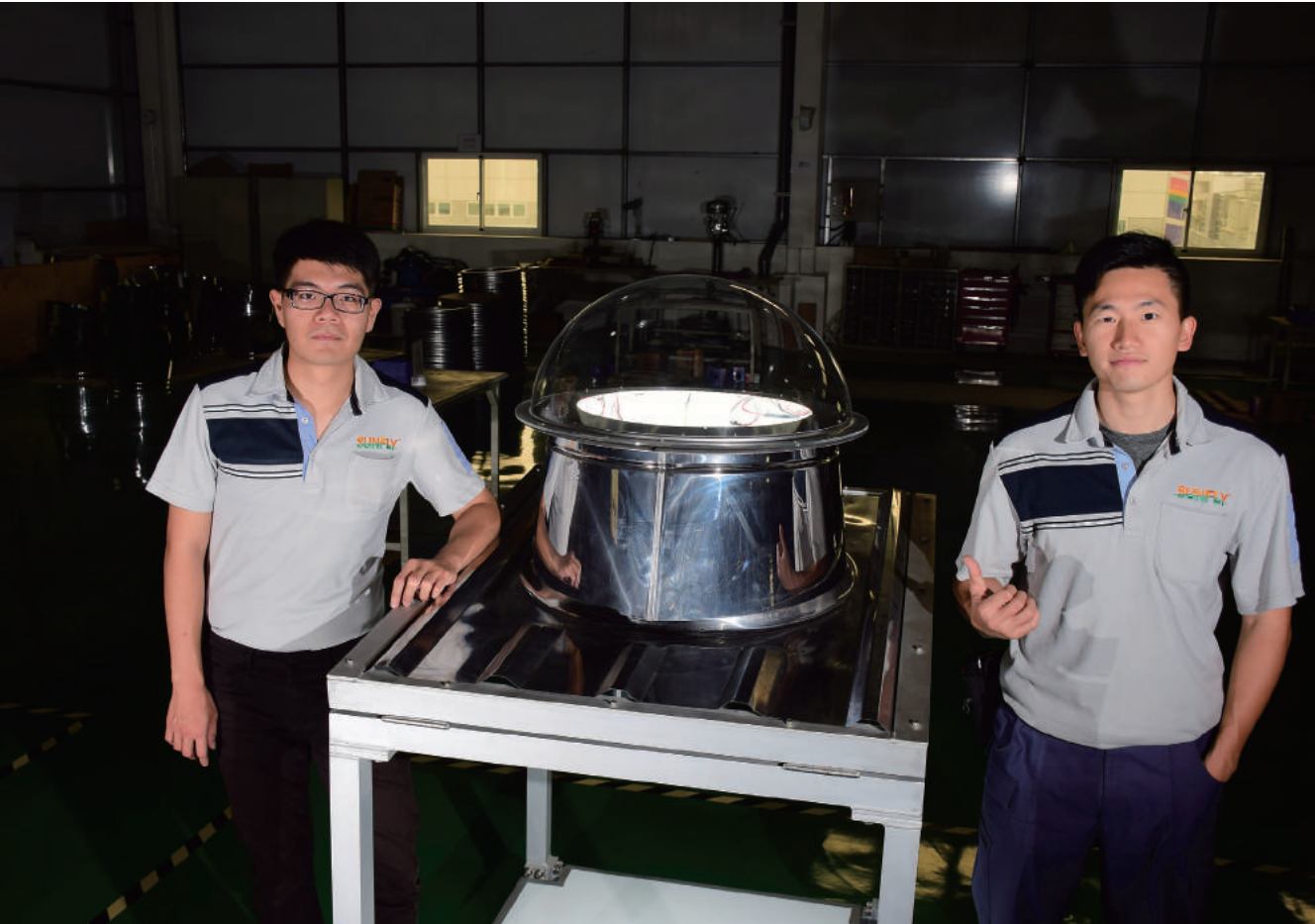
CHALLENGES FROM THE ENVIRONMENT

Cheng Po-Chien, the section manager, analyze that governments are paying more attention on solar photovoltaic energy. Take Tainan, the low-carbon city as an example, its low carbon city’s autonomous regulation is still mainly fit for solar photovoltaic energy, that subsidiary for other solar power products are relatively less. Moreover, since light guide products are installed on roof top, as well as solar panels, governments’ subsidy strategy is badly crumple the market of light guide, making it harder to promote. The reality, however, light guide is actually more doable in middle-south region of Taiwan. Besides governmental policies, another issue is that Taiwanese manufacturers are less acceptable with newer technologies, in current stage that more matured solar photovoltaic energy, as an alternative, most people will still prefer a more conservative way, rather the later light guiding. Even though by actively participate exhibitions around the world, sales numbers were below expectation since it was launched in 2013, making Sunfly turn its attention to Southeast Asia. But why not China, which has a healthy market of 1.3 billion citizens? It is mainly because of dangerous commercial environment, that besides intellectual property’s issue from imitation, foreign merchandisers are usually face with market barriers and unfair limitation, as well as difficulties in getting intelligence, due to Internet monitoring policy, therefore, Mainland China is currently not in the future plan.

OPPORTUNITY AWAITING

In recent years, various manufacturers sets OEM factories in Asian countries, in order to pursue high margin, as well as low cost, in this case, with an friendly environment, Southeast Asia is the most ideal choice. Having highly interest of this market share, Sunfly is also endeavoring to devote this market. Take Vietnam, as an example, once clients notice bargains, friends and families will come together for the product, in other words, once the manufacturer can be satisfied, that penetrating markets in this region is not difficult. Therefore, Sunfly is on the plan that advancing on Southeast Asia by introductory offering, ready to seize the market of this undeveloped market. Solar-power light guiding is an industry that just taking off, Taiwan and Asian countries are located in

tropical and subtropical zone, having sunlight that never drain off, if one can introduce natural sunlight straight into buildings, it will be more efficient, rather than electricity generated by solar energy, and then reuse. It is believed that in the future, solar-power Daylight Tubular Device by Sunfly, will become the index of next generation’s power saving luminary.



SUNFLY SOLAR TECHNOLOGY  
陽昇綠能科技



台南市仁德區義林路 256 巷 168 號

T +886-6-2490688

F +886-6-2498139

E [com.sunfly@gmail.com](mailto:com.sunfly@gmail.com)

[www.sunfly-solar.com](http://www.sunfly-solar.com)

LED 光導照明系統





# Lextar

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新竹市科學工業園區工業東三路 3 號

T +886-3-5658800

F +886-3-5638319

E Sales.LT@Lextar.com

www.lextar.com

## TAIWAN'S ONLY LED "VERTICAL INTEGRATOR"

Lextar Electronics is the biggest LED supplier in Taiwan for panel application, and it is one of the members of AUO BenQ group. In the panel industry where scale and cost matter, manufacturers' arrangement in LED backlight source are mostly building their own supply chain, and pursuing economy and efficiency. By vertical integration, this can also control product quality, and rapidly respond to market demands. For AUO, only by creating its own LED supplier can it improve its competitive strength, which is also known as vertical integration, and Lextar is the only Taiwanese company that runs "vertical integration" business mode in LED industry. The advantage of vertical integration is fast connecting in messages, simplifying process, therefore not only improves efficiency, but rapidly supports clients' needs. On the production side, the advantage of vertical integration can keep company less affected by the market fluctuation.

## DCOB LED LIGHT ENGINE

This year, Lextar, the vertical integration manufacturer, launched the latest DCOB (Driver on COB) light engine, integrating the driver on COB. Because it is directly powered by alternating current, all it needs is plug and play. Moreover, by eliminating electrolytic capacitor, the life time of the light engine is highly improved. Lextar's DCOB adopts its in-house High Voltage chip and HV LED, and can greatly improve its reliability. Lextar's DCOB light engine integrates optical and electrical technology on one module, therefore has the character of compact size, easy to use, and providing design flexibility. It is suitable for spotlight and tracklight. Lextar's DCOB series are convenient for luminaire manufacturers when replacing COB light source without switching cost, and Lextar can provide customized services for different clients. Because traditional lighting manufacturers are constrained by lack of technical personnel in the electronic/electric related fields. Thus, they often encountered photoelectric matching problems when integrating into LED. With the photoelectric integrated DCOB light engine, the lighting manufacturers simply need to add the lighting fixture casing to complete the assembly. That not only solves the technical problem of photoelectric matching, but also reduces the lighting assembly costs. Lextar also released the complete series of AC-in Driver-on-Board Modules including a circular DOB for ceiling or flush light or downlight, DCOB for tracklight or spotlight, Linear DOB for streetlight or panel light, that are suitable for a variety of indoor, outdoor and different power lighting applications. The complete series of light engine has many characteristics including but not limited to one-piece compact design, small in size and long lifetime, to provide the traditional lighting customers with the most convenient application of LED photoelectric solution.

**LEAFIA, THE ULTRA LIGHT LED PANEL LIGHT**

Lextar’s recent launched LEAFIA panel light, named after its leaf-like thinness, has broken through the barrier of luminaire. Adopting edge-lit LED technology, LEAFIA has reduced thickness by over 80% to reach 8mm, creating a sense of lightness and loftiness when hung from the ceiling. Lextar has taken its backlight technology up to a whole new level, using light guide plates with a special microstructural optical design to overcome the space constraint of mixed lighting. The result is soft, smooth lighting with ultra low glare of UGR < 19 suitable for the office or reading room. LEAFIA 's simple and low-key style helps it blend in with various types of interior design, and with its appealing seamless frame finish, LEAFIA is a work of art integrating wisdom in optics, mechanics, aesthetics, and craftsmanship, and therefore is well worth the applause by the Japan design industry.

**CLEAR POSITIONING; CO-OPERATION WITH ITS CLIENTS**

Lextar will focus on OEM and ODM in the future LED lighting finished products,, rather than competing with our customers. Lextar provide its strongest LED technology know-how and manufacturing capability to the lighting clients. The advantage of Lextar is its advanced vertical integration, knowing well on LED application market, working with research institutes inside and outside Taiwan, cooperating with strategy partners, we will keep enhancing current skills and developing new, striving on epitaxies, grain production, sealing and module technology’s integration, giving our clients most satisfied solution and marketing advantages.



# Lextar

新竹市科學工業園區工業東三路 3 號

T +886-3-5658800

F +886-3-5638319

E Sales.LT@Lextar.com

www.lextar.com

## 極致輕薄平板燈 LEAFIA



獲得日本 Good Design 設計大賞

## 光電合一 DOB 產品



提供燈具廠商隨插即亮的 LED 光源解決方案





### THE EARTH, THE ENVIRONMENT, AND THE LIGHT

Shunchi Technology, which was initially engaged in manufacturing crankshaft for automobiles and electric generators, then focus on OEM and ODM once the business has gradually going smooth, Its president, Mr. Hong Yu Nan, had became the president of the Manufacturers United General Association of Industrial Park eight years ago, since then, Hong has regularly got in touch with academics, research institutes and public sectors. Meanwhile, the "Plus Minus 2 Degrees Celsius" theory had been addressed by Al Gore, showing deeply concern about environmental affect by global warming, this was the opportunity, that the concept of energy saving and emission reduction, that based on original industry has been hatched. President Hong recalls, that in the moment, LED industry had just taken off, various countries were highly interested in LED power-saving luminaries, there is even a saying from China, that if the penetration rate of LED luminaries in the country can be raised up to 50%, almost one Yangtze River Three Gorges Dam's generated power can be saved, at this point, it is obvious that China is one gigantic market. With every Three Gorges Dam's power generation been saved, tens of millions citizens can live long and safely, therefore, in the situation that unable to find new sources, energy saving is the prior mission in the future. It is been for eight years, since Shunchi had stepped into LED industry with passion, loads of money has been devoted to, to insist the initial principle. Looking back, however, we are felling lucky that able to pave a different way, thanks to the insistence. An opportunity has turned up in 2015, that even though LED has been developed for an age, the penetration rate of LED luminary worldwide is still below 25%, a prediction by U.S.A. shows that in 2020, that it will massively raise up to 80%, in other words, the upcoming five years will be the massive growth of LED.

### LED INDUSTRY, TRADE OR TRAGEDY?

Previously, there were news reports that listed LED as one of "Top 4 tragic trade" in Taiwan, how would president Hong regards the future of LED lighting industry?

Hong explained, that the cycle for a product can be separated in phases as R&D, growing, steadying and recessing; Taiwanese LED is currently on the former stage of growing, it is impossible to conclude the future, while the industry is still taking off. It has only been for 13 years, since Mr. Nakamura Shuji invented white light, and it is mainly been used in R&D, with no doubt, that standardization, modular and mass production of the industry have not reach the maximum yet, but gradually mature, consumers then gradually accept the stability and reliability of LED, because of the change. There are various trades from 2002 to 2015, that eager to dominate the market without preparation, but ended up battered and bruised, this shows great promising that proper planning is crucial for a new industry before it stabilize. Moreover, the initial motivation

that governments promoting LED street lamps, was in fact promoting Taiwanese LED industry through the development of LED street lamps, and comprehensively raise the standard of the trade, however, the actual practice was not impressive. It costs a fortune for verification, in order to match the CNS 15233 certification, before receiving orders, even been fitted with the regulation, unfair competition is inevitable once step into the market, governments’ bidding thresholds are usually over strict, that smaller enterprises fighting against big one, is like David versus Goliath, how possible it is to promote Taiwanese LED industry entirely? Besides, local authorities are usually cooperating with certain manufacturers for while, how can we share the market together? As being the vise president of TLLIA, and one of the conveners of LED street lamp project, Hong had submitted advices to the authority, hopefully be able to practice. The biggest problem for Taiwanese LED, is large factories were initially responsible in elements and packaging, while minor factories manufacture the casing, but large enterprises nowadays are tend to be all-in-one production line, crumpling survival space for minor ones, this is when TLLIA comes in, that finding out how to progress LED industry positively, building bridge between trades and authorities, if the scenario goes on, distance between large and minor trades will be even wider, causing national industry’s progress gradually decline.

**HEAT PIPE & LIFE TEST CENTER FOR LIGHT ENGINE**

The new generation COB and heat pipe are Shunchi’s flagship product, able to decrease energy consumption, while increasing LED chip’s efficiency simultaneously, and the production cost will drop, reaching higher commercial benefit. Within a few years, the future trend is tending to be COB and heat pipe technology that applied in LED, it is an highly potential market, with manufacturers apply it one after another. Even though it costs a fortune maintaining these patents every year, Shunchi has paved their own path, after few years of efforts. Being the expert in high-power lighting, categorized in semi-special luminary’s territory, it requires quality that extremely stable, there is no tolerance in any mistake, therefore, inside the company, we own the only “Light engine life test center” in Taiwan, only by undergo the toughest test, products can be claimed with credibility, and this is why cautious, is Shunchi’s commercial principle, from start to present.

**TAIWAN, CHINA, OR WORLDWIDE?**

With the primary background of crankshaft manufacturing, radiating, which is critical for LED industry, is no problem for Shunchi, but becomes one of the vantages for us developing high-power lighting. After few years of strive, products are distributed in over 50 countries, surprisingly however, domestic demands are much less than other countries, due to LED is a new type of energy industry, that occidental countries are

more likely to accept with high-value products, rather than Taiwan. However, current market is not working in the most ideal pattern as we reckon, as a manufacturer, mass production is first priority, and a certain number of distributing channels are necessary, therefore, relation between us and other trades are supposed to be coordinating and work dividing, only by combining channels and product’s technology, it will maximize the benefit of an industry. Speaking of mass production, we must not forget the Chinese global factory, it is been mostly reckoned that China is a huge market that can be shared by anyone, but turns out that it is a special market for LED industry, since various non-tariff barriers are existed in China, and Taiwan are categorized in “foreign country”, if manufacturers are keen to sell products in China, there is no way but set the factory in the country, besides cooperating with local distributors, even if penetrate the market successfully, it still requires special strategic coordination that able to promote business in Mainland China smoothly. Strategic development is tend to be Shunchi’s main focus in the future, coordination between trades includes distribution channels and brand, we are looking for extending relation into OEM and ODM, once being modularizing and mass production.





Solange 天井燈



大功率倒裝晶片  
高光效:6000K最高可達105Lm/W  
高照度:5000K 在6M高度、80° 透鏡下達176 Lux  
高效省:電功率因素 PF> 0.9  
高演色/顯色指數 > 80Ra、清晰不失真  
長壽命/LED壽命可達50000Hrs  
性價比級高、最有競爭力的產品

300W

120W 150W 210W

瓦數	色溫	光通	尺寸
120W	3000K-6000K	11400 LM-12600 LM	Ø420 x 430 mm
150W	3000K-6000K	14250 LM-15750 LM	Ø420 x 430 mm
210W	3000K-6000K	19950 LM-22050 LM	Ø420 x 430 mm
300W	3000K-6000K	28500 LM-31500 LM	Ø420 x 430 mm

CBCE

Polaris 路燈

**ST-PL15200**  
瓦數 200W  
流明數 18000 - 20000 LM  
色溫 3000-6000K  
演色性 >70  
電壓 100V~240V  
發光角 145°  
尺寸 L800 x W363 x H91 mm  
重量 14.5kg

**ST-PL12180**  
瓦數 160W  
流明數 14400 - 16000 LM  
色溫 3000-6000K  
演色性 >70  
電壓 100V~240V  
發光角 145°  
尺寸 L720 x W363 x H91 mm  
重量 12.5kg

**ST-PL08120**  
瓦數 120W  
流明數 10800 - 12000 LM  
色溫 3000-6000K  
演色性 >70  
電壓 100V~240V  
發光角 145°  
尺寸 L640 x W363 x H91 mm  
重量 10.5kg

**ST-PL18240**  
瓦數 240W  
流明數 21600-24000LM  
色溫 3000-6000K  
演色性 >70  
電壓 100V~240V  
發光角 145°  
尺寸 L880 x W363 x H91 mm  
重量 16.5kg

**ST-PL28500**  
瓦數 280W  
流明數 25200-28000LM  
色溫 3000-6000K  
演色性 >70  
電壓 100V~240V  
發光角 145°  
尺寸 L960 x W363 x H91 mm  
重量 18.5kg







## LIFE TECHNOLOGY

Most Taiwanese LED manufacturers are focusing on LED development, aiming goal as power saving and luminous efficiency; while traditional industry focuses on application. However, one thing that most makers have miss, is even with power saving and efficiency, do glare and distribution that LED generates really suit for our lives? While in earlier stage of developing, the rendering of LED was less impressive than traditional lights, LED was not suitable in places that highly required in "light", if we still insist on using "highly efficient" and "power saving" LED, chances are consumers will be misunderstand that LED is less perfect than conventional light, therefore, Umi will keep working on exactly how to choose correct light source in suitable places. Before LED technology is mature, Umi Optoelectronic, that initially was a LED parts manufacturer, has took the lead that plunging into the field of applied design in lighting, reckons this as a future trend; And with background that accumulated from a time period, we can use it even more efficient in nowadays that LED develops by leaps and bounds. In this technological time, products must be bonded to life, but many regulations are struggle to follow up, because of rapid progress in LED, while makers make decent products, misunderstanding always happen between suppliers and demanders, because no manufacturer teaches consumers how to use it correctly. Therefore, we become the bridge between clients and factories, delivering consumers' demands to manufacturers, and discuss with them that how to provide the most proper thing that consumers want.

## LIGHT-3. THE RUNWAY OF THE LIGHT.

The showroom of Umi is built from the whole multiple space, rather than competitors' lifeless showroom, we combine with services like hand-brewed coffee and healthy drink, let our products blend in with the space, when customers enter Light-3, they can feel that application of photoelectric LED can not only been used in lighting, but integrate with agriculture, use it in life. Umi has started from light design, integrates demands of customized from clients, regarding manufacturers as strategic partners, providing comprehensive platform of designing/planning, currently we work with construction companies, architects and spatial planners, and heaving industry cooperation, combining with university students that are majored in designing, such as education, Building of Hope and landscape, participating the design of Light-3 together, accumulating actual experience. As far as current LED developing progress, it is able to totally replace conventional lighting, in fact. However, because it works with different principle, models are not identical with traditional light bulb and tube, but meets with the world as "area source", that is what we are working on now, combining LED with aesthetic, because apart from being a basic luminary, "light" is mostly been considered as a craft that people would take a stop and look, and since electricity is very easy to get hold of, when

one sees the light, what mental feeling it brings will be much stronger than power and consumption, and this is what we are expecting to ourselves, bringing out the feeling of the light, according to clients' need, entirely express it in real life.

**LED LIGHT'S RECYCLE & REUSE, MAKE A DIFFERENCE IN SUSTAINABLE DEVELOPMENT**

For the next five years, we will still concentrate on application design of LED, compare with old one, but the progress is way too fast, that many LED cannot follow up the trend, even it is still working fine, that where these eliminative LEDs go becomes a big problem, if they are not treated well, it will expand environmental problem, which is contradicted to the origin of LED. By noticing the problem, Umi proposed the idea of lighting recycling. We have consider its afterward reuse while initial design, decreasing purchasing cost through exchange and further improve, also reduce rubbish, even achieve the result of new design, a model that everyone is a winner. With LED been used over the world, there are still many countries have not reach the using standard as Taiwanese LED, in this case, these LED that working fine but eliminated from us can be provided to third-world countries, bringing light to them , paying social responsibility to the world.

**ACROSS THE FOOT OF OVERSEAS. ARTIST OF LIGHT**

Besides customized market, Umi has currently across the foot of China, participating urban plan for developing cities, our path can be seen from 568 manor in Shenyang, as well as the planning of Fongshing. Based on original building, adding concepts of advanced countries, then through the designing of light, represent first impression of the city to citizens. In the future, Umi will keep focusing on LED design, blending the concept of aesthetic onto spatial lighting, hopefully Taiwanese consumers can position LED into a "craft" that is fully functioned, rather than a "light" that only cares about lighting efficiency.





UMI OPTO  
會明光電



台北市士林區延平北路七段 18-2 號 2 樓

T +886-2-28107772

F +886-2-28107778

[www.umi-opto.com.tw](http://www.umi-opto.com.tw)

## 二岸 568 莊園



中國瀋陽的撫順，現在正進行一大型造鎮建案，高度綠化的河岸城鎮，正是體現出建商對住宅的生活環境的重視。

## 防港城



防城港市政府，坐鎮防城港弧頂，環抱海洋詩書苑，南望防城港碼頭。港城之首是創新與成長的基石，建設與發展的起點，文化與傳承的指標。在日月經天、江河行地的永恆與偉大歷史見證下，帶領防城港市創建獨特都市形象，並藉由與海洋文化公園的相望對話下，烘托出港城之首的時而莊嚴時而藝術的豐富姿態。





