



## Delta's "Influencing 50, Embracing 50" 50th anniversary special exhibition in Taiwan



**SPECIAL REPORT /**  
Delta's "Influencing 50, Embracing 50" - 50th anniversary special exhibition in Taiwan

**IoT SMART SOLUTIONS /**  
From product to solution: Delta's smart streetlight service lights up the path to a smart city landscape

**SUSTAINABILITY /**  
From reduction to resource cycling: Delta realizes Zero-Waste production and builds a circular economy value chain

**BRAND CIRCLE /**  
Delta in conjunction with Charge+Zone realized charging infrastructure in India

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Vol. **58**

Delta Brand News Bi-Monthly December 1, 2011 founded

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Editor in Chief / Shan-Shan Guo

Editorial Board / Zoe Cherng, Jack Lin, Jesse Chou, Sonia Wang, Wim Chang, Yi-Wen Wang

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Delta started out as a small factory with 15 employees 50 years ago and eventually found success, employing tens of thousands of employees around the world. Throughout the company's journey, we have never lost the indomitable spirit and commitment to excellence that we started with. Delta has continued to grow and thrive for half a century. In the previous issue, we brought you a report of Delta's 50th Anniversary Exhibition in May at the Tongli Lakeview Hotel in Suzhou, China. Since then, the exhibition tour has visited factories in Wujiang, Wuhu, Beijing, and Dongguan, receiving enthusiastic responses from guests and employees. This August, we will be holding a special exhibition of 50th anniversary at the newly-built Chungli Plant 5 in Taiwan to express our gratitude to everyone who has made this possible. Eight major areas have been planned for the exhibition based on the theme of "Sustainable Conservation and Nurturing Life". Attendees will have a chance to understand Delta's core philosophy, corporate culture, brand value, and sustainability projects! Due to the pandemic, an online exhibition will be concurrently held to allow the public to participate in the grand event on screen. In this issue's "Special Report", we invite you to enter the Delta Newsroom and be part of Delta's 50th anniversary!

In addition to developing the "corporate brand", Delta has also made outstanding achievements in "employer brand" management in recent years. Besides winning many awards in Taiwan such as the First Prize for Global View's Corporate Social Responsibility Happy Enterprise in Taiwan, the company has also been recognized by various employer brand awards in China and Asia. In this issue's "Brand People", we have interviewed Delta's Chief Human Resources Officer, Mr. Charles Chen, who has shared his step-by-step guide on how to build an innovative employer brand!

Since the outbreak of COVID-19, Delta has been taking active steps and joined forces with the local governments, medical organizations, and other agencies to combat the pandemic. We recently donated ultraviolet disinfection cabins to many hospitals in Taiwan, which eliminate 81% of the COVID-19 virus on any surface when visitors walk through the cabins. At the same time, Delta also donated the devices to the National Training Center to safeguard the health of Olympic athletes and ensure a safer, more comfortable training environment. Delta created flowers using digital technology in the Taiwan exhibition area of the China Flower Expo, presenting vivid and delicate flora images with the help of advanced projection technology. Coupled with the installation art and interactive design, an immersive exhibition is thus created. Exciting content awaits in the "Brand Circle". Stay tuned!

"Circular economy" is a popular buzzword in today's society. As its name suggests, it refers to the economic benefits created from the continuous cycling of resources. Delta has aimed at reducing waste concentration by 15% in 2020 by decreasing waste at the source and increasing the reuse rate of resources. This issue's "Sustainability" will show you how Delta has advocated its waste reduction accomplishment to the global value chain, integrating upstream and downstream members for waste reduction practices. This creates circular economic benefits for the supply chain, and comprises concrete actions towards carbon neutrality!

In this issue of "Delta Green Life", we are headed to Europe and share with you the "Cycling and Planting Trees" event initiated by Delta's EMEA marketing team. Starting from World Environment Day (June 5), Delta's EMEA team will plant a tree in Uganda for every 10 km that participants cycle! Not only does this promote good health, it also improves Uganda's ecology and environment! Don't miss this great opportunity!

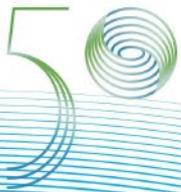
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INFLUENCING 50  
EMBRACING 50

迎向五〇



## Delta's "Influencing 50, Embracing 50" - 50th Anniversary Special Exhibition in Taiwan

Text by Brand Management Division

Starting out from humble roots in a 15-person factory next to rice fields 50 years ago, Delta has grown to include tens of thousands of employees. By remaining true to our vision and insisting on quality, Delta has continuously grown and expanded over the years. This year, Delta's 50th anniversary special exhibition has been integrated with the opening ceremony of Chungli Plant 5. The exhibition is scheduled to run for one year beginning on August 28, 2021 to show our appreciation to our employees, partners, and various stakeholders. In response to changes in the ongoing pandemic, an online version of the 50th anniversary exhibition has also been concurrently planned. This enables visitors to experience the exhibition directly from their screens, as well as onsite.



The 50th anniversary exhibition has eight sections, which are centered around the theme of "Sustainable Conservation & Nurturing Life". "Sustainable conservation" emphasizes the need to treasure energy sources. It is the constant goal for Delta's energy efficiency efforts. "Nurturing life" refers to ecological and environmental friendliness to ensure a better tomorrow for future generations.



The 50th anniversary special exhibition is to be held at Chungli Plant 5 as well as online. Eight display sections that follow the theme of "Sustainable Conservation & Nurturing Life" have been planned

## A look back in time

Stepping into the entrance of the exhibition at Chungli Plant 5, visitors will immediately see the important products of Delta's early days. Visitors are led into the Delta Newsroom with news clippings, which are held by Delta's mechanical arm and neatly lined in order of 20 sets to coincide with the theme. The guided tour takes visitors to 50 of Delta's major milestones at the Outline section. Founded in 1971, Delta gained solid ground in the 80's and entered the Chinese market in 1992. In 2003, Delta expanded to European and American markets, and after overcoming the financial crisis in 2010, transformed itself from OEM and ODM to energy management. The Company currently strives toward carbon reduction through the use of technology and corporate social responsibility (CSR) to deal with climate change.



The Outline section shows 50 of Delta's major milestones



Business section introduces the scope of Delta's three major products as well as its energy conversion rate that exceeds 96%

## Sustainable and Highly Effective Generational Solutions and Concepts

The Business section outlines Delta's framework and introduces the visitors to Delta's products and their connections to people's daily lives. Delta has achieved an international leadership position with energy-efficient technologies. As a higher energy conversion rate implies lower energy consumption, Delta has helped to enable significant carbon reductions. Each seemingly small 1% benefit will translate to enormous savings. Delta's energy integration and IoT framework system solutions range from indoor factories, commercial buildings, data centers, to electrical grids and regional networks primed for outdoor use. The solutions provide energy-saving and carbon reductions measures that help today's societies transition to smart cities in the 21st century through environmentally-friendly methods. The ESG section is the corporate core of Delta. The section introduces Delta's sustainable business philosophies and ESG practices through three dimensions: Environmental (environmental and energy conservation), Social (social engagement), and Governance. In dealing with climate change, Delta implements energy conservation and carbon reduction in its day-to-day operations and actively engages in international initiatives. Energy education is also promoted by the Delta Electronics Foundation. Each of these efforts demonstrates Delta's commitment to fulfilling corporate social responsibility.



### Social responsibility for mutual growth

The Design and Culture sections introduce Delta's business mindset and knowledge. As Delta's green building developments continue to evolve over time, the Company has held true to our unwavering belief in environmental conservation. Having learned while constructing each green building along the way, we have cumulatively built and donated 27 green buildings and 2 green data centers throughout the world over the past decade or so. Synergies between design and carbon reduction can be appreciated in the Design section, while Delta's cultural and artistic sense is shown in the Culture section, where visitors can find a selection of Delta's recommended books as well as diverse activities and environmental documentaries, chosen to raise the public's awareness of nature.



The flexible Delta mechanical arm shows the theme "Influencing 50, Embracing 50" and the 50th anniversary logo through a horizontal and rotational manner"

### Embracing the past and welcoming the future

Visitors can explore Delta's past and future in the Delta Origins and Delta Action sections. The Delta Origins section leads visitors on a trip back in time with the classic Delta TV cables and intermediate frequency transformers (TFT) of the 70's, and the switch mode power supplies and brushless cooling fans from the 80's. These were the core critical technologies that secured Delta's leadership position at the time. Delta Action demonstrates Delta Foundation's philanthropic actions. More than 5,000 hours of free online courses have been offered at DeltaMOOCx, which brings quality teaching to the homes of everyone. The coral restoration is a new initiative that began in 2020, in which the Foundation collaborates with NGOs and the National Museum of Marine Science & Technology, and calls on Delta volunteers to document the entire coral restoration process, from species selection, incubation, to monitoring, in an effort to bring biodiversity back to the marine environment.

Last but not least, the Delta Radio section shares Delta's corporate vision and its authentic and unique brand, as well as thoughts and practices on environmental protection to everyone through audio guides; and the Contributors section introduces important partners and internal teams that have helped Delta over the past 50 years and enabled Delta's growth.

The 50th anniversary exhibition will take place at Delta's Chungli Plant. Delta's employees, partners, and members of the public are all welcome. Delta also encourages everyone to join us at the online exhibition.



## Building an innovative employer brand step-by-step

Interview with Delta chief human resource officer - Mr. Charles Chen

Text by Brand Management Division

Delta's successful employer branding has been widely recognized in recent years. Besides winning various awards including the First Prize in "Happy Workplace" from CommonWealth Magazine's Corporate Social Responsibility Awards in Taiwan, Delta has also received numerous accolades as an employer brand from China and the rest of Asia. For this month's "Brand People", we will interview Delta's Chief Human Resource Officer, Mr. Charles Chen, who will be sharing his practices and experiences in building Delta's employer brand.





## Embracing social communities and integrating campus resources

"Besides hard work, successful employer branding also relies on enhancing a company's corporate value as well as the collective efforts of various business divisions," said Chen humbly at the beginning of our interview. Recalling his experiences when he first assumed the position of Chief Human Resource Officer at the beginning of 2017, Chen commented that there were many doubts concerning internal employer branding, and he pondered over what to do. What were some of his management practices? Chen stated, "An employer brand takes time to build, so that it is more than just fame. It also encompasses reputation and loyalty." After reorganizing the HR team in 2017, many new employees were recruited, and a Global Talent Acquisition (GTA) team was formed to build campus relations, build social network interactions, and to formulate employer brand strategies, action plans, and social network standards. Based in Taiwan, these practices will also be extended to the rest of the world and modified to meet local needs. For instance, most of Delta's promotions in China are done on WeChat. In recent years, we have also achieved closer interactions with our target audience using TikTok. Alternatively, Delta flexibly uses platforms including LINE, Facebook, and Instagram in Thailand. E-newsletters, loaded with enriched content and videos are also used to disseminate information and to reach more target audiences. Recently, YouTube content management has also been used for the Taiwanese market. Besides cultivating virtual social media, the HR team also strives to develop school campuses. Delta has set up joint R&D centers with leading universities and colleges including NTU, NTHU, NCKU, NTUST, and NTUT, as well as incubated more than 50 Masters and Ph.D. holders by collaborating with 22 professors. A dedicated Delta program has also been set up in Taiwan and India. Delta's employer branding is continuously reinforced through online merge offline (OMO) methods.

## Emphasis on employers' perception and experience

Delta's employer brand can be characterized as "touching people's hearts with its authenticity and uniqueness while being driven by employee experiences". Chen commented, "Employee experience is the core to developing our employer brand. We treat employees with sincerity and strive to design every employee touchpoint so that employees can all perceive our thoughtfulness." The Chief HR Officer also used employee travel as an example: the HR team organized a railway trip by chartering a Taiwan Railway train, and a violinist was asked to play in the train cabin. By swapping traditional bus tours with this in-depth railway trip, employees were treated to a memorable and authentic experience that catered to all their five senses. When COVID-19 struck in 2021, the HR team immediately responded digitally by transforming the trip into a cloud-based trip, in which employees could freely explore the beauty of Taiwan on screen. The Chief HR Officer explained that creating "positive reinforcement" is an important part of building the employee experience. "By warming the hearts of employees, we can build employee loyalty and generate more positive, enthusiastic strength and impact on those around us, which in turn will attract more engagement and build cohesion."



The Chief HR Officer (fifth from the right) leads Delta's HR team to build an innovative employer brand step by step



Chief HR Officer (fifth from the left) enthusiastically participated in the marathon and joined Delta employees for a group shot before the race



The 2019 Delta railway tour, in which more than 400 employees and their family members traveled throughout Taiwan by 8 Taiwan Railway trains



## Enhancing employee brand benefits through building cohesion and attraction

As for management performance of building an employee brand, Chen mentioned that the key was to "generate internal cohesion and formulate external attraction". "Internal cohesion" refers to understanding where improvements are needed internally and enhancing relevant skills by participating in external awards and competitions. Media exposure after winning awards can also prompt employees to understand that Delta is an excellent company to work for and it builds their cohesion with Delta. Employees would then become Delta's brand representatives. "External attraction" refers to managing employer branding, thereby making it easier to attract our ideal workforce. According to the annual "Most Attractive Employer" survey from Cheers magazine, Delta's ranking has dramatically increased over the past few years, jumping from No. 56 in 2017 and No. 27 in 2018, to No. 13 to 2019 and 2020 (No. 3 in the technology and manufacturing industry), and finally reaching No. 11 in 2021 (No. 3 in the technology and manufacturing industry). Besides building an ideal employer brand image in our target group, the number of resumes from job seekers have also dramatically increased accordingly. Many applicants already possess a fairly in-depth knowledge of Delta before their interviews and also identified with our vision and objectives. These are all significant results achieved from employer brand management. By using data analysis as a basis, the HR team obtains insights to the career needs and recruitment preferences of our target audience. In addition, by utilizing innovative technologies including big data and artificial intelligence (AI), employer brand management can become more precise and more intelligent.



Delta was awarded with a Gold Medal for Happy Workplace Awards in 2020 to honor its long-term commitment to building an outstanding workplace environment, and for persisting in its goals and fulfilling its corporate responsibilities in spite of the ranging pandemic and drastic changes in the world



Online opening ceremony to the 2021 Delta summer internship program; the Chief HR Officer encouraged students to "sustainably develop their future at Delta"

## Develop your future sustainably at Delta

As the interview ended, Chen wished to encourage everyone to "Develop your future sustainably at Delta!" This is the employee brand event that Delta's Brand Management Division and HR team jointly organized at the beginning of this year. Delta continues to organize the event on campuses and social communities. Promotions are made on the recruitment platform in Taiwan, on Delta Career Facebook page and LinkedIn, and even on our Facebook page in Thailand and LinkedIn in Europe. "Develop your future sustainably at Delta" is more than just a slogan, it also reiterates Delta's core business philosophy, sustainability, and encourages everyone to pursue constant innovation and continuous learning, as well as to work with the goal of helping others to develop a more sustainable and better future!

Having joined Delta in 1995 and having served in various positions including Chief of HR in Delta China and Chief of HR in Delta SEA, Chen shares his thoughts and feedback over the years, "Always strive to revolutionize your own mindset and to never give up." Do not fret in the face of adversity at work, maintain sensitivity and passion, and step-by-step, you can build your own path by constantly pursuing a better version of yourself!



# From product to solution: Delta's smart streetlight service lights up the path to a smart city landscape

Text by BABG

The concept of a smart city is to use tools including the Internet of Things (IoT), artificial intelligence (AI), and cloud computing to effectively interact with facilities and systems such as transportation, waterways, power facilities, and buildings in the city. Ultimately, these interactions will enhance the effectiveness of the government and improve the quality of life for the city's residents (Note 1). With rapid technical advancements, the progress of developing a smart city has also become a key indicator of an international city's competitiveness. How to build the infrastructure of a smart city, and to connect various devices and systems and to form a platform that facilitates urban planning, decision-making, monitoring, and management, all present challenges to the planning units' integrative skills.

Smart streetlights have always been crucial to developing a smart city. Starting from LED lighting products a decade ago, Delta slowly but surely developed LED smart streetlight projects and simultaneously built project management team, connected the lights with Delta's other projects (e.g., charters and video cameras), and integrated the lights with external resources such as software platform and regional maintenance to build a strong ecosystem. On top of providing lighting and surveillance management services for specific sites for public and private sectors, we can also customize city-specific smart streetlight solutions. Going from products, systems, to developing solutions, this process also mirrors Delta's evolution from OEM, ODM, to proving comprehensive, total solutions.





## IoT SMART SOLUTIONS

From 2012 to 2018, Delta's LED streetlight products have gradually been adopted in 16 counties and cities throughout Taiwan, even including offshore islands including Penghu, Kinmen, and Mazu. Delivery, installation, and warranty for more than 300,000 streetlights have been conducted, creating more than NT\$2.2 billion in revenue.

With the emergence of the smart city topic, cities are planning to replace LED streetlights with LED smart streetlights (controlled through telecommunications protocols such as NBIoT) one by one. Additionally, they are also planning to integrate traffic signals and roadside surveillance systems with street light poles. The creation of smart street light poles has become the best carrier of information connectivity and transmission in a smart city. By seizing this trend, Delta has acquired the urban and street-light optimization projects for Kaohsiung, New Taipei City, and Tainan since 2020 through utilizing solid product strengths. Cumulatively, Delta has installed 228,000 LED smart streetlights/smart street light poles, thereby building the first phase of an intricate smart city infrastructure and network.

"From replacing traditional streetlights with LED streetlights in the early days, to planning smart street-light management platform and developing smart streetlight solutions that can be integrated with various detection, sign, display, and warning devices, these are the results that Delta's project teams have built after diligently developing this vertical market for many years," said Senior Manager Jay Su from Building Automation BU with confidence.



Traffic signs, street lights, surveillance cameras and traffic flow detectors have been integrated into smart streetlights on Zhongxiao East Road in Taipei City, and a management platform has been planned to provide diverse smart services



By integrating air quality and environmental surveillance, traffic flow identification and video conferencing technologies with smart streetlights in the area, the Danhai Light Rail has successfully upgraded the smart city management at Tamshui

"From nobody to somebody." On top of smart streetlights, Delta's teams have also worked toward developing various smart city applications. In particular, Delta was awarded turnkey contracts for New Taipei City (6-year in Phase 1 and 10-year in Phase 2) and an 8-year Private Finance Initiative contract for Kaohsiung City cumulatively valued at NT\$3.25 billion in recent years. "These results indicate that we have evolved to a stage of utilizing the know-how for solutions to create management value, thus achieving the three-stage (production-construction-maintenance) value optimization in vertical integration. This allows customers (government finance), city landscape, and users (pedestrian safety) to achieve maximized benefits."



## IoT SMART SOLUTIONS

What are Delta's secrets that allow its lean management to be entrusted with so many large-scale projects, and to win the favors of customers and judges in tender cases? Upon careful observations, here are its tricks of the trade:

**Practical project management:** different from other listed companies that outsource their tender cases to contractors using simple project management tools, Delta's teams appoint dedicated, experienced Project Managers (PJM) to be truly engaged in project executions. The PJM directly communicate with customers and the public while simultaneously undertaking proper contractor management. Though the process is daunting, but it also enabled Delta to rapidly accumulate hands-on experiences and to accomplish all projects on time.

**Control core technologies:** To provide the latest and most suitable solutions to customers and to satisfy the customers' requirements for product continuation and device extensions in the long-run (8 years or more), all Delta product solutions and software management platforms are developed and integrated in-house.

**Solid contractor network:** since the teams are highly engaged in the projects, they are also fully aware of the local vendors' execution skills; therefore, Delta's teams always source for local quality partners when undertaking new projects to achieve co-prosperity and growth. Besides ensuring the quality in project executions, this also demonstrates the solid service network that Delta's teams are gradually building in its ecosystem.

**Professional reputation:** From illumination simulations, onsite project management, device connectivity, to software platform design, Delta's teams have accumulated years of experience and positive, professional reputation from collaborating with customers and local partners. Hence, not only do customers see Delta as a contractor, but Delta has also gradually become their most trusted consultant. From designing project specifications, planning operations and maintenance, to interface management, Delta provides optimized and the most reliable advice to customers.

For the New Taipei City PFI project, streetlights were used as carriers for flood detectors to achieve real-time surveillance on regional flood status. Information is integrated into the smart flood prevention platform, and timely warnings are issued for flooding hotspots to protect the people's safety. For the Shuinan Economic and Trade Park, chargers and weather station functions are also added to the street light poles, which are also installed with traffic signal lights and guided push notifications. Besides achieving positive performance throughout Taiwan, Delta's smart streetlight solutions have also penetrated the Southeast Asian market (e.g. smart streetlights in Jakarta and Bangkok). Going forward, Delta will continue to work diligently to realize the ideal of smart city concept for the world.



Founded on the concept of "ecological industrial park", the Shuinan Economic and Trade Park in Taichung has realized a low carbon, innovative and smart lifestyle and became a benchmark for smart city throughout Taiwan



Delta's smart streetlight brand has reached the international community and facilitated Jakarta to plan its smart city roadmap

Note 1: Source: IBM Smarter Planet

Note 2: Refers to services funded, constructed and operated by the private sector, of which the government has committed to long-term purchases

New Taipei City: replacement, operation & maintenance of 92,000 lights

Kaohsiung: replacement of 100,000 lights and operation & maintenance of 120,000 lights

Tainan: replacement, operation & maintenance of 26,000 lights



## From reduction to resource cycling: Delta realizes Zero-Waste production and builds a circular economy value chain

Text by Corporate Sustainable Development Office

Circular economy is a popular keyword in today's society. Namely, it refers to economic benefits created from continuous resource cycling, and the volume and processing of waste have thus become key indicators. As an industry leader in sustainability, Delta has set a goal to reduce waste intensity by 15% in 2020 and immediately began proactive actions including source reduction, enhancing resource cycling rate, and promoting closed-loop recycling. By integrating and linking suppliers throughout the value chain, Delta has successfully driven its global value chain to jointly practice waste reduction and circular economy.

UL 2799 Zero Waste to Landfill certification is an important indicator in circular economy; the scope of this standard encompasses all waste flow throughout the plant. A company may only be certified by undertaking compliance management, inspection, and audit to confirm that overall resource conversion rate has reached 90% or above upon waste conversion processes including waste reduction, reuse, and energy consumption. The level of the certification is classified as Silver grade for 90-94% conversion rate, Gold for 95-99%, and Platinum for 100% conversion rate. With the collective effort from all employees, Delta's Dongguan and Wujiang plants have achieved UL 2799 Zero Waste to Landfill Platinum certification in 2020 and 2021, respectively.



**VALIDATED**

• DELTA (DONGGUAN) HAS ACHIEVED ZERO WASTE TO LANDFILL PLATINUM OPERATIONS, 100% DIVERSION, WITH 4% THERMAL PROCESSING WITH ENERGY RECOVERY  
[UL.COM/ECV](http://UL.COM/ECV)

UL 2799A

**PLATINUM**

In 2020, Delta's Dongguan Plant has obtained the UL 2799 Zero Waste to Landfill Platinum certification, and further reduced incineration energy recovery by 4% in this year, achieving "100% waste conversion rate including 4% incineration energy recovery"



## Dongguan plant took the lead to achieve 100% waste conversion to realize Zero Waste

Delta's Dongguan plant mostly produces power supplies, switches, routers, and fans. It is a production facility that highly represents Delta's core philosophies. In 2020, Delta's Dongguan plant has obtained the UL 2799 Zero Waste to Landfill Platinum certification as it has achieved a "100% waste conversion rate including 8% incineration heat recovery." In this year, Dongguan plant further reduced its incineration heat recovery to 4%.

Such spectacular results cannot be achieved overnight; and initially, Dongguan plant had only set its sight on obtaining the Silver certification. The plant first began to plan preliminary tasks including process analyses and taking inventories of all waste flow in 2018, and after continuous efforts and overcoming various bumps along the way, the plant has finally achieved the Platinum certification, an honor that far exceeded their expectations.

This is achieved by the collective hard work from many staff across various departments. From procurement, production process to R&D, Delta's employees scrutinized over every detail including packaging design and shipping material to find all possible chances for material improvement or reuse. For instance, employees from material procurement intensely negotiated with suppliers to request for more durable plastic frames, so that they could be brought back and reused by the suppliers after material has been delivered to the plant. Additionally, the production processing staff swapped plastic trolleys with stainless steel ones in transporting raw materials in the production line to extend their useful lives.

In terms of reuse, the staff also actively synchronized with Delta's value chain including local suppliers, recycling companies, and raw material suppliers. For instance, scraps were recycled and remade into metal raw materials to achieve "urban mining" to minimize carbon footprint. Moreover, Dongguan plant also delivered waste cardboard boxes to suppliers, which were then used as product packaging, thus achieving closed-loop recycling for cardboard boxes.

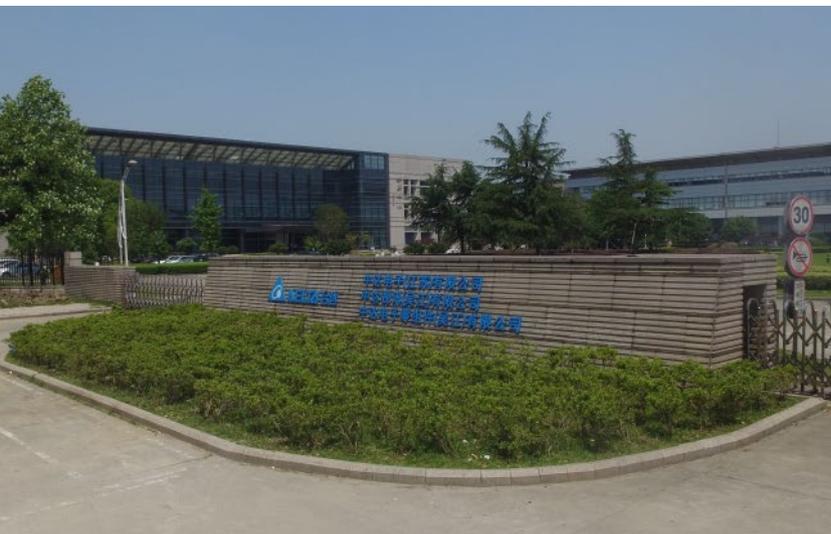
The 100% resource cycling achieved by Dongguan plant ultimately contained the following components: waste reused 33,423 tons (72.5%), waste reduced by 154 tons (0.3%), recycled 10,569 tons (22.9%), and incineration heat recovered by 1,951 tons (4.2%).



The plant recycled and delivered waste cardboard boxes to packaging suppliers, which were used as product packaging, thereby achieving closed-loop recycling for cardboard boxes

## Delta encourages waste reduction throughout global operations and value chain to achieve circular economy benefits in supply chain

Delta's waste reduction programs were launched across all plants under the Waste Reduction Management Committee. After implementing the UL 2799 Zero Waste to Landfill certification system in 2019, Dongguan plant has shared its waste conversion rate calculations and practices to all Delta operations across the globe. After learning from Dongguan plant's experiences, Wujiang plant has achieved the astonishing 100% waste conversion rate (including 7% incineration heat recovery) performance in 2021, as well as the UL 2799 Platinum certification.



After learning from Dongguan plant's experiences, Wujiang plant has achieved the astonishing 100% waste conversion rate (including 7% incineration heat recovery) performance in 2021, as well as the UL 2799 Platinum certification



Delta's plants collaborates with and shares waste conversion benefits with upstream suppliers. Image shows recycling and reusing waste pallets from the plants

Nevertheless, Delta's waste reduction actions are not only limited to China, but rather, plants in Thailand and Taiwan have also actively prepared for the zero waste targets in order to achieve Delta's ambitious global 100% conversion rate objective by 2025.

Furthermore, Delta has also shared its waste reduction practices to its global value chain. By 2020, it has cumulatively introduced 298 waste reduction projects, and has reduced approximately 80% or more of waste in 2020 alone by carrying out projects such as replacing cardboard boxes with plastic boxes, implementing closed-loop recycling, and reusing metal scraps. Concurrently, Delta has also collaborated with suppliers to improve delivery methods by recycling and reusing packaging materials such as EPE, papers, and pallets. Cumulatively, 9,510 tons of packaging raw materials were conserved in 2020, leading to approximately US\$3.65 million in saved costs and creating circular economy benefits in the supply chain.

## Zero waste is a major step toward circular economy and facilitates efforts for carbon neutral goals

As a sustainable citizen of the world, Delta spares no effort in waste reduction, emissions reduction, and circular economy whether from operational innovation to practicing sustainable actions in its plants. With the tireless effort from numerous employees, Delta's circular economy efforts have effectively reduced costs, material wastage, as well as lowered its external environmental costs in practice.

Going forward, Delta will rigorously implement various waste reduction and resource cycling projects, and will work toward the long-term sustainable goal of achieving carbon neutrality by 2030 through adhering to its business mission, "Smarter. Greener. Together".



## Delta in conjunction with Charge+Zone realized charging infrastructure in India

Text by Delta Electronics India

In line with India's vision of 100% e-mobility by 2030, the Gujarat State Government has designed and implemented the first e-bus project in India. This was in response to the key challenge of providing clean, economical and smooth transport. As a pioneering project in India, it had several challenges, including lack of charging infrastructure, installation, operation and maintenance of charging stations, high installation costs, etc. Delta offered its support by providing a comprehensive charging solution including high-capacity chargers, a software solution.

### Our Solution:

Delta Electronics India, in conjunction with our CPO partner, Charge+Zone, focused on developing country-wide charging infrastructure, has facilitated Ahmedabad Municipal Transport Service by providing a fleet of 11 high-capacity, i.e. 150kW DC Quick Chargers to charge e-buses supplied by Ashok Leyland. It was the first project of that time that stimulated the adoption of clean transport in India.

With Infra built by Delta, Ashok Leyland operates 40 e-buses in the city to connect key areas of the city. With the adoption of e-buses, it has made it easier for passengers to enjoy cleaner and more economical transport and has also helped to reduce carbon emissions.



Delta in conjunction with Charge+Zone realized charging infrastructure in India



## Delta partners with Rapac to install ultra-fast EV chargers in Israel

Text by EMEA

Delta announced a partnership with Rapac Communication & Infrastructure Ltd. - a leading corporation based in Israel - to install its 200kW ultra fast electric vehicle (EV) chargers UFC200 series in Israel. Under the terms of the partnership, Delta and Rapac have supplied Delta's UFC200 chargers to EV-EDGE, operator of the largest EV charging network in Israel, to support a growing number of EV drivers in Israel.

Amir Yerucham, Business Development Manager at Rapac said: "Delta's UFCs help to meet EV drivers' expectations of convenience and mobility as Israel makes the transition from ICE vehicles to EVs. Delta's proven track record in the power industry and EV charging business made it the ideal partner with whom to create a better future, for drivers and citizens alike."

Ronen Yablon, CEO at EV-Edge added: "EV-Edge is the largest charging network in Israel. It has the highest quality and most advanced solutions for the world of electric vehicles, from the best manufacturers of charging stations for electric vehicles in the world. By providing our EV drivers with access to the first Delta UFC to be installed in Israel, we are making an important contribution to the evolution of the EV charging infrastructure in Israel."

Commenting on the deployment, Vincent Lin, senior director of e-Mobility & Smart Energy Solutions business development, Delta EMEA, said: "Delta's competency in EV charging solutions complements Rapac's experience in energy. This best-of-breed approach unites our strengths in order to bring the next generation of UFCs to customers in Israel. Through our partnership with Rapac, we are very excited about unlocking the EV potential in this market."

Delta's solutions have been engineered to easily accommodate future changes such as site expansions, the addition of remote sites or changes in power supply capacity, while minimising energy costs in the event of a future supply upgrade.



Delta partners with Rapac to install ultra-fast EV chargers in Israel



## Delta creates Microsoft multimedia LED video wall—visualizing quality and value

Text by EISBG



Delta creates Microsoft multimedia LED video wall—visualizing quality and value

Taiwan's Microsoft Technology Center (MTC) is located in the heart of Taipei's Xinyi District, and is also at the forefront of global information technology. Delta's video wall solution, created for Microsoft Taiwan, was developed by setting up multiple LED modules into a total screen area of 7.296 x 1.368 m. The wall can be displayed in full-screen mode or segmented into three 16:9 screens, each with full HD resolution. With hardware such as an LED screen controller, matrix controller, playback server, and control panel, along with Delta's software platform, the wall can support various signal input sources for multimedia presentations.

The MPC features a multimedia video wall that has low-power consumption, long life expectancy, seamless bezels, a slim exterior, and a lightweight design. Energy-efficient and with an ultra-high resolution, this new mainstream display technology is suitable for large convention centers, museums, studios, cinemas, military spaces, public safety monitoring, traffic monitoring, and other applications. The groundbreaking design features:

- Pioneering 100% fan-less design that sports highly efficient cooling technology and is clean, light, and noiseless, making it especially suitable for long-term service in workplaces where people need to concentrate.
- Unique concealed wiring design that allows for wiring to be concealed and neatly attached to the case. This makes the design aesthetically pleasing and fully utilizes the body space to ensure flatness of the entire display, ensuring its thin body design increases the usable space indoors. The hidden handle design also makes it difficult to accumulate dust, is ergonomic, and is easy to install.
- 100% front service installation and maintenance: all parts can be disassembled from the front, and the modules can be removed in only three seconds by using the maintenance tool to remove the module, making it easy to maintain. The display body is thin and no maintenance channel is needed, which can maximize space efficiency and reduce refurbishment costs.
- Anti-ghosting design: adding a discharge loop design to the PCB design not only protects the LED from back-bias voltage and leakage, but also solves ghost, strip, and cross line issues.

De-Min Hu, General Manager of Microsoft Taiwan's Specialist Technology Division and Microsoft New Venture Accelerator, stated that the reason why Delta was approached to collaborate on for the video wall project was that Microsoft had already provided technical assistance when Delta was first building its smart production line. During this previous cooperation, Mr. Hu found that Delta's quality standards were extremely stringent, ensuring high confidence in their products. When Delta was contracted for the video wall project at the MPC, Mr. Hsu was deeply impressed by the rigor of the entire process, from planning and measurement to actual construction.



## Delta set a solid foundation for industrial robots

Text by IABG

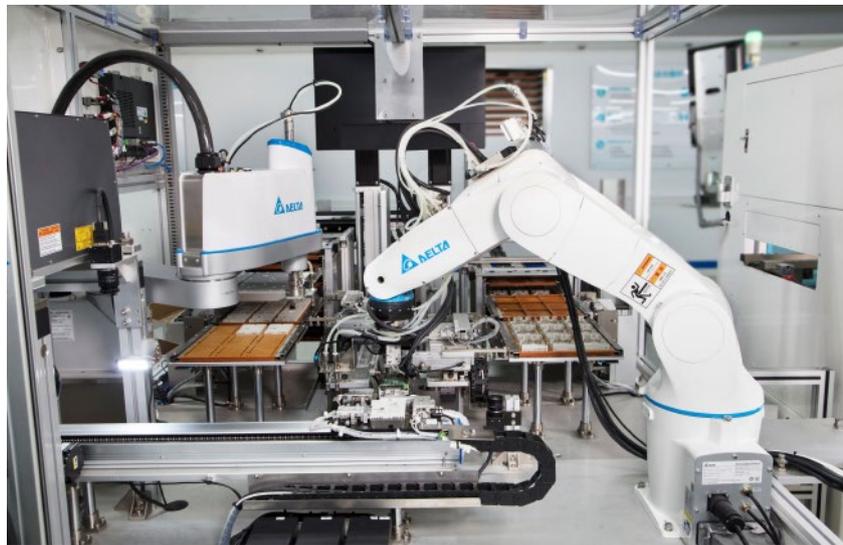
Due to changing population structures, global manufacturers are facing new labor shortage challenges. As industrial robots have been a critical solution and become the focus of many small and medium enterprises, Delta is excited that its industrial robot business has achieved a milestone since it scaled up in 2017. With the 4-year dedication, it finally hit the 10,000 sales mark and set a solid foundation for further market expansion.

Delta established its industrial robot team in 2012 to complete its industrial automation development from components to solutions. Back then, the market for 6-axis robots was very challenging for new players. To create opportunities, Delta leveraged its extensive experience in manufacturing with market observation. With changing demographics and the booming automation demands of 3C electronics and electronic engineering, Delta took 4-axis robots as its starting market segment. Pressing onward, Delta adopted its industrial robot products and built test fields to verify and improve the application technologies, such as pick-and-place, dispensing, and screw locking. In 2015, Delta finally launched its first SCARA robot and started to expand its customer and application fields from automotive components to 3C electronics.

Over time, Delta accumulated technologies and experience and entered the 6-axis robot market segment. By expanding its product portfolio, Delta enhanced the integration capability of industrial robots as the "last stop" of industrial automation solutions. Meanwhile, Delta took advantage of its high rate self-developed components, horizontal integration capability, and global service to overcome the bottlenecks of resources and development and quickly opened up the market's oligopoly structure. Delta's sales performance started to show strong momentum in 2018, with the average annual sales increasing about 70% over the previous year. On top of that, Delta was ranked as a top-selling industrial robot brand by China's leading industrial market research agencies, such as "MIR". It even surpassed many European and Japanese companies on the SCARA lists.

Entering 2021, Delta's industrial robot team has grown by nearly three times. With a sense of identity and spirit of solving customers' problems, the team has achieved multiple milestones. Besides the 10,000 sales mark, Delta has successfully acquired customers for lid and base packaging applications due to its well-recognized conveyor tracking solution and the integration of flying trigger technology with machine vision. Moreover, with FPC pick-and-place applications, many major machine makers in the industry have adopted Delta's industrial robots.

Looking to the future, the transformational wave brought by smart manufacturing is expected to increase the application demands for industrial robots. The prospects for the overall market is optimistic. According to the forecast of ITRI (Industrial Technology Research Institute), the estimated CAGR of 2021 to 2026 is 7.8%. For this booming trend, Delta will continuously improve its products and widen the application range to create the differentiation advantage of providing "one-stop" comprehensive industrial automation solutions. By applying its integration capabilities, Delta helps customers adopt industrial robots quickly and easily and accelerate the machine and information integration timeline. Delta will also build solid soft power to connect industrial automation systems through cloud services and industrial 4.0. As the result of better performance and industrial upgrades, Delta will join forces with customers to achieve the smart manufacturing vision of the future.



Delta focuses on providing "one-stop" comprehensive industrial automation solutions



## Delta's accelerate intelligence-driven manufacturing solution advances industrial 4.0

Text by Delta Research Center



The Transformable Intelligent Machine combines Predictive Maintenance to effectively improve the quality of machine operation, reduce downtime, and optimize productivity

AI took the spotlight as the most-discussed topic at the COMPUTEX 2021 Forum. Delta was invited to participate in the online forum to share its views and experiences on AI empowerment in the manufacturing industry.

Dr. Steven Chen from Delta Research Center (DRC) pointed out in the forum that the manufacturing industry has been facing frequent changes in demands and the environment in recent years. These changes span from diverse demand to global supply chain restructuring. The rise of the circular economy and destructive technologies are now driving manufacturers to innovate in order to stay competitive. One of the keys to innovation is to improve the degree of "Manufacturing on Demand." From machines, production lines, factory plants, to the entire company, all need to possess the ability to change.

For the most fundamental and critical element—machines, DRC proposed the Transformable Intelligent Machine (TIM) which allows machines to become transformable according to specific needs and can be quickly intelligentized. The machine design is built based on standardized, modularized, and intelligent features. In addition to adjusting to diverse needs and transforming machine functions to enhance manufacturing flexibility, the intelligent PC-based control system supports common programming languages, simplifying the work of data scientists and software engineers when importing and updating AI-related applications, and further accelerating the process of AI-empowered manufacturing.

Based on transformable intelligent machines, popular AI applications for image recognition technology such as Auto Optical Inspection and Auto Defect Classification, and others like Predictive Maintenance and Digital Twin, can be rapidly deployed and modified as algorithms and technologies evolve, allowing for more responsive manufacturing.

Using Predictive Maintenance as an example, through the sensors installed on a robot arm and combined with TIM's PC-based intelligent control system that conducts dynamic analysis with an AI model, real-time detection of equipment status and the estimation of aging status for key components can be achieved. Machine motion control can also be adjusted in response to abnormalities as early as possible. The accuracy rate of recognition is as high as 96.7-99.7%, which not only effectively improves machine operation but also optimizes the quality of machine operation. By planning and adjusting the manufacturing schedule and maintenance schedule in advance, downtime can be shortened and production capacity optimized.



Watch the full Delta Forum video at:  
<https://www.youtube.com/watch?v=U4TnV0LAeSg>



## New "medi-care" high-end healthcare enabled by Delta's building automation solution

Text by Delta GreenTech China

A key project of the Jiangsu Province, Changzhou Maoshan Jiangnan Hospital is a new institution that has incorporated medical treatment with healthcare services. This hospital has chosen Delta's LOYTEC for its health and smart building management solution, and Delta strives to realize smart management to enhance its operations and maintenance efficiency.



Delta's LOYTEC has assisted Jiangnan Hospital to build a healthy and comfortable environment

Delta's LOYTEC building management and control system adopts a comprehensive IP-based IoT (the Internet of Things) management platform. It is compatible with various building communication protocols, and facilitates the access of various subsystems. For this project, the system adopts unified platform management for large-scale electronics and machinery including cooling and heating systems, heating ventilation and air conditioning systems, air purification systems, water supply and drainage systems, and elevator systems. Uninterrupted 24/7 operations are ensured through instant surveillance over the status and operating parameters of each equipment. In addition, to meet the hospital's environmental protection needs, data is provided to the hospital's overall energy-saving strategies to help it optimize energy use and to reduce energy consumption. The open framework allows seamless connections with the management systems of the hospital's vendors, thereby facilitating smart management and maintenance and enhancing operational efficiency.

The Changzhou Maoshan Jiangnan Hospital has set up five centers, including Internal Medicine and Health Center, Surgery and Rehabilitation Center, Anti-Aging Beauty Center, Physical Examination Center, and Outpatient Center. The five centers all have distinctive environmental needs. Hence, Delta's LOYTEC building management system has set up separate control models for each section, allowing managers to adopt management and control measures as needed. At the same time, smart, energy-saving algorithms have been built into each section to realize automated energy management.

One of Delta's LOYTEC smart building solution's key features aimed to satisfy customer needs is its ability to integrate separate, individual systems on one uniform platform while retaining the unique settings of each system. This is particularly suitable for settings with more rigorous environmental requirements, such as the case with Changzhou Maoshan Jiangnan Hospital. As China continues to develop its senior healthcare industry, senior communities that integrate residence, healthcare and living functions will be more widely accepted by more governments. Delta will also strive to provide more smart solutions for the senior healthcare industry and to help the government's industry goal for "providing care and comfort to the elderly".



## Delta safeguards safety of international airport with Ultron NT UPS system

Text by Delta GreenTech China

Delta's Ultron NT series Uninterrupted Power System (UPS) is used in critical loading of a certain international airport in the northwest phase 3 expansion project, including substations for central, north, and south flight areas as well as surveillance equipment for lights, so as to ensure the lighting safety of the flight area.

Considering that power use safety is critical to the flight areas, the users have specified clear needs for the UPS system, which include the following:

- During interruption of the city's power supply from power outage or other faults, the critical equipment of substations, transformers, and lighting stations need to continue operations before the power generator initiates.
- The loading of the lighting stations is complex and scattered, which has an impact on the front-end power supply, and the UPS needs to be able to cope with such load impact.



Delta uses the Ultron NT series UPS to ensure the lighting safety at the flight area

Relying on years of airport experiences, Delta has provided a total of 18 Ultron NT series UPS sets for the Phase 3 expansion project. Stand-alone systems are configured for each area, and the backup time is set to provide power based on different application scenarios. The advantages of the solution include:

- A small and centralized power supply method is adopted for each area, which solves the scattered loading and remote power supply problems at the flight zones while ensuring the safety of power supply to the equipment at substations, transformers, and lighting stations;
- The Ultron NT series UPS is an industrial frequency transformer and has enhanced anti-shock capability. By aligning the UPS system to front-end power quality equipment, not only can we protect the back-end power load, but also reduce the impact of the load on the front-end power distribution circuit.

On top of the aforementioned advantages, products in the Ultron NT series also allow users to set input/output rated voltage based on the application environment, and their N+X joint connection redundancy or system expansion can ensure the stability and reliability of its critical power load. The Ultron NT series UPS can continue to provide protection for equipment operations even in a scenario with 100% unbalanced load. It is not only cost-effective, but its reliable and high density design have also made it the ideal choice for safeguarding the power use safety of critical equipment and offers high-standard protection to airport applications.



## Delta assists the fight against COVID-19 by donating UV disinfection cabins

Text by Corporate Communication Division

As Tokyo 2020 Olympics approaches, Delta has donated a U+ antibacterial chamber worth NT\$1.5 million to provide safer training grounds for our national athletes. When placed in front of a restaurant, the chamber can kill off 81% of COVID-19 virus on the surface within 5 seconds. Female archer Lei Chien-Ying commented that the chamber makes thorough disinfection a breeze.

After visiting key hospitals in Taipei City, New Taipei City, Taoyuan, and Hsinchu and understanding their needs, Delta Electronics donated and installed ten ultraviolet U+ UV disinfection cabins at outpatient clinics, emergency rooms, critical care units, or major entrances within the hospitals. It takes only 5 seconds of irradiation to eliminate 81% of the COVID-19 virus on the surface of anything or anyone who passes through the cabin. We hope this can provide healthcare professionals and the public with a safe, convenient, and effective way to disinfect.

The donation recipients include Taipei City Hospital's three branches (Zhongxing Branch, Renai Branch, and Heping Branch), Tri-Service General Hospital, Taipei Medical University Hospital, MacKay Memorial Hospital, New Taipei City Hospital's Sanzhong Branch, Far Eastern Memorial Hospital, Ministry of Health and Welfare Taoyuan General Hospital's Sinwu Branch, and Hsinchu NTU Hospital's Biomedical Hospital.

Delta's U+ UV disinfection cabins were launched in May and have garnered much attention. Nearly 50 units have been installed throughout Taiwan. In addition to the 12 disinfection cabins donated to hospitals, they have also been installed in locations such as financial and technology office buildings, factories, and the National Sports Training Center in Zuoying, assisting different industries to fight the virus together. Easy to install, and easy to use, the UV disinfection cabins can provide fast, contactless, and efficient inhibition service in key access points or key disinfection areas.



Delta assists the fight against COVID-19 by donating UV disinfection cabins

## Delta Thailand CSR campaign offers donation to local hospitals

Text by Delta Electronics (Thailand)

With the slogan "Plant a Seed of Hope", the Delta Group 50 Year Anniversary CSR campaign invited the public to participate in a special green CSR campaign that uplifts the local community. Participants could donate any amount to get an organic tree-planting kit, and Delta pledged to double the amount for a combined donation to local hospitals.

In April, Delta celebrated the 50th anniversary of its parent company, Delta Electronics, Inc., with a one-week gala for friends and partners in Thailand's government agencies, leading companies, and institutions at Siam Paragon, Bangkok. In addition to the launch of Delta's 8K laser projector, the event also highlighted Delta's long-term commitment to sustainability and environmental protection through the company's sustainable development strategy and green solutions.

Guests and the public visiting Delta's event showcase contributed 10,000 Baht in total to the above CSR campaign. Delta exceeded its pledge to double donations received and donated 100,000 Baht from its side to bring the total sum to 110,000 Baht.

As a sustainable company in Thailand, Delta commits to global corporate citizenship and local community building. Delta donated protective face shields for frontline medical personnel and offers funds regularly to the Samutprakan Hospital for COVID-19 protective equipment.



Delta Thailand CSR campaign offers donation to local hospitals



## Delta's video solutions illuminate Flower Expo

Text by Delta Public Affairs (Shanghai)



Children visiting the Taiwan Pavilion of the Flower Expo were deeply attracted by the projection effect

The 10th China Flower Expo (Flower Expo) was recently held in Chongming, Shanghai, and showcased the theme: "Blossom with the Chinese Dream." The Taiwan Garden and Pavilion exhibition opened on May 22nd. Themed "Blossoms across the Taiwan Strait, One Heart, One Dream" the exhibition showcases the integration of floral beauty and digital technology. Delta supported the pavilion with video solutions that integrated Delta's projector brand—VIVITEK to provide high-definition professional engineering projectors. Using advanced projection technology, rich and exquisite images were displayed. Combined with installation art and interactive designs, the exhibition offered an immersive aesthetic experience for visitors, with over 10 thousand visits per day.

Visitors will come upon the "Vivid Dreams - Secret Forest" scene when walking into the pavilion, immersing themselves in a stroll through a forest of trees and streams interweaved with light and shadow. The VIVITEK RU43723 laser projector is equipped with a laser light source that provides colors more vivid and vibrant than traditional bulb-based projectors. With 5,500 lumens of brightness combined with 1,920\*1,200 ultra-high-definition and 20,000:1 high contrast ratio, the projector projects dynamic images on the tree partitions. In the second scene, "Playful Dreams - Butterfly Dance," four VIVITEK DU9000 professional projectors with a brightness of 11,500 lumens are used to project images on the ground, creating a spectacular 3D effect of "blossoming flowers and butterflies." Visitors can walk into a magical valley created through the artistic fusion of sound, light, and electricity, combined with the projections on the walls. The third scene is "Building Dreams - Fulfilling Dreams with One Heart." A unique "technological sky lantern" was created by the VIVITEK laser projector which projects complex image combinations on multiple surfaces of the sky lantern. The images are created through software fusion and projected diagonally from above, allowing visitors to view the sky lantern at a close distance without blocking the projections. Visitors came before the colorfully decorated floral sky lantern to wish for "Blossoms across the Taiwan Strait, One Heart, One Dream."



## Delta mobile power brand Innergie launches eco-friendly campaign in Thailand to combat e-waste

Text by Delta Electronics (Thailand)

The new Innergie Trade-In Campaign offers the best way for customers to properly dispose of unused/defective adapters. Participants can simply bring unused/defective adapters to get a discount of up to 500 THB for the Innergie One For All Power Adapter at .life and iStudio by Copperwired.

Innergie' s campaign also supports customers who shop consciously by offering a One For All series adapter that can be used for every device including laptops, tablets, phones. Innergie enables users to meet all their charging needs with just one high-quality adapter.

Innergie is committed to protecting the earth with our customers and stakeholders. According to Pollution Control Department, the amount of e-waste in Thailand is estimated to be more than 400,000 tons every year and this figure is predicted to increase exponentially every year.

The improper disposal of electronic products or "e-waste" causes damage to the environment because electronic equipment contains toxic contaminants that leave a harmful footprint in our water, land air and even in human bodies.

In the digital era, many users have multiple mobile devices with different types of chargers. Innergie develops multi-purpose chargers with flexible power ranges to reduce the number of chargers customers use.

Choosing the right adapter with Innergie saves users money, space and protects the planet. Innergie works together with customers to deliver on the Delta brand promise: "Smarter. Greener. Together."

More information about this campaign. Please visit: <https://th.myinnergie.com/tradein-en>



Delta mobile power brand Innergie launches eco-friendly campaign in Thailand to combat e-waste



## Delta wins the 17th UPS Customer Satisfaction Survey Award

Text by Delta GreenTech China

The 17th Technology Summit for UPS Power Supply System and Infrastructure & Announcement for User Satisfaction Survey Results jointly organized by China Computer Users Association, Beijing Institute of Electronics, China Green Data Center Advancing Federation, Data Center Construction+ Magazine, and National IDC Industrial technological Innovation Strategic Alliance (NIISA) were recently unveiled in Beijing. With its globally renowned brand value and technological strengths, Delta won both the "Brand Satisfaction" and "Technology Innovation" honors for 2020 and was also awarded the "Customer Brand Satisfaction for Ten Consecutive Years" special award by the organizing committee.

The organizing committee of the event stated that Delta has always been the leader in promoting energy-saving and green concepts, actively innovating and constantly introducing new solutions that are in line with recent trends. The fact that Delta has been awarded the "Customer Brand Satisfaction for Ten Consecutive Years" special award reflects the recognition and affirmation of Delta's brand, technology, and products by industry users. We hope Delta will continue to lead the industry and provide more green, energy-saving, and low-carbon products and solutions to users.

Delta is committed to providing enterprises with highly energy-efficient and reliable key infrastructure solutions. Focusing on performance and power management core technologies, Delta develops a series of data center infrastructure solutions and power management products to ensure the continuity of key operations and optimize cost efficiency, supporting enterprises to continuously enhance their competitive edge in the competitive business environment.

The 5G digital era has brought about trends such as a massive increase in demand for data center infrastructures, server densification, and cloud-based deployment of communication equipment. In response to these trends, Delta has introduced different solutions for high-voltage DC, high-frequency and high-power tower UPS, modular UPS, and micro-module data centers to meet the demand for "large bandwidth, low latency, and wide connectivity" for 5G businesses, thus improving efficiency, reducing total investment costs, and helping achieve green and low-carbon goals. This award reflects high recognition from the industry and the organizing committee. In the future, Delta will continue to uphold its business mission of "environmental protection, energy-saving, and love for the earth" and work with more industries for common development and future together.



Delta wins the 17th UPS Customer Satisfaction Survey Award



## 9 slots 3000W configurable power supply

Text by Delta Electronics (Thailand)

Delta's newest 3000W output power supply to the MEG-A Configurable Series. The MEG-3K0A9's power density is up to 27W/in<sup>3</sup> in 7" x 10" x 1.59" package with a total output of 3,000W up to 18 isolated outputs. Each individual output can be configured between 2Vdc – 60Vdc, output current up to 45A with single slot single output module, up to 100A with a triple slot single output module. Features included current sharing, PC GUI for easy parameter setting and monitoring, and intelligent fan speed control. Communication adapter can convert PMBus to USB, RS232 or RS485 interface and also available for 3 input connector options; EU terminal, US terminal and C22.

Major approvals include IEC/EN/CSA 60601-1 (Medical) and IEC/EN/UL/CSA 62368-1 (ITE). The MEG-3K0A9 series is certified for EMC standards EN 55011 for industrial, scientific and medical (ISM) radio-frequency equipment, and EN 55032 for Industrial Technology Equipment (ITE) radio-frequency equipment. Full compliance with RoHS Directive for environmental protection.



9 Slots 3000W Configurable Power Supply

### Highlights & Features

- Up to 3000W in 7" x 10" x 1.59" Package
- Up to 27W/inch<sup>3</sup> Power Density
- Full Power up to 50°C Ambient
- 9 Slots Modules Configurable
- 2xMOPP Isolation for Medical Application
- Output selectable from 2V to 60V
- Current sharing
- Class B Conducted and Radiated EMI
- IEC 60601-1-2 4th edition immunity compliance
- Normal and Reversed Option for Global Remote On/Off & Air Flow Direction without power de-rating
- Analog and Digital Voltage Trimming
- PMBus Ver 1.3 Supported
- Intelligent Fan Speed Control
- Optional RS485/RS232/USB Communication Adapters
- PC GUI for easy parameter setting and monitoring



## World environment day, cycle and plant trees together!

Text by EMEA

Personal health and climate change are equally important to all of us. As individuals and as global citizens, is it possible that together we can make a difference that will benefit us all? It is. Here's how we are making difference.

Delta's EMEA marketing team recently introduced an employee-only initiative: Let's cycle and plant trees together. To honour the environment, to strengthen team spirit and benefit our health, we have been cycling since World Environment Day on 5th June. For every 10 kilometers cycled, we will plant a tree in Uganda! In doing so, we want to help restore the ecosystem there to what it used to be and, at the same time, help fellow humans in Uganda benefit from a better quality of life.

You are probably wondering how the initiative is going. Well, one week in, we have already cycled hundreds of kilometers, meaning that tens of trees have been planted. While that's great news, we know that there are many hidden athletes among us, so start cycling in order to plant your tree! You can read more [HERE](#)



### Last Week's Leaderboard

Rank	Athlete	Distance	Rides
1	Andreas Wetterer	473.3 km	10
2	Paolo Cimatti	328.4 km	4
3	Riccardo Reato	166.2 km	4
4	Sjaak Van Der Meij	164.2 km	4
5	Patriok WU	157.8 km	5
6	Jiri Koutensky	138.9 km	4
7	Rob van de Ven	76.4 km	2
8	Michael Schmidt	71.7 km	3
9	Andreas Grewing	69.6 km	3
10	Dirk Vermeulen	61.5 km	1

World environment day, cycle and plant trees together!



## 2020 has been a banner year in electric vehicle sales

Text by Delta Electronics Foundation

According to the "Global EV Outlook 2021" issued by the International Energy Agency (IEA), the number of electric vehicles (including hybrid electric vehicles but excluding motorcycles) reached 10 million worldwide in 2020, a 40% increase for a second consecutive year, and accounting for 1% of all four-wheel drive vehicles. The number of electric vans, buses, and heavy trucks worldwide reached 400,000, 600,000, and 31,000 respectively.

Despite the COVID-19 pandemic, approximately 3 million electric vehicles were sold globally last year, a YoY increase of 41%. The number accounted for 4.6% of new cars sold in 2020 compared with 3% in 2019. Electric cars in No. 1 Norway reached a record high sales share of 75%. One of the reasons may be the government incentives rolled out in Europe and China, where the ban on the sale of fuel vehicles has accelerated the introduction of new models by automakers; in addition, the continued decline in battery costs is another reason.





### For the first time, Europe overtook China as the biggest EV market last year

2020 is the target year for EU CO<sub>2</sub> emission standards, which limit the average carbon emissions per kilometer of new vehicles to 95 grams and below. As the governments in Europe strongly advocated manufacturing low-carbon electric vehicles and rolled out more and more subsidy schemes, the number of EVs sold in Europe ballooned to a new high of 2.1 million in 2020.

Apart from the sales volume, major automakers successively rolled out new electric vehicle models in 2020, which totaled 370 worldwide, a 40% increase from 2019. The driving range of electric vehicles started to plateau. In 2020, the weighted average range for a new battery electric vehicle (BEV) was about 350 kilometers, up from 200 kilometers in 2015. The average driving range of a plug-in hybrid electric vehicle (PHEV) remained relatively constant at about 50 kilometers.

### Automakers were committed to increasing EV sales volume

Last year, notably 18 of the 20 largest automakers announced intentions to increase the number of available models and boost production of electric light-duty vehicles (LDVs). Some automakers plan to reconfigure their product lines to produce only electric vehicles; Ford will focus on electric car sales in Europe from 2026 and only sell electric cars from 2030; Volvo will only sell electric cars from 2030; General Motors plans to offer only electric LDVs by 2035.

The announcements by these automakers translate to the estimated cumulative sales of electric LDVs of 55-72 million by 2025. In the short run (2021~2022), the estimated cumulative sales volume is quite consistent with the projection of electric LDVs in the IEA's stated policies scenario. By 2025, the estimated cumulative sales volume is aligned with the trajectory of the IEA's sustainable development scenario.

### Battery production lagged behind EV sales; Europe saw the highest rise in demand

Demand for supporting measures has risen with an increase in EV sales. First, let's take a look at the battery. The automotive lithium-ion battery production was 160 gigawatt-hours (GWh) in 2020, up one-third from 2019. In Europe, demand for batteries last year exceeded the domestic production capacity. Battery production continued to be dominated by China, accounting for over 70% of the global battery production capacity. Lithium-iron-phosphate batteries regained sales share but remained under 4% in the EV market.

Mass production means the continued decline in battery costs. According to the BNEF's yearly survey of battery prices, the weighted average cost of automotive batteries in 2020 dropped by 13% from 2019, reaching US\$137/kWh.

As to chargers, publicly accessible chargers, including slow and fast chargers, reached 1.3 million units worldwide in 2020. The installation of publicly accessible chargers has increased sevenfold in the last five years. Due to the COVID-19 pandemic, most European countries failed to meet the recommended electric vehicle supply equipment (EVSE) target in 2020. Member states were recommended to aim for 1 public charger per 10 EVs, a ratio of 0.1 in 2020.

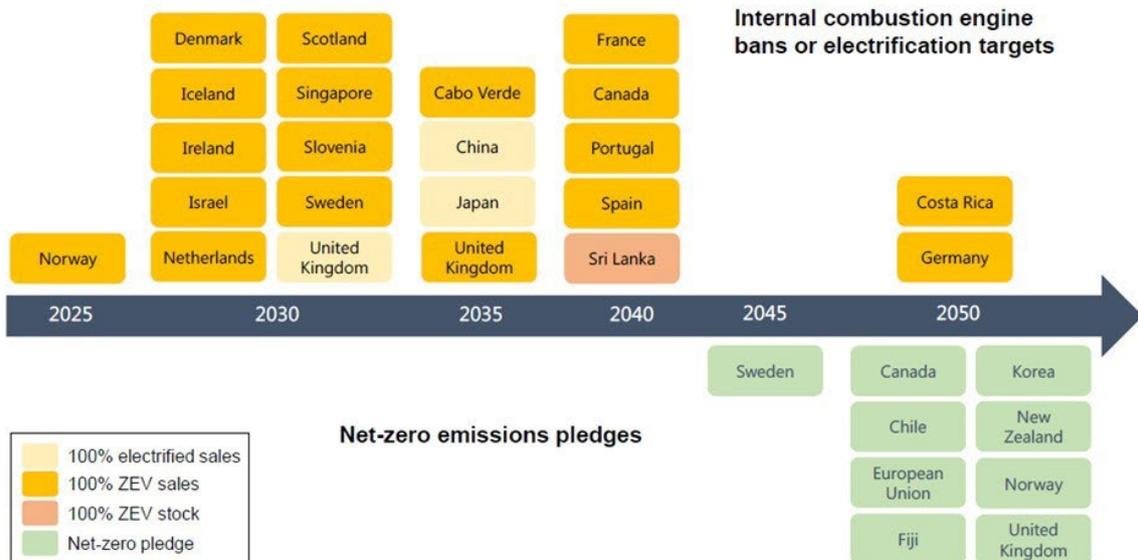


## The number of electric vehicles is estimated to be 145~230 million in 2030

In the report, the IEA predicts the future development of electric vehicles in two scenarios. In the stated policies scenario, the total number of four-wheel drive electric vehicles across the globe will increase from over 11 million in 2020 to almost 145 million by 2030, an annual average growth rate of nearly 30%. In this scenario, EVs will account for 7% of the road vehicle fleet by 2030. The EV sales volume will reach nearly 15 million in 2025 and over 25 million in 2030, representing 10% and 15% of all road vehicle sales respectively.

To be aligned with the trajectory of the sustainable development scenario, the road electric vehicle sales volume should reach 230 million worldwide by 2030. As a result, it is imperative for countries all over the world to roll out more incentives. Taking the EU's carbon emission standards for example, the EU's next goal is to reduce emissions by 15% in 2025 from 2021 and by 37.5% in 2030. Some regions (e.g., California over the decades and China since 2017) have set mandatory targets for EV sales.

Regulatory measures should be carried out continuously and extensively in the future. These regulatory measures include the EU's carbon emission standards for cars and trucks, China's new energy vehicle (NEV) policy or California's zero-emission vehicle (ZEV) mandates. Many countries and regions have successively put a ban on the sale of fuel vehicles and given a zero-emission pledge, hoping to oil the wheels. The prospects of the electric vehicle industry are brightening in the next 30 years as EVs can reduce carbon emissions and develop a new economy.



資料來源: IEA Global EV Outlook 2021

Ban on the Sale of Fuel Vehicles and Zero-emission Pledges in Countries across the Globe (Figure: Global EV Outlook 2021)

