



Delta Mission Critical Infrastructure Solutions BU helps NCCU build a green data center

SPECIAL REPORT /
Delta Mission Critical
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green data center

ABOUT DSM /
Smart manufacturing for
enterprises: Evolve
continuously and focus
on core concepts

PEOPLE & PRODUCT /
Strive for change,
and pursue the best

BRAND CIRCLE /
Delta Electronics Foundation
launches "Green BIM"
to enhance conservation
of energy

FROM THE EDITOR

SPECIAL REPORT

- 02 Delta Mission Critical Infrastructure Solutions BU helps NCCU build a green data center

BRAND PEOPLE

- 05 Staying ahead of the trends through change
An interview with Andy Liu, General Manager of IABG

ABOUT DSM

- 08 Smart manufacturing for enterprises: Evolve continuously and focus on core concepts

BRAND CIRCLE

- 13 Delta Electronics Foundation launches "Green BIM" to enhance conservation of energy
14 Delta showcases its power management, infrastructure and automation at Elecrama 2018
15 Delta's brightest video walls at Lucknow Metro MRTS
16 Delta creates 3D light-sculpting show in Kaohsiung
16 Delta distributed laser DLP assisted with smart production for a petrochemical corporation
17 Application of Delta multi-axis motion controller DVP-15MC series on automobile assembly line
17 Delta SCARA robot applies to precision stamping press feeding and blanking processes
18 Delta smart production line demo smart manufacturing at Hannover Messe 2018
18 Delta shares innovative packaging industry production equipment upgrade solution at Sino-Pack 2018
19 Delta sets up research centers with NCKU, NTHU, and NCU
19 Delta's micro-modular data center assists with IT development for a coal business
20 Achieve more together at ISE 2018 with Vivitek and Delta display solutions combining forces
20 Vivitek at BETT 2018
21 Delta Premiers Integrated Building Automation with an IoT-Concept Lighting Solution at Light+Building 2018 Frankfurt
22 "Embrace Love, Embrace Future" - Delta joins the winter camp for pearl university students
22 Delta's 2016 CSR report rated world's top 25 by Baruch College, City University of New York
23 Delta Electronics Thailand wins RobecoSAM Sustainability Award 2018
23 Delta named as Automation Worlds "First Team" honoree in VFD and PLC
24 Delta articulated robot DRV series wins the iF design award
24 Delta wins two awards in motion control for outstanding market performance in 2017
25 Delta DMV series wins "Robot Core Component Product Award"
25 As announced for 2017 China IT Billboard, Delta N Series 6-10kVA UPS made an honorable entry
26 Delta DVP wins Technology Innovation Award
26 Delta volunteer project for energy education was awarded "Top-Ten Most Beautiful Youth Volunteer Service Project" for Pudong New District in 2016-2017

PEOPLE & PRODUCT

- 27 Strive for change, and pursue the best
30 Delta PMH series of panel mount power supply with NEC Class 2 approval for household applications
31 Delta releases new SCARA Robot Series DRS50L/DRS70L
32 Vivitek 4K projector DK8500Z officially released

DELTA GREEN LIFE

- 33 Delta announces the release of building microclimate database, adding momentum to energy efficiency in buildings
38 Delta Electronics Foundation attends GCF Conference, keeping abreast of climate fund movement



FROM THE EDITOR

In our daily life, while buildings themselves simply aim to satisfy our functional needs in living, working, and entertainment, architectural designs need to take into consideration the various features of disparate regions, like sunshine, wind speed, temperature, humidity, ventilation, daylighting, surrounding green belt. Architecture can create a comfortable environment as well as accomplish energy conservation. Delta Electronics Foundation is devoted for a long time to tackling the climate change problem. Recently, we worked with the Central Weather Bureau (CWB) of Taiwan government and the Taiwan Architecture and Building Center, to build the "Green BIM" database. It will help to create a more low-carbon, energy-saving, ecological, and environment-friendly living.

In this issue's "Special Report," we are happy to report a successful case from academia. MCISBU has helped National Chung Cheng University (NCCU) with its green server room improvement project. In addition to saving about 258 tons of carbon emissions, NCCU, the current network center of the Yunlin and Chiayi regions, has become a model for other universities. It continues to spread the ideas of energy conservation and carbon reduction, and to reinforce the philosophy of low-carbon campus.

In "Brand People", we have an exclusive interview with IABG General Manager Andy Liu, who spoke about the plans and strategies of IABG after the re-organization and his insights and thoughts about brand management. In order to keep abreast with the drastically and rapidly changing market, Delta smart manufacturing strengthens its sales competitiveness by offering consultant diagnosis services in addition to hardware equipment and software platform. Recently, it has begun to design the next generation automated production line, as an upgrade towards smart manufacturing with the aim of transitioning from "automated" to "smart" manufacturing. In this issue, "About DSM" brings first-hand information and invites you to take a closer look.

Delta released its electrical vehicle (EV) charging solution at the Elecrama exhibition in India. It could be used in locations such as parking lots, shopping malls, and business centers. Furthermore, Delta announced for the first time the core value of an overall performance upgrade by using the IoT micro-grid concept from equipment and devices, through smart buildings, to infrastructures. Meanwhile, Delta display team has once again built a dazzling 3D light sculpture fireworks shows for the Fo Guang Shan "Buddha Museum" during the Chinese New Year holiday. Also, Delta IA team was honored with multiple awards lately due to its outstanding products. Moreover, Delta has recently begun to collaborate with National Central University, National Tsing Hua University, and National Cheng Kung University, to create a supply chain of technology talents. We will be sharing all the details with you in this issue's "Brand Circle."

In this issue's "Delta Green Life," Delta Electronics Foundation will take us directly to the Green Climate Fund (CGF) conference at Songdo, South Korea, and help us understand the operating mechanisms of green finance around the world and the trends towards carbon reduction. Make sure you don't miss out any of these topics!

Brand Management Office



The renovated NCCU data center is one of the nation's largest green data centers

Delta Mission Critical Infrastructure Solutions BU helps NCCU build a green data center

Text by MCISBU

Delta recently helped the National Chung Cheng University (NCCU) Computer Center with the green renovation of its data center, which has so far been the largest data center upgrade project in Taiwan. It has successfully increased reliability of the data center's operations, while improving education and research quality. What's more, it has reduced the data center's overall power consumption by 35%, saving about NTD 1.7 million dollars annually on the university's electricity bill. This huge reduction in university expenses is a significant achievement.



Energy efficiency: Energy savings almost equals all of the CO2 emissions absorbed by Daan Park

All of Taiwan is affected by PM2.5 air pollution, while Taipei Daan Forest Park is able to absorb 370 tons of carbon dioxide every year. The electricity saved by the renovation of the NCCU data center is equal to about 258 tons of carbon dioxide emissions per year, according to calculations based on the electricity emissions factor set by the Ministry of Economic Affairs. This reduction is almost 70% of the carbon dioxide absorption amount of Daan Park, which demonstrates the social responsibility of the university. It is also a practical example of carbon reduction and energy conservation, and many universities and high schools have requested visits to the new green data center.

Li Xin-Lin, director of the NCCU Computer Center, indicated that the former data center was already 28 years old. The air conditioning and servers were aged, the coaxial cables had to be replaced by optic fibers, and the equipment was in need of replacement. Proper planning for this project was desperately required, but there was a certain level of difficulty in the in-situ renovation. The NCCU data center, serving 13,000 of faculty and students, was also the data center for the College Admissions Committee, and the Chiayi and Yunlin local network center, which is connected externally to 500 to 600 schools.

It meant that there was no room for errors for the renovation. Director Li commented that the onsite renovation was like tailoring clothes while still wearing them. It would be restricted by the existing space, and data center operations could not be suspended for equipment replacement. The renovation was much more difficult than building a completely new data center.



Li Xin-Lin, Director of the NCCU Computer Center, indicated that the experience of this green project from planning, implementing, to operating, has shown us that the complete replacement greatly improves efficiency and conserves energy



NCCU green data center project: Delta Infrastructure

This infrastructure improvement project had the full support of NCCU President Fong Zhang-hua for creating a green data center in accordance with international Green Grid standards. The university cooperated with Delta's MCISBU in planning for the installation of RowCool cooling equipment, uninterruptible power supplies (UPS), power distribution cabinets (PDCs), network server racks, and environment monitoring equipment (including the asset management network detection, referred to as DCIM - Datacenter Infrastructure Management). The old data center was divided into two rooms, occupying almost 265 square meters. Ling Ke-Wei, NCCU resource management group leader, pointed out that the rooms were stacked with a variety of aged equipment and the air conditioning was in constant operation all year round. The data center's PUE (power usage effectiveness) had reached 2.1. After the upgrade was performed during the three months of summer vacation, the two rooms were combined into one single clean and fresh green data center of 205 square meters. The updated infrastructure has a cool aisle area of only 50 square meters, and was reduced to 81% of the original cooling coverage and decreased the PUE to less than 1.5.



The new, smaller data center helps enhance operation efficiency and power savings. Leader Lin pointed out that the old equipment was bulky, occupying more space, and offering lower operating efficiency. The new servers use virtualization technology and can load several application systems in one server rack, while providing more stable information and communication services for academic affairs and reducing the risk of a blackout. The overall design also includes environment control and management software which offers active warning and spreadsheets to allow administrators to obtain instant information and troubleshooting, which reduced the labor needed for walkthrough inspections.

A module framework was adopted in this project, which allowed the data center to be designed with flexibility according to the equipment and capacity growth, thus further saving costs and optimizing the benefits. To improve the reliability and the efficiency of the UPSs, the university used an adjusted 150kW/220V with dual input, transformer-less UPS framework based on actual power consumption. It reduces the risk of power malfunctions, improves efficiency to over 90%, and also considers future expandability.



The cables of the data center are colored on purpose



Heat dissipation solved by cool and hot aisles

About 45% of a general data center's power consumption is for air conditioning. The key to improving cooling effects on hot spots in the data center is to create cool and hot aisles and manage the air flow. By separating the air flow created by the air conditioning system and the heat emission paths from the servers, the cooling effect is not reduced by the hot air.

Leader Lin, a licensed professional electrical engineer, is a former information section chief of the Chiayi County Government, and a former electrical operations section chief of the Chiayi County Tax Office. In this project, he made adjustments for specific demands of the air conditioning control contact points, to ensure regular air conditioning operations in case of a machine malfunction. To prevent server overheating, the new data center changed its complicated wiring system to a color-coded ceiling route that is easy for users to understand and distinguish.



More eco-friendly and more energy-efficient by replacing aged equipment

A single concept can change everything. Director Li pointed out that many agencies refrain from replacing all their equipment at the same time, which restricts the resulting benefits. The experience of this green data center project, from planning, implementation, to operation, as well as replacing equipment (UPS, air conditioning system) that has passed its useful lifespan, demonstrates that a complete replacement greatly improves efficiency and conserves energy.

Delta has always provided customer-oriented services and offered discounts to academic institutions. In addition to data centering solutions, it also helps clients with overall planning such as server site selection, spatial design, air conditioning, and electricity distribution. With the powerful support of its local engineering teams, Delta guarantees the quality of subsequent services.



Andy Liu, General Manager of IABG

Staying ahead of the trends through change An interview with Andy Liu, General Manager of IABG

Text by Brand Management Office

Delta has been devoted to the industrial automation field for over 20 years. In addition to products and solutions, our smart machines and management platforms have also helped enterprises create smart production lines and achieve their production upgrade goals. Smart manufacturing has become an international trend, while virtual and physical integration has become the governing principle for future smart factories. This issue of 'Brand People' will feature an exclusive interview with Andy Liu, General Manager of the Industrial Automation Business Group (IABG), to share the group's strategies and outlook, as well as his personal experience and growth at Delta for the past ten years.



Building smart manufacturing on top of integration

After a reorganization in 2017, the IABG welcomed the Automation Business Unit (AMBU) and a new team member—the automation software developer 'Unicom'—to the family. Andy states that the original IABG was focused on the components market. The addition of the AMBU integrates the technology and the business of automation equipment and components. With the new team member, Unicom, Delta has created the Smart Manufacturing Solutions Business Division (SMSBD), which has elevated the company's equipment management, IIoT, MES, and data visualization capabilities. Starting from the ideas of OT and IT, the virtual and physical integration combines to achieve an 'automated' and 'smart' production line.

In response to market demand, IABG has formulated strategies for its products, systems, and solutions. Andy has also analyzed business development: "There are three main aspects of the current IABG business: channel management, OEM model, and solution marketing." The existing channels are divided by products. Different products require different channels and corresponding marketing skills, which is why it's very important to manage and develop channels based on categories. The characteristics of the OEM model include single products and a concentrated customer base. We must understand the industry and customer groups, and adopt key accounts to approach customers and gain business opportunities. The solution is a combination of products and systems, and should be planned based on the demands understood through the contact between the team and the customers. The establishment of an ecosystem is also vital as the integration of products by Delta and other brands is sometimes required. Andy added, "We must find patterns in the solution planning and derive standard products from the introduction of solutions, which we can then contribute to channel partners for marketing."



Gaining insight from changes to stay in touch with the trends

The IABG has formulated strategies for different markets. Andy shared his opinion on sustainable business competitiveness in the future "Every change is an opportunity. How to provide appropriate products in the process of maximizing value for customers has always been our goal." These changes include aspects of technology, policy, and demands. For technology, he used electric vehicles (EV) as an example. There is a role for IABG to play in motors used in transportation or artificial intelligence (AI) for production line automated guided vehicles (AGV). For policy, the 'Made in China 2025' action agenda revealed a policy blueprint to transform China from a manufacturer of quantity to one of quality, which means that Delta will reinforce business manpower efforts in this area. For demand, we have found products from OEM marketing in Taiwan that can be applied to different markets such as India and Thailand. Andy said, "These changes are often linked. Sometimes policy influences demand, sometimes technology leads the way. To quickly gain insight into the trends is important to our team."



Raising brand awareness in academia

"Automation for a Changing World' is our brand commitment," said Andy, sharing his experience in brand management at IABG. In addition to discovering business opportunities, striving for innovative product development, fulfilling brand commitment to customers, and providing quality solutions with partnerships, we have long been devoted to cultivating students on college campuses. Various campaigns in Taiwan, China, India and Southeast Asia, such as the 'Delta Advanced Automation Contest', have left strong impressions of the Delta brand in the minds of domestic and foreign students. "This is our long-term commitment," said Andy. The IABG is planning advanced automation contests in various regions to engage students on national and municipal levels, and to build the global influence of the Delta brand from multiple dimensions.

Earlier this year, the IABG announced a partnership with Taiwan's National Central University to establish a 'Machine Vision Research Center'. The IABG has also built industry-academia partnerships with National Tsing Hua University and National Cheng Kung University. Andy indicated, "The main difference of this partnership from the previous ones is that aside from technology development, we are more focused on talent cultivation." Previous industry-academia partnerships were assessed with project results. This time, the IABG directly deploys designated engineers on campus to develop technology along with the faculty and students. This close technology partnership will help Delta discover more innovative talents, and provide students with a fast track to employment at Delta after graduation. On the other hand, the university will become more familiar with industry demands, and bridge the gap between students and the industry. This development of a technology talent supply chain is a win-win for the company and the school.

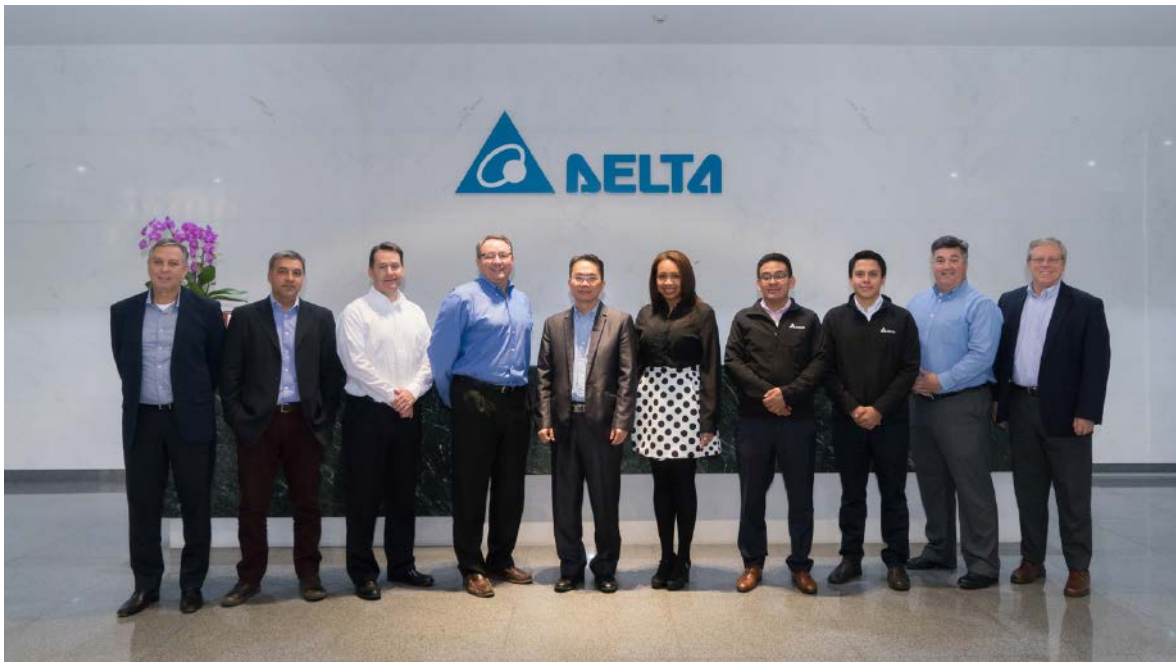


NCU's Delta Machine Vision Research Center was launched at the end of December 2017; General Manager of the Industrial Automation Business Group (IABG) Andy Liu (fourth from left), and the President of National Central University Dr. Jou Jing-yang (fourth from right) attended the unveiling ceremony



Looking onward, strengthening our competitiveness

Andy shared with us his more than 15 years of experience in industrial automation (IA) since joining Delta. "When I first came to Delta, IA was going through reorganization and business development. Thanks to everyone's continuous efforts and the leadership of former GM Simon Chang (currently Delta President and COO), we have transformed from a small team to the current business group." From initial product development to systems solutions later on, we gradually built our competitiveness and responded to external environment shifts and internal organization and culture transitions. The IABG has established itself on the market with diverse technology integration and various marketing models. He added, "What I treasure most is to be able to learn and grow with the team in the process of developing the business."



Andy (left 5) with IA DPR team.

"IA is a field that is worth in-depth exploration. The longer you are in this field, the more you learn. Accumulated experience is what brings the highest value and benefits. For an industry, IA requires long-term investments and resources." Andy concluded the interview with these words of encouragement to his team: "For a personal career, it is a business that can last a lifetime."

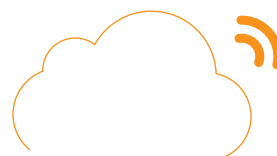


Delta's automated production line progresses toward advanced intelligence

Smart manufacturing for enterprises: Evolve continuously and focus on core concepts

Text by Brand Management Office

Delta's smart manufacturing begins with equipment as its base, and then creates an interconnected smart production site with cyber-physical integration and diagnosis consulting services to help customers with core improvements and installation. In "About DSM" in this issue, we will introduce Delta's consulting services and implementation methods and look into the demand and business opportunities of MES / automatic robots, SCARA / machine equipment, and big data analysis. Additionally, Delta has begun designing the next generation of automated production lines, which will reduce line change time, provide analysis and improve yield. The new generation will aim to rapidly expand production lines and achieve more advanced smart manufacturing.





A solution to meet demand: Providing diagnosis consulting services

In response to market demand, the Delta Smart Manufacturing (DSM) established its Core Team at the end of last year. The team's main mission is to provide diagnosis consulting, and offer suggestions for improvement. This will create further business opportunities by helping customers examine their factory status and diagnose their existing hardware equipment, software management platform, energy and factory management, and process procedures. The team members of this comprehensive service system consist of staff from Delta business units and external departments, including: software development, production, energy management, factory management, project management, sales and marketing. The team is also divided into groups depending on individual duties, such as Customer Communications, Questions Database Design, Expert Interview, and Diagnosis Report, as follows:

- ▶ **Customer Communications:** Communicate with customers to understand actual requirements, and plan for a diagnosis team to be stationed on-site.
- ▶ **Questions Database Design:** According to research on industry customers and status, select a suitable online evaluation module for the customer to conduct a self-evaluation.
- ▶ **Expert Interview:** Provide a diagnosis according to the customer's online self-evaluation results, an on-site interview, and a production line inspection.
- ▶ **Diagnosis Report:** Propose improvement suggestions in regards to planning for production line hardware, Internet facilities, data management, and others, that serve as a reference and assessment for optimization by customers. Follow up on subsequent business opportunities.

Through practices in processes and methods, the Delta Core Team redesigns factory sites based on requirements from corporate customers, while continuing to accumulate experience from continuous projects and improving its service skills.

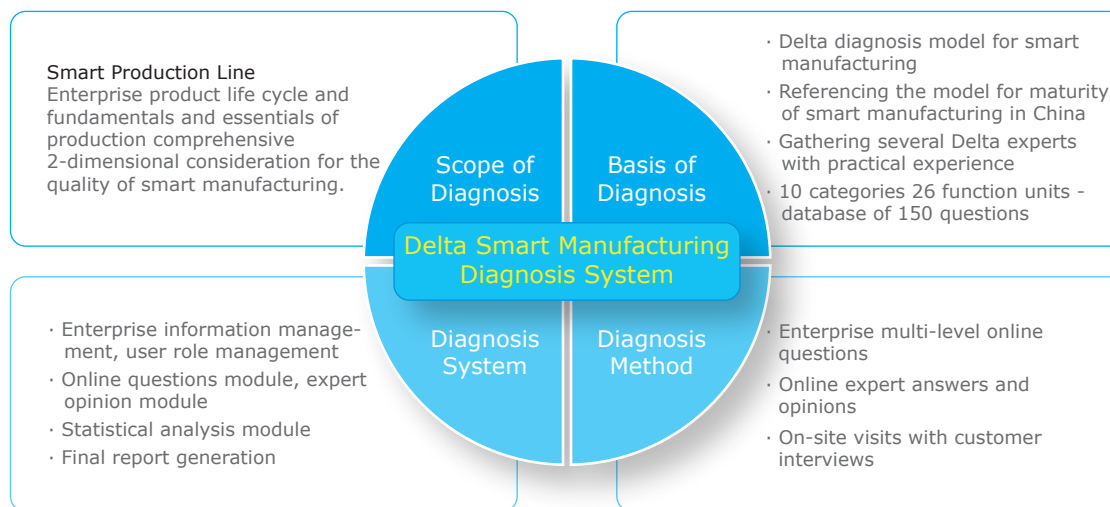


Cyber-physical integration for an enterprise-wide upgrade with smart manufacturing

The key value of the diagnosis consulting service lies in 'online evaluation' and 'expert diagnosis'. The online evaluation plays an important role at the beginning stage of the diagnosis. The evaluation can significantly improve efficiency of the investigation and quantify customer demands. The Delta Smart Manufacturing Diagnosis Model collects the practical experience of several Delta experts, and references maturity models for smart manufacturing in domestic and foreign markets. From the enterprise product life cycle (design, production, logistics, service) and fundamental essentials of a smart production line (equipment, information system, management, quality), it offers a comprehensive 2-dimensional examination for the quality of smart manufacturing. The model creates reports based on enterprise information management, user role management, an online questions module, an expert opinion module, a statistical analysis module, and other operations. It also provides a valuable reference for experts prior to onsite visits and interviews.

In summary, Delta's diagnosis consulting includes early-stage contacts with the customer, information collection, and an online evaluation during actual execution, expert diagnostic interviews, and improvement suggestions. It is service-oriented, and originates from customer requirements to help customers with comprehensive or partial re-planning, thereby increasing production.





Delta Smart Manufacturing Diagnosis System



Staying ahead with the next-generation smart production line

In addition to the diagnosis services above, Delta has also begun to plan the next automated production line, using Equipment Network Integration (ENI) as its backbone and DIALink for data exchange between the equipment to ensure productive operations and synchronized information and logistics. For the structure, ENI is the management-level software (DIAMMP, MES, MOM) that serves as a bridge between the equipment, and which reduces system and equipment response time, reduces the loading of systems computation, and satisfies small-volume large-variety production. The system features include:

- **Improved development efficiency:** The standard mechanism of ENI and its technology for the control of automated production lines achieves the rapid planning and integration of automated production lines, improves the efficiency of developments across teams, and realizes rapid duplication.
- **Increased product traceability:** The PLCs' instant records ensure that the information flow and logistics of the production line are synchronized.
- **Guaranteed normal operation for the production line:** The handshake signals between instant monitoring equipment provide buffer control, separation control for defective products, and complex automatic sampling rules. It ensures normal production for the overall production line.
- **Support for small-volume large-variety production:** The data handshakes between PLCs provide communication between the equipment and deliver machine information, facilitating implementation of smart manufacturing scenarios with automatic line (product) changes.





With ENI as the foundation, combined with the Production Management & Visualization Platform DIAMMP, MES, the Advanced Manufacturing System MOM, and other management-level software, Delta has managed to accomplish its goal of automated integration for the whole factory. This includes implementation of production management, equipment management, quality management, and alarm management of the automated factory.

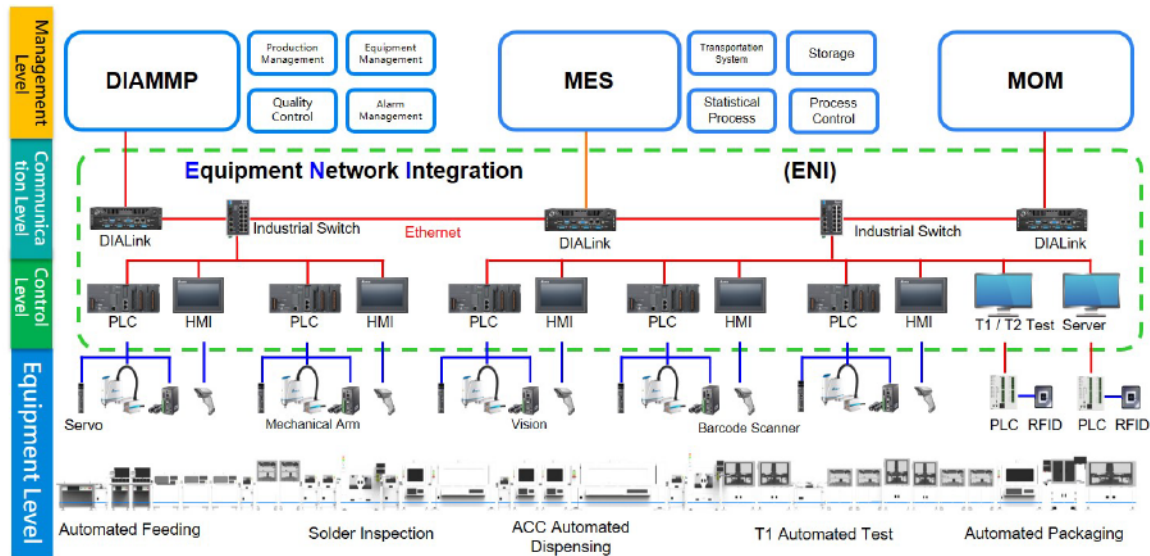


Illustration of System Structure for Delta Smart Production Line



Production on-demand helps expand market share for smart manufacturing

According to the 2018 - 2021 CAGR for global sales of electronic systems estimated by IC Insight, the top three are automobile electronic systems, industrial electronic systems, and smartphones. In line with this trend, Delta will ensure that we help customers achieve full upgrades in smart production with a layered, step-by-step development based on different manufacturing fields and companies. In addition, Delta will offer smart equipment (production equipment, inspection equipment), equipment (sensors, actuators, vision, robots, SCARA, PLC, controllers), production management systems (SCADA+MES), and data analysis (data analytics). Delta provides clients with customized solutions based on actual requirements and along with diagnosis consulting services.

Delta will collect feedback from the implementation process to improve our product competitiveness. Successful implementation cases will join other Delta smart manufacturing products to become exemplary applications, and help expand our future market share.





Delta Electronics Foundation launches "Green BIM" to enhance conservation of energy

Text by Corporate Communications



Bruce Cheng (second from the left, Delta founder and Chairperson of the Delta Foundation), Yeh Tien-Chiang (first from the left, CWB Director-General), Yang Chin-Fu (first from the right, Chairperson of the Taiwan Architecture and Building Center), and Tai-Jen George Chen (second from the right, Tenured Distinguished Professor, Department of Atmospheric Sciences, NTU) attended the press conference together

Delta Electronics Foundation has long been dedicated to climate change. During the post-Typhoon Morakot reconstruction of the Namaxia Minquan Elementary into Taiwan's first zero-energy campus, the Foundation became aware of the importance of accurate climate information to conservation of energy in buildings. Thus the Foundation partnered with Central Weather Bureau (CWB) of the Ministry of Transportation and Communications and the Taiwan Architecture and Building Center, and commissioned Professor Tai-Jen George Chen's team from the Department of Atmospheric Sciences at National Taiwan University (NTU) to develop the "Green BIM" database available for download by architects on its dedicated website. The first stage of the database has converted the historical climate data for highly populated areas in Taiwan for the past 20 years (1998 - 2016) into BIM climate parameters to help architects design better energy-conserving buildings. On the 7th, Bruce Cheng (Delta founder and Chairperson of the Delta Foundation), Yeh Tien-Chiang (CWB Director-General), Yang Chin-Fu (Chairperson of the Taiwan Architecture and Building Center), and Tai-Jen George Chen (Tenured Distinguished Professor, Department of Atmospheric Sciences, NTU), and experts in the fields of architecture and weather attended the press conference for database launch to present the features and the future vision of the project.

Bruce Cheng, Delta founder and Chairperson of the Delta Electronics Foundation, indicated on the press conference, "Delta has built 26 green buildings around the world, and has been continuously participating in the United Nations Climate Change Conferences to follow up on the global trend in green buildings. We are pleased to be a part of this industry-academia partnership and draw from both climate and architecture fields to create our own local Green BIM. This database will help architects design energy-conserving buildings, and, hopefully, be applied to energy creation and infrastructures such as smart grids in the future."

The next stage for "Green BIM" is to create an online information platform with higher resolution that takes local microclimate effects into consideration. This will provide microclimate information of higher accuracy to architects for designing energy-conserving buildings. In the future, hopefully, it will also become a basis for decisions of building management staffs in managing central air conditioning and light systems, and serve as supplementary information for energy creation businesses such as solar and wind power businesses and for power distribution over smart grids.

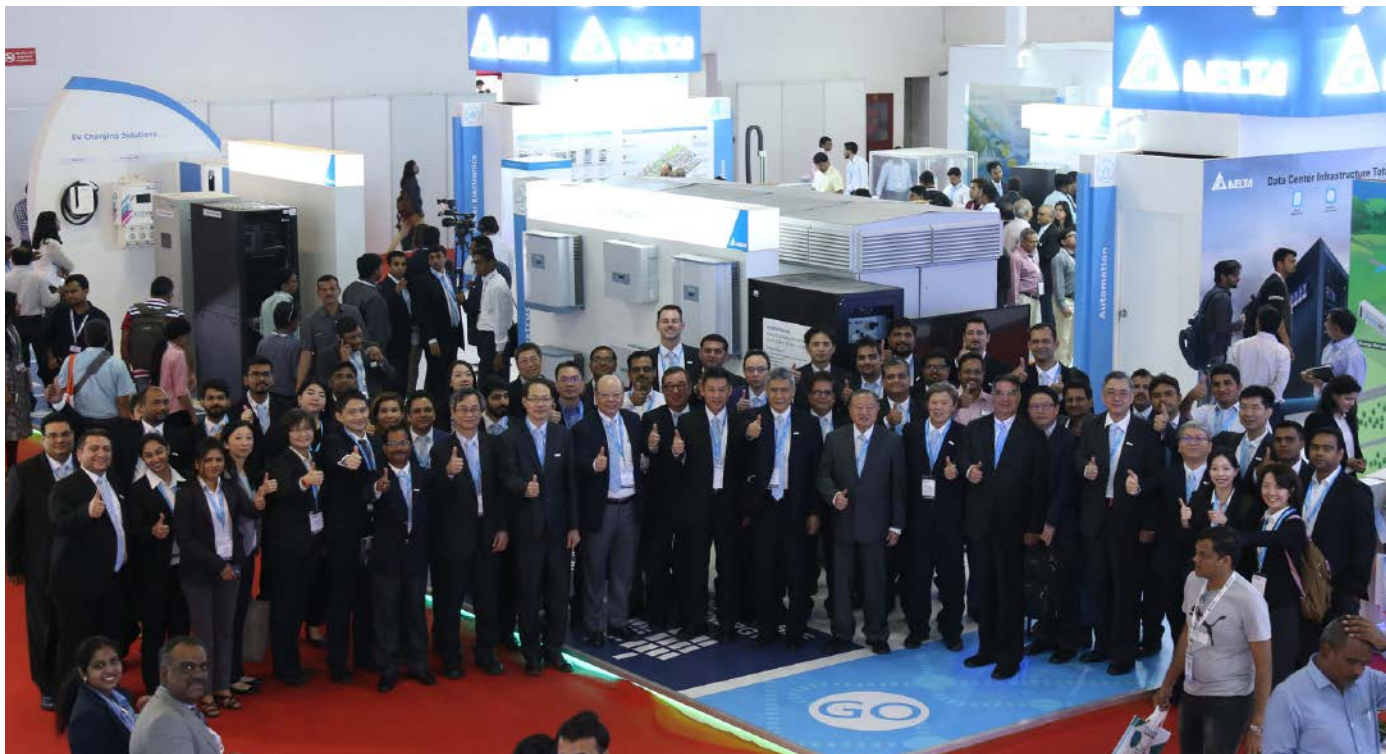
For details, please refer to the Green BIM website (Chinese):
<http://www.weatherservice.org.tw>



Delta showcases its power management, infrastructure and automation at Elecrama 2018

Text by Corporate Communications

In support of the government's electric mobility drive, Delta Electronics India launched its complete range of energy efficient electric vehicle (EV) charging solutions at Elecrama 2018 in India. The advanced EV charging solution offerings from Delta will enable the ecosystem to keep pace with the growing demands for a robust electric automobile infrastructure. Delta showcased its diverse portfolio of EV solutions with DC Quick, AC Chargers and Site Management System. These chargers can be conveniently installed in multiple applications such as parking spaces, highway service, as well as residential and commercial buildings.



Group photo of DEI management team with Delta India's exhibition team at Delta's exhibition area at Elecrama

Hsieh Shen-Yen, President of Delta Electronics (Thailand) PCL. said, "The business climate in India offers Delta exciting opportunities to partner with the government to power India's growing economy. In line with our vision to be a strong catalyst and partner in India's growth story, we are also announcing our fourth manufacturing plant in the country today. This is testimony to our commitment to the "Make In India" initiative. Delta's goal is to develop sustainable and energy efficient integrated solution offerings in India, for India, that will offer immense employment opportunities across the geography.

Delta will also be showcasing its Energy Storage Solutions, Renewable Energy Solutions, Telecom Network Energy Solutions, Industrial Automation Solutions, Display & Monitoring Solutions, Building Automation Solutions and UPS & Datacenter Infrastructure Solutions at the Elecrama 2018.



Delta's brightest video walls at Lucknow Metro MRTS

Text by DIN

Delta, a leading provider of video wall solutions, has provided its brightest Laser Video wall solution to the Operations Control Centre of Lucknow Metro Rail Corporation. Lucknow Metro Rail Corporation (LMRC) is a project of Govt. of U.P., which is implemented to strengthen the transport infrastructure of the city with a holistic multi-modal transport system. Delta, with its expertise in display solutions, installed its latest and brightest solution in the market for this project.



Delta's brightest video walls at Lucknow Metro MRTS

Lucknow Metro Rail Corporation (LMRC) is the fastest built high speed rapid transit system project in India. Lucknow Metro is a Mass Rapid Transit System (MRTS) constructed to provide the city of Lucknow, Uttar Pradesh with an environment-friendly atmosphere, having two routes, from North to South and East to West. The North-South corridor starts at Amausi and ends at Munshi Pulia, with a total length of 22.878 kilometres. The East-West corridor starts at Charbagh Railway Station and ends at Vasant Kunj with a total length of 11 kilometres. Both lines intersect at Charbagh.

The new Lucknow Metro Operations Control Centre (OCC) features India's 1st Laser video wall composed of 5x2 70" Video wall Cubes. With unmatched brightness, Delta's Laser Video walls have Full HD (1920x1080) resolution, excellent standards in brightness uniformity ($\geq 98\%$), wide viewing angle and true redundancy to match the Lucknow Metro requirement. In addition, a controller is set up in the room, capable of handling multiple inputs and Cube control software which provides precise information on the status of the video wall at any point of time.

"The Operations Control Centre (OCC) is responsible for a smooth command and control of all stations and trains. The video wall will display dynamic status of each train, route and signal on a real-time basis and the status of the power supply on each section of the line. Faults in the supply, if any, will be noticed immediately through the Video wall and can be acted upon by the LMRC operators," commented an LMRC official.

Delta, with a strong global reference base in the Railway Industry, recommended its latest and most innovative display solution for monitoring operations at the OCC of Lucknow Metro. The operations of the fastest built metro project will be monitored round the clock on Delta's Video walls in support of train services and maintenance activities.

"Every day, the operators of the Operations Control Centre of Lucknow Metro will ensure the safety of millions of passengers by constantly monitoring train speed, signals, station activities and power supply. With the help of Delta's display solutions we are assured that the security of passengers will improve and operators will promptly respond to emergencies, if any," commented the LMRC official.



Delta creates 3D light-sculpting show in Kaohsiung

Text by DSBUE



Fo Guang Shan cooperated with Delta once again, creating the Lights of Wisdom – 3D light-sculpting and firework shows

Located in Kaohsiung City, the Fo Guang Shan Buddha Museum is a popular tourist attraction during the Asian Lunar New Year, drawing ceaseless crowds of visitors. In response to the lunar holidays, events such as the bell-ringing prayer event held by the museum since the Lunar New Year's Eve and the "Lights of Wisdom – 3D light-sculpting and firework shows" displayed every night offered stunning excitement and attracted crowds of visitors to experience the beauty of Delta's projection art.

This year once again, Fo Guang Shan partnered with Delta to host the 3D light-sculpting projection show that continued for 17 days since lunar New Year's Day (February 16) to March 14, turning the light-projected museum into an illuminous icon that shines the lights of wisdom over the entire Fo Guang Shan. Employing the highly-sophisticated seamless fusion technology, Delta managed to integrate eight 20,000-lumen theater-grade projectors and eight 18,000 high-lumen projectors with professional multimedia control technology and software, turning various lighting toward the museum building and pagodas. Accompanied by radiating laser beams and touching music and firework displays, the show

became a major spectacle not to be missed. With a theme of equal emphasis on the environment and holiday atmosphere for this year, the show incorporated the unique colorful ethnic peacock dance from Yunnan for the first time, manifesting a scene of prosperity and luck through a more exuberant and luscious audio and visual effect. As the peacock opened its tails with glittering colorful lights in all directions, the viewers were stunned with endless acclaims and jubilation.

Delta distributed laser DLP assisted with smart production for a petrochemical corporation

Text by DGC

Recently, Delta's distributed controlled laser DLP large-screen display system was successfully used in a large-size petrochemical corporation (one of top 500 petrochemical corporations in China) based in southern China, where an advanced digital DVS distributed image display control system and a fourth-generation laser light source DLP display splice wall were employed, creating at its strategic dispatch center a large-screen command directing and monitoring system featuring technologically leading high luminance, high resolution, and superb display control that serve as a reliable platform for smart management.

To meet requirements from the strategic center, Delta built a 70-inch single-screen laser DLP splice display screen with 2 lines x 10 rows and 15.5m in width and 1.8m in height for the entire screen that comes with a total area of close to 28 square meters. With second-generation DVCS distributed image control system and fourth-generation laser light source DLP display unit, the screen can effectively integrate information systems such as the energy management system (EMS), manufacturing execution system (MES), factory energy management system (FEMS), and the ERP system, forming an interconnected system for full demonstration. Delta has successfully implemented DLP applications for more than 500 clients.

This set of management system consolidated all ranges of information related to production management, such as production, equipment, personnel, and plants, covering all parts of the entire industry chain for the corporation. With Delta's laser DLP system and distributed control system, all levels of leadership and management are provided with a reliable data acquisition platform that serves as a solid technical basis for the corporation's effort in implementing a smart production management.



Delta distributed laser DLP assisted with smart production for a petrochemical corporation



Application of Delta multi-axis motion controller DVP-15MC series on automobile assembly line

Text by DSBUE

Delta provides a control solution with DVP-15MC series, the multi-axis motion controller, as its core to realize precise positioning and displacement, helping automobile assembly line equipment manufacturers achieve multi-axis positioning synchronization, and facilitating the accurate operations of the overall assembly line.

The assembly line operation requires simultaneous multi-axis positioning while giving warning notifications when a disconnected remote I/O is detected. Delta multi-axis motion controller DVP-15MC series is equipped with an external encoder as its main controller, the human-machine interface DOP-B series, and other control components to monitor and correct the position of the encoder. The touch screen display can store information of at least 100 models of vehicles, which are readily accessible at all times. The program can be edited online or downloaded for flexible motion control.

In regard to motion control, Delta uses the AC servo drive ASDA-A2 series, built-in with various motion control functions (e.g., ECAM, high-speed pulse position capture and comparison), and an internal position programming mode, for precise control of the AC servo motor ECMA series in high-speed, synchronized motion, and precision processing.

The vehicle assembly line uses multi-axis motion controller DVP-15MC series to solve multi-axis synchronization and save the costs of manpower and materials.

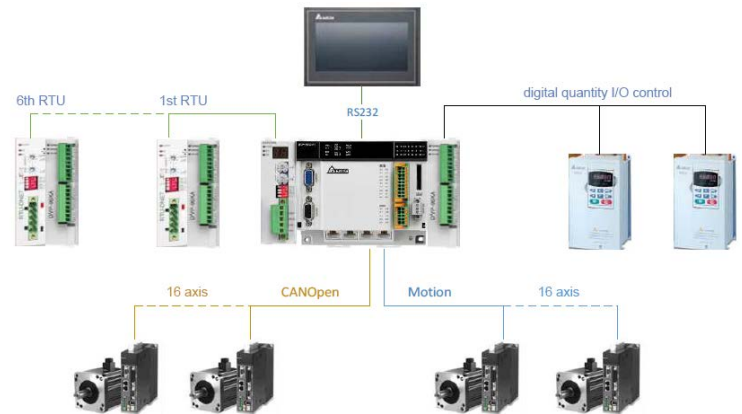


Illustration of the electrical control plan

Delta SCARA robot applies to precision stamping press feeding and blanking processes

Text by DSBUE

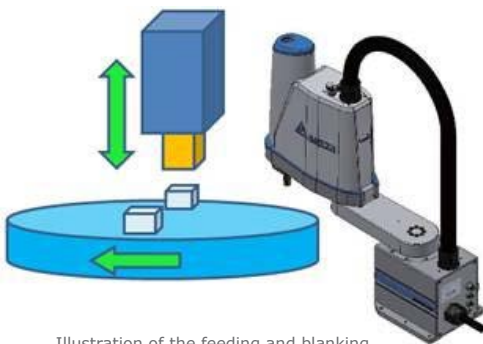


Illustration of the feeding and blanking on the stamping press

new blank into the press processing area. When SCARA receives the material exit signal from the press, the finished piece will be retrieved and placed on a storage tray. The cycle will continue by repeating the movements above. Illustration of the processing is shown in Photo1.

This process has a ± 0.2 mm positioning accuracy on the Delta SCARA end, and a ≤ 2.5 seconds operation cycle for the feeding and blanking processes. It has high position precision and loading, which offers long-term, stable, error-free operations. It can adopt multiple installation methods, and is a highly expandable system. The parameter configuration is simple and easy to maintain. The product also offers high-speed bit motion, spatial linear interpolation motions, and spatial circular interpolation motions.



Delta smart production line demo smart manufacturing at Hannover Messe 2018

Text by IABG



Delta will present the new smart production line demo at Hannover Messe 2018 in April

Delta is set to impress global visitors once again at Hannover Messe 2018 from April 23rd ~ 27th with a whole new Smart Production Line demo, which combines three robot workstations, a smart conveyor, the cloud, and IIoT technology to perform as a true-to-life, flexible, multi-tasking production line that manufactures customized products on-site, as well as allowing real-time monitoring of equipment operation and progress.

The smart production line triggers the production process by sending fixtures for work pieces via smart conveyor to whichever articulated robot can soon begin manufacturing. The articulated robot then picks up the selected gift and its packaging box, and puts them on the fixture for laser engraving at the next station. The SCARA robot, built in the middle of the smart production line, covers the box to complete the packaging process after laser engraving, and the articulated robots will deliver the finished gift to the customer directly or put it in storage for picking up later. The whole process ends when customers scan their order identification QR codes with Delta's new Barcode Scanner DAH Series, and then receive their personalized gift from the articulated robot on the right.

This smart production line combines customer orders, production lines, and a monitoring system, and will be a perfect simulation and demonstration of highly efficient, fully automated and digitalized production at this year's Hannover Messe!

Delta shares innovative packaging industry production equipment upgrade solution at Sino-Pack 2018

Text by DGC

The 25th Sino-Pack 2018 was held in Guangzhou, where Delta showcased various packaging industry total solutions designed for packaging industry users and the smart production line monitoring platform based on the concept of Industry 4.0. These products will help packaging industry customers create new smart packaging mechanical systems.

The highlights of Delta's displays include:

Total solution for the packaging industry: Facilitate packaging industry users with automation and intelligentization of various key links of packaging processes including material supply and transportation, primary packaging, secondary packaging, inspection and identification, sealing and transportation, etc.

Smart production line monitoring platform: Including cloud orders, MES batch scheduling, and internet commands to control the production process, and other smart functions to realize the manufacturing site visualization.

Food packaging application solution: Integrate the Delta CANopen bus motion controller DVP-15MC and other industrial automation products to offer precision positioning and synchronized control for material feeding, film feeding, sealing, and other processes.

Delta icloud operation application solution: Based on the equipment in connection with the remote maintenance solution developed by Delta DIACloud, through 4G cloud router for local equipment IoT connection, remote maintenance, instruction, and troubleshooting will be made easier.

AC servo motor ASDA-A3 series: Satisfies the demands of flying sheer, rotary platform, ECAM for key points positioning, high-speed synchronized motion and tracking.

New generation compact vector control inverter M300 series: Encompasses the excellent driver performance of Delta inverters, with advantages of a compact size, flexible application, and reliable quality.



Delta's innovative products drive smart industrial upgrade of the packaging industry



Delta sets up research centers with NCKU, NTHU, and NCU

Text by IABG

From end-December last year to early March this year, Delta successively announces its co-operations with NCU in setting up Delta Machine Vision Research Center (DMVRC), with NTHU in setting up Delta Power Electronics Research Center, and with NCKU in setting up DMVRC. These co-operations target on industrial automation of different domains in carrying out in-depth research. Delta Chairman Yancey Hai attended the unveiling ceremony of NCKU's Delta Advanced Technology Research Center and expressed that Delta values research and development, innovation and talent cultivation, and cooperates with Taiwan's top educational institutions in developing new-generation technologies.

The three industry-academia cooperation research centers are led by Delta's IABG, focusing on the development of various high-end technologies targeting at today's industry demand. Different from the cooperation with National Taipei University of Technology in the past where it focuses on product donation, Delta sends project engineers to the site to carry out in-depth technological research and development with the teachers and students.

As early as 2010, Delta has set the goals of "taking root and cultivating top talents", and has been actively promoting various types of industry-academia co-operations. According to general manager of Delta's IABG, Andy Liu, Taiwan needs more advanced research and development capabilities and professional skills in order to maintain industrial competitiveness. Hence, it needs to combine the strength of industry, government and academia so as to train from the most fundamental talents, driving future industrial upgrade.



Chairman Yancey Hai (fourth from right) and Vice President R.T. Tsai (rightmost) attended the unveiling ceremony of National Cheng Kung University's Delta Advanced Technology Research Center to express how Delta values talent cultivation

Delta's micro-modular data center assists with IT development for a coal business

Text by DGC



Delta's dynamic series micro-modular data center solution

Delta's dynamic series micro-modular data center solution recently made another advance, with the series successfully being employed for a key coal mining construction project in Shanxi Province and providing a highly reliable solution for the newly built core data centers. This helped in the effort to implement an IT-based coal mining with a digital and smart mine management system constructed to provide a reliable information platform.

Catering to users' needs, Delta approached the design in perspectives such as high employability, fast setup, and green energy efficiency. The micro-modular systems used in the data center include rack-based precision air conditioning, high-com-

patibility smart power distribution cabinets, high-density cabinets, pre-engineered cabinet-top routing modules, PDU, the air flow inhibition system, the monitoring and management system for the data center, etc.

Serving as a case of successful application for coal corporations, Delta dynamic series features factory pre-made core data center, which saved about 1/3 of the time required for quick deployment. The micro-modular structure can help ease the future expansion in room capacity. With over 12% increase in the efficiency of cooling, a green and efficient energy use is attainable with this solution.



Achieve more together at ISE 2018 with Vivitek and Delta display solutions combining forces

Text by DSBÜ



Vivitek and Delta display solutions achieve more together at ISE 2018

pixel detail of this new product delivers superb image quality and uniformity. Offering a wide variety of pitch sizes from 1.26mm to 2.5mm, the FE series is designed to suit all indoor LED project requirements.

At ISE 2018, Vivitek will show off its new and brightest single-chip DLP laser projector: the DU9800Z. The solid state illumination source projector offers 18,000 ANSI Lumens with a native WUXGA 1920 x 1200 resolution that delivers an impeccable standard of color and detail. With 20,000 hours of laser light operation, this projector far exceeds the average lamp based projector and provides great value for money.

Vivitek will also showcase its popular collaboration solution with the flagship product of the NovoEnterprise with the LauncherPlus which are ideal for meeting rooms where lots of external guests are expected as the LauncherPlus enables the guests to access wirelessly directly without having to access the company network.

Commenting on its presence at ISE 2018, Holger Graeff, General Manager, Vivitek EMEA, said: "Achieve more together encapsulates our proposition from both a customer perspective and the united front that Vivitek shares with Delta Electronics. To that end, visitors to the Vivitek stand at ISE 2018 will see our largest-ever array of solutions for meeting or collaboration rooms, large venues, control rooms or leisure and entertainment environments. Whatever the application or environment, customers can be assured that our solutions offer class-leading performance, reliability and value for money, enabling users to achieve more together with Vivitek and Delta."

Vivitek at BETT 2018

Text by EMEA

BETT 2018 proved to be another successful show for Vivitek. Not only was there much interest from visitors to the booth in the NovoTouch, NovoConnect, NovoDS4K, DH765Z-UST and the D4000, but we enjoyed a significant increase in leads this year!

This shows that our messaging is resonating with the education sector; it increasingly sees the value of our innovative projectors and visual presentation products, our five year warranty on projectors and how our diverse range of solutions can help educators and students to connect and engage to create a memorable learning experience.

At ISE 2018, Vivitek, a leading brand of visual display products, and Delta Display Solutions, a division of Delta Electronics, showcased new and existing customers how to achieve more together. The combined brands demonstrated a full selection of visual solutions ranging from standard and large venue projectors, to wireless collaboration and digital signage solutions. Its wide array of advanced display and presentation solutions are engineered for environments ranging from meeting and collaboration rooms, to larger venues, control rooms, and even entertainment facilities. The Vivitek and Delta Display Solutions stand at Hall 5 R60 at ISE 2018 was set to be more than double the size of last year's, further amplifying the achieve more together sentiment.

ISE 2018 will play host to the first public unveiling of a new product in the Delta Displays FE Series with the 1.26mm Fine Pitch Indoor LED Wall Solution. The fine



Team at BETT show 2018



Delta Premieres Integrated Building Automation with an IoT-Concept Lighting Solution at Light+Building 2018 Frankfurt

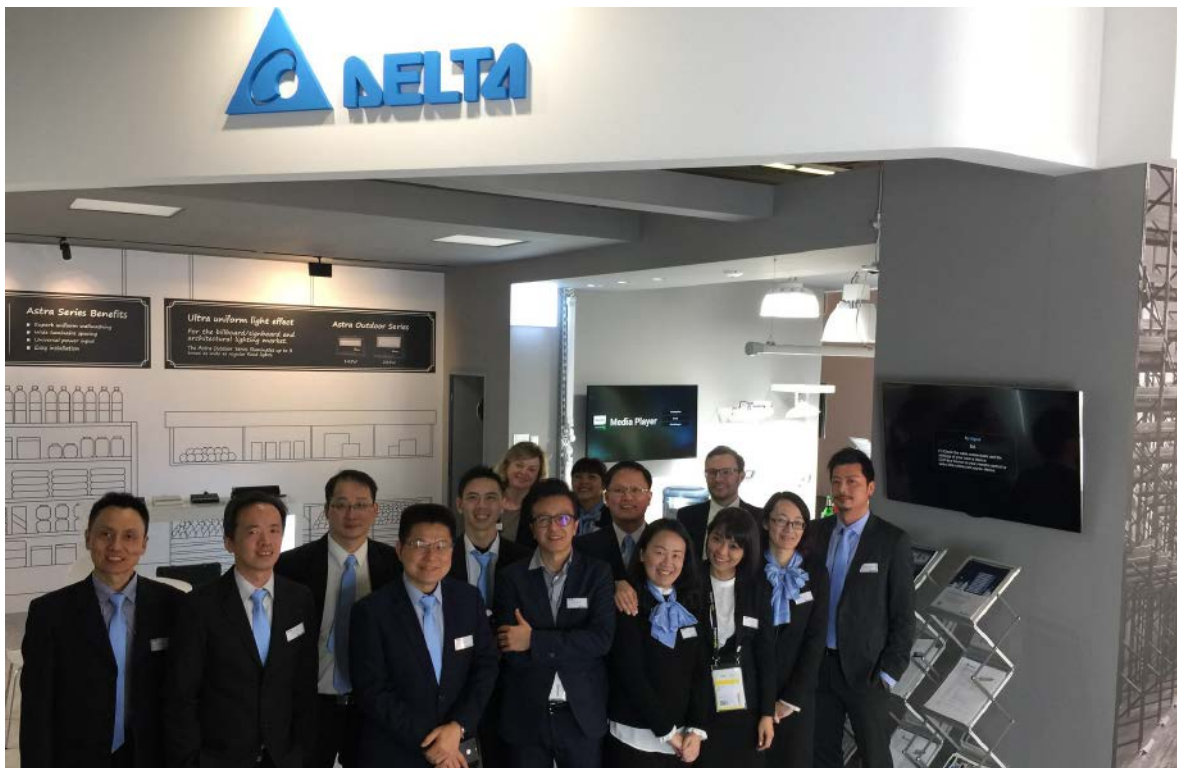
Text by BABG

FRANKFURT, Germany, March 15, 2018 – Delta, a global leader in power and thermal management solutions, announced it will roll out its integrated building automation and new IoT-concept lighting solutions of integrated services for lighting at Lighting+Building 2018. Apart from showcasing its versatile solutions for office, commercial, industrial, and street lighting, Delta will offer an advanced solution that integrates its lighting products, security & surveillance equipment, building control systems, and related products. Delta's latest solutions provide flexibility and feasibility for upgrading intelligent buildings that was once difficult to achieve for so many different market segments.

Bill Y.C. Luo, general manager of Delta's Building Automation Business Group (BABG), emphasized: "This is a de facto power show of Delta's unique strength in integrating in lighting, security and building control systems. We are looking forward to providing customers with true intelligent building integration solutions and services that surpass their expectations. At the international biennial Light+Building trade fair, Delta is releasing breakthrough lighting system designs with IoT concept as well as advanced products for commercial lighting. "

At the show Delta will launch an industry-leading lighting control system empowered with a wireless communication capability, which is advanced enough to enable Bluetooth 5 Mesh Networking (many-to-many device communications) with a dedicated communications module applying DALI-compliant functionality. This allows users to fully convert conventional lighting scenarios into ready-to-use lighting options available either on a mobile APP or on a voice control system, reducing the hassle of modifying any original lighting fixtures. This innovative solution solves substantial problems that often arise when adapting a conventional lighting control system to newer technologies, such as difficult integration as well as high costs.

Delta is also exhibiting its much-touted Astra series of wall washers, namely ultra-wide-angle floodlights using asymmetric optics technology for large-scale outdoor billboards and indoor commercial lighting. Astra's hallmark characteristics of ultra-wide-angle luminosity enable it to emit light with an illumination range of up to three times the width of any conventional floodlights, and yet with a more uniform luminance.



Group picture at Light+Building 2018 Frankfurt



"Embrace Love, Embrace Future" – Delta joins the winter camp for pearl university students

Text by DGC



370 pearl university students from all over the nation took part in the second winter camp held in Jiaxing for the pearl university students, and took a group photo after the commencement ceremony

Invited by Xinhua Compassion Education Foundation, Delta joined the pearl university students winter camp held from January 28 to 30, where a series of exciting courses were offered to those 370 pearl students from all over the nation. Delta mentor team members gave an analysis on the current status of the power electronics industry and the industry trend from 3 to 5 years onward for the 33 students of freshmen to senior years who registered for the "group on power electronics and energy efficiency". An onsite visit of Delta's automated production line was offered to let those pearl students learn about the future market in advance during their college years.

For the three-day event, Delta did not only offer the opportunity for the students to learn in one direction. It also took the students on bus to its Wujiang plant for them to have a close look at the automated production line with its industrial robots, stimulating their thoughts and perspectives on industrial automation and smart manufacturing. In the future, Delta will continue to offer donations for the pearl high school students to further their study. After they pass the college entrance exam, it will continue to provide care for the students through its co-hosted welcoming events and winter camps. Meanwhile, it will offer internship and job opportunities as a way of welcoming the pearl students to join the big Delta family.

Delta's 2016 CSR report rated world's top 25 by Baruch College, City University of New York

Text by Corporate Communications

Delta's 2016 Corporate Social Responsibility (CSR) report was awarded by Baruch College, City University of New York, for its rigorous, complete and rich content, ranking it top 25 among the 629 international companies' CSR reports. President of Baruch College, Mitchel B. Wallerstein, congratulated Delta for winning the award and praised Delta's report for leading the industry by example, setting a global standard, and encouraging other companies to adopt it.

Delta's CSR report structure follows closely to G4 Sustainability Reporting Guidelines published by the Global Reporting Initiative (GRI). The report has passed third-party assurance according to GRI G4 core options and AA1000 Type II & high assurance level. In addition, to ensure rigorous information, limited assurance engagement has been adopted for specific key performance information such as plant, green buildings and products, etc., according to ISAE (International Standard on Assurance Engagements) 3000. The assurance scope for 2017 report will be extended to 8 products and 18 green buildings.

Since the launch of Baruch College's ranking in 2012, it is being carried out twice per year, using CSR-Sustainability Monitor®, a mechanism developed by Weissman Center for evaluating the quality of CSR report. This mechanism helps global stakeholders to have a more in-depth understanding of the quality of the report published by companies. Baruch College aims to encourage and promote disclosure of more high-quality information in the report through rigorous analysis mechanism. In addition, it can make use of this to increase the verification capabilities of third party (example: verification companies) on non-financial information, thereby increasing the efficiency of overall market operation.

(Note: For 2016 reports, ranking is carried out in 2017 with results released in 2018)



Delta's 2016 CSR report rated world's top 25 by Baruch College, City University of New York



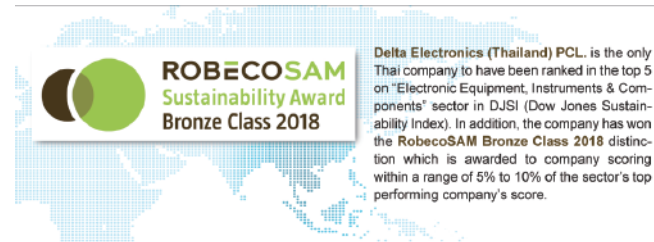
Delta Electronics Thailand wins RobecoSAM Sustainability Award 2018

Text by DET

Delta Electronics (Thailand) PCL. has won the prestigious RobecoSAM Bronze Class distinction for its excellent sustainability performance. Delta Thailand is the only Thai company among five winners in the "Electronic Equipment, Instruments & Components" sector of the RobecoSAM Sustainability Yearbook 2018. RobecoSAM, a sustainability investing (SI) specialist, awards the Bronze Class distinction to a company with a Corporate Sustainability Assessment (CSA) score that is within a range of 5% to 10% of the sector's top performing company's score. RobecoSAM's annual CSA forms the research backbone for the construction of the Dow Jones Sustainability Index (DJSI). Delta Thailand is the only Thai company that is ranked in the top five companies within the "Electronic Equipment, Instruments & Components" sector on the world-renowned DJSI.

Aris Prepoudis, CEO of RobecoSAM, said, "I congratulate Delta Electronics (Thailand) PCL. whole heartedly for being awarded a Bronze Class medal in The Sustainability Yearbook 2018. The companies included in the Yearbook are the world's most sustainable companies in their industry and are moving the ESG needle in ways that will help us realize the UN's Sustainable Development Goals by 2030."

As one of the industry leaders in Thailand and the ASEAN region, Delta leverages its position as a responsible global citizen to promote the sustainable development of Thai industries. Mr. Hsieh Shen-yen, Delta President, said that awareness of corporate social responsibility (CSR), energy saving and environmental conservation paves the way for the company's sustainable growth. "A sustainable business requires sound decisions driven not just by profit but also genuine concerns for the stakeholders and the environment," Mr. Hsieh said.



Delta Thailand wins RobecoSAM award in "Electronic Equipment, Instruments & Components" sector

Delta named as Automation Worlds "First Team" honoree in VFD and PLC

Text by EMEA

Delta was recently honored to be awarded a place in Automation World magazine's 2017 First Team list in two major categories – Variable Frequency Drives (VFD) and Programmable Logic Controllers (PLC). January 2018, Automation World magazine announced the First Team category leaders for the 2017 "Leadership in Automation Program". Over two dozen categories are featured in the competition, where industry automation professionals were invited to vote for their favored automation vendors in unaided-recall surveys. This is significant because respondents were not swayed by choosing from names on a list, rather, respondents were asked to write-in the brands they consider leaders within each category.

Automation Worlds Leadership in Automation Program features categories that represent a wide variety of automation technologies, software, and products in use by today's manufacturing professionals across discrete, batch and continuous process manufacturing industries. The industry wide community of survey participants vote for best-in-class product innovation and excellence in customer service – this is a clear indicator that Delta is being independently recognized for being a contributor to the advancement in automation within the industrial market space.

In 2016, Delta first earned its spot as a recognized leader in the VFD category. According to the "2017 IHS Markit™" report, Delta is among the top 10 low-voltage drive suppliers in the world by reported revenue. These two data points alone highlight Delta's achievement as a major provider for Variable Frequency Drives globally, and is being recognized in local markets within Americas. This year Delta was honored as a leader in both VFD and PLC categories, further expanding Delta's product technology and organizational service capacity in the industrial automation space.



2017 first team logo



Delta VFD product



Delta PLC product



Delta articulated robot DRV series wins the iF design award

Text by IABG



Delta's vertical articulated robot DRV series wins iF design award



The DRV70L Series completes SCARA robot function tests on Delta's production line to reduce manpower, shorten testing time, and enhance testing efficiency

Designed and developed by Delta, vertical articulated robot DRV series won 2018 iF Design Award 2018 for its smart functions, elegant appearance and high quality design, becoming a masterpiece of Delta in smart manufacturing and aesthetics. The six-axis multi-degree-of-freedom industrial robot features a white color tone, and simple and clean curved streamline, highlighting the robot's agility, swiftness and precision characteristics. Featuring a maximum working radius of 710mm/900mm and maximum loading of 7kg, it satisfies the requirements of flexible process in light industry.

According to general manager of Delta's IABG, Andy Liu, making use of industrial robots in the era of smart manufacturing can save manpower cost, improve product quality, increase process flexibility and reduce operation time, a major trend in production line automation and smart factory development. The design of Delta's vertical articulated robot DRV series targets on industry's application requirements. It can realize flexibility and multi-tasking, and has an elegant appearance and user-friendly software and hardware design. Therefore, it is able to stand out from the 6,402 works of 54 countries, winning one of the 1,218 iF awards. It proves that Delta robots not only meet industrial expectation, but its appearance and quality are of very high standard. In the future, Delta will continue to launch more high-end and advanced smart manufacturing related products, assisting customers in implementing industrial upgrade.

Delta wins two awards in motion control for outstanding market performance in 2017

Text by DGC

The 2018 Smart Manufacturing & China Motion Control Industry Development Summit was held in Hangzhou on January 12. Delta won two major awards in the field of motion control due to its outstanding achievements in 2017: One is "CMCD 2017 Most Influential Enterprise in the Motion Control Field", presented to Delta, and the other is "CMCD 2017 Business Management Award", presented to Li Wen-Jian, Director of the Delta Motion Control Product Development Division. Both awards demonstrated Delta's strong brand competitiveness in the motion control field.

As the leader of pioneering the motion control business in Mainland China, Li Wen-Jian (Director of the Delta Motion Control Product Development Division) has guided his team to continuously produced motion control solutions which closely match customer demands. In 2017, Delta experienced rapid market growth with its servo drives and motors market share held steady among the top 3 in the market.

Apart from making great achievements in the CNC field and the 3C product processing field, Delta also expanded new businesses such as woodwork in 2017. Recently, Delta released its wood drilling solution that combines the ASDA-M Series 3-axis motion control AC servo system, human machine interface (HMI), and servo motors. The solution was successfully implemented to a domestic woodwork processing factory's sealing and drilling machines. It has a drill precision of $\pm 0.15\text{mm}$, and a high drill speed of one 14-meter long wooden board per minute, which helps the customer improve the overall equipment processing efficiency and quality.



Delta wins two awards in motion control field for outstanding market performance in 2017



Delta DMV series wins "Robot Core Component Product Award"

Text by DGC

January 12, Delta Machine Vision System DMV Series won the "Robot Core Component Product Award" in the 2018 GG Robots Golden Globes Award Ceremony held in Dongguan.

Delta DMV was developed to meet a variety of demands for visual inspection of industrial automation production line products, such as defect inspection of product quality, exterior size measurement, finished products count, identification check, and automated positioning and alignment for assembly. With the high-speed and precise multi-computation of its internal controller, a user-friendly interface, and diverse visual inspection functions, the DMV Series eliminates errors due to occupational fatigue or carelessness, thereby increasing product quality, enhancing equipment productivity, and saving labor costs.

Delta DMV is widely well-received by users due to its outstanding performance. It has been successfully applied to a broad range of inspections, including precision alignment inspection for electronic devices, automobile parts assembly inspection, pharmaceutical machinery assembly and packaging inspection, work-piece arrangement direction inspection, food and beverage filling inspection, product defect inspection, robotic arm positioning inspection, and work piece dimension measurements. In particular, when applied with Delta SCARA robots, DMV series can produce excellent performances with features such as multi-angle exterior inspection, multiple product function inspection, and other highly complicated inspection processes.



Delta DMV series wins "Robot Core Component Product Award"

As announced for 2017 China IT Billboard, Delta N Series 6-10kVA UPS made an honorable entry

Text by DGC



Delta N Series 6-10kVA UPS made an honorable entry on 2017 China IT Billboard

Under direction by China IT Industry Chamber of Commerce and hosted by Bit Network, the selection activity of the "Moving forward in changes - 2017 China IT Billboard" recently revealed its evaluation results. Delta's N Series 6-10kVA UPS products made the entry on the billboard with titles of "the most compact design" and "best performance" for products of the same class in the industry and have become the only UPS products selected for the "Award of Excellence in Product Innovation", once again demonstrating the non-paralleled capability of Delta's UPS.

As expressed by Mr. Li Nan, Director of Mission Critical Infrastructure Solutions BU of DGC, "We are very honored that the Delta N Series UPS has won the professional award for the IT industry. With the trend of digitization in business development, the demand for IT equipment is also growing rapidly, whether it's for the government, small businesses, or financial and business sectors. Known for its power management solutions, Delta provides worldwide industry-leading specifications and designs, with enhanced product performance for demonstrating to its customers in ensuring its competitive advantages."

The application of low-power UPS sustains regular operations of the user's core business. Inheriting Delta's persistence on technology and quality, the award-winner N Series 6-10kVA UPS features high reliability, excellent performance, and superb efficiency for the entire machine. In addition, when compared with similar products in the industry worldwide, it features the most compact design and the best performance, which can provide reliable power protection for key equipment such as workstations, communication base stations, ATMs, and POS. When it was launched in early 2017, it was widely adopted by a large number of equipment manufacturers and IT system integrators, and was trusted by customers in various industries.



Delta DVP wins Technology Innovation Award

Text by DGC



Delta DVP System Director Li Ming gives a speech at the conference

Delta was invited to the "7th China Energy Enterprise Information Technology Conference", hosted by the China Information Industry Association, to share outstanding achievements after years of dedication to information technology for energy enterprises. Delta's data visualization platform (DVP) was also awarded the "China Energy Enterprise Information Technology Product Technology Innovation Award". DVP is seamlessly integrated with Delta products and holds a leading position in the data visualization industry, due to its three major advantages: industry-leading data mining and big data analysis, vector spreadsheets and configuration, and 360-degree holographic display.

Delta DVP has distributed multi-screen displaying movement and can provide deep sub-system information integration for energy enterprise management platforms, such as a safety instrumented system (SIS), a manufacturing execution system (MES), an enterprise resource planning system (ERP), a centralized control center, and logistics management. The overall visualization display can achieve visual resource dispatch spanning multiple locations and screens through big data analysis and data value mining. The 360-degree visualization supports simultaneous display on multiple end terminals. DVP has been successfully applied in large energy enterprises including petrochemical, utilities, and fuel gas companies.

Delta volunteer project for energy education was awarded "Top-Ten Most Beautiful Youth Volunteer Service Project" for Pudong New District in 2016-2017

Text by DGC

Delta's volunteer project for energy education was awarded the "Top-Ten Most Beautiful Youth Volunteer Service Project" in Pudong New District for 2016-2017, demonstrating a good image of Delta volunteers. Since 2013, more than 200 Delta volunteers in Shanghai, Wujiang, Chengdu, Dongguan, Chenzhou, Wuhu, and Beijing have spread the seeds of environment friendliness and energy efficiency at eight elementary schools and Pudong Youth Center respectively, benefiting 12,500 students. The award this time also symbolized the recognition Delta received once again after it received the only "five-star" volunteer service award from Caolu Township in Pudong and the "Top-Ten Volunteer Service Project in Pudong New District" in 2015.

Delta's volunteer project for energy education aims to spread the knowledge of energy conservation and carbon reduction and began to gradually spread in mainland China from 2013. Its employees volunteered to use interactive teaching methods to enable the younger generation to develop concepts of environment friendliness and habits of living that are based on exploration of knowledge about energy from a young age. In addition, students were invited to visit LEED Platinum-grade green buildings – Delta R&D Building in Shanghai to learn about the latest trend in development for environment and energy efficiency, new energy equipment, and energy monitoring systems. In recent years, the volunteer service project has gradually expanded to Delta's Sunshine Elementary School in Yangjia Township of Mianyang, Sichuan, Wujiang Tianhe Elementary School, Wujiang Shanhu Garden Elementary School, Dongguan Shiqi Wenhui School, Chenzhou Shizhuyuan Elementary School, Wuhu Phoenix City Elementary School, and Beijing Wangjing Experimental School. The energy education volunteer teams established by Delta's plants in Dongguan, Wujiang, Chenzhou, and Wuhu and branch offices in Chengdu and Beijing, have developed teaching plans tailored to local conditions, so that more children and families can learn to recognize the importance of environment friendliness and energy efficiency.



Delta volunteer project for energy education was awarded "Top-Ten Most Beautiful Youth Volunteer Service Project" for Pudong New District



DGC R&D Center in Shanghai Pudong

PEOPLE

Strive for change, and pursue the best

Text by DGC



Donald Yu / Managing Director of Delta Greentech

Delta officially entered the Chinese market in 1992, with the establishment of Delta Greentech, which is responsible for the sales and services of product solutions of China region. After cultivating for 20 years, the company has formed various business models such as green energy, power management, industrial automation, video display and control, etc., with direct marketing, direct sales channels, and business service outlets throughout China. In 2012, I was asked to take over DCG, and moved back to Shanghai with my family. With firm determination, I faced new challenges together with the employees at Delta Greentech.



PEOPLE & PRODUCT

When I first joined Delta, coincided with an important opportunity for Delta to promote the brand and promote One Delta, also brought more resources and challenges to Delta Greentech. How to introduce new products into the Chinese market and to provide customers with integrated solutions across Bus, the answers is to create value for customers from the perspective of customers. Especially when our customers are five thousand kilometers scattered from south to north, not to mention the different needs, the environmental conditions the same product need to face is very different. For this reason, if our team not on the customer's side, they are on their way to our customer, seeking every chance to communicate. When it comes to major projects, we need to face strong competitors and customer's rigorous evaluation criteria, our team, including sales, technology, product divisions, and BU/BG, factory-side colleagues often communicate around the clock to discuss solutions and technologies.

With pioneering techniques and comprehensive service networks, Delta's presence in China has facilitated the completion of a number of exemplar and successful cases, which have captured the industry's attention. In 2017, there is the DLP display system consisting of 324 80-inch panels, which is made for a world-renowned provider of information and communication solutions. The size of the display is so big that it broke the record for the largest screen in the world, which is also made by us. In addition, Delta's servo market share in China ranks third, fourth and fifth in server, small PLC and converter respectively. The high-power UPS solution has won the contract with an internationally famous semiconductor manufacturer 3 times consecutively, with which we offer the client the guarantee of power for safe and stable operations.



Donald Yu / Managing Director of Delta Greentech

Delta Greentech has been rapidly growing by 26% every year on average. In 2017, our overall profit in China was approximately 3.8 billion RMB. With the collaboration of over 1,200 employees, I wish that China's market can grow bigger, and make greater contribution to Delta's overall performance growth. Through our joint efforts in 71 branches and service outlets across China, we create competitive advantages with our customers and grow together.



Jinpeng Chen / Sales Manager of North China, MCIS, Delta Greentech

As a senior employee who entered Delta Greentech relatively early, I started this job in October, 2005 and have been working in the sales and promotion as well as channel management of the Delta UPS product line and data center solutions in the greater North China region. Since 2013, I have started to act as Business Manager of North China Sales Department I, MCIS.

In the beginning of my employment, I was not familiar with the UPS and data center solutions. Thanks to the company training, I was promoted from a salesperson to the head of the department. I am grateful for the trust of the management as well as the support and approval of my colleagues.



PEOPLE & PRODUCT



Jinpeng with his son

After more than ten years of working in sales, I have come to a deep realization that sales rely on accumulation including the accumulation of experience and connections. The experience and connections I accumulated early on still benefit me now. However, as the markets have become more competitive over time, the salespeople working at the frontline should be constantly vigilant and prepared, innovative, and always keep a competitive mindset. We should also give other people enough respect so that our partnerships can last long. As to users, we should treat them as if they were our girlfriends, providing them with well-rounded services and putting ourselves in their shoes. We should often think from their perspectives and take into account their needs in the face of problems.

My permanent job location is the Beijing branch office, and I have quite a lot of places to go for meals and fun after hours. In my spare time, I like to skateboard and ski. I learn many sports myself, and then my kid learns from me. The two-month snow season in Beijing is relatively short; if we miss it, we have to wait for another year. Therefore, I insist on taking my kid to ski at least once during the snow season. While we exercise, we also enjoy the fun of skiing.



Wei Fu / Application Engineer of Robot Product Department, Delta Greentech

I joined Delta in July 2017 right after I graduated. In December of the same year, I was honored to become a part of the Robot Product Department of Delta Greentech. My work location is the production base in Wujian District, Suzhou, Jiangsu Province. As a robotics application engineer, I am mainly responsible for the development and application of robotics projects including the testing and development of new robotics products, promotion of application technology, integration of application solutions for the industry, and development and exploration of new industries.

My department is a vigorous and highly motivated department. Every person here devotes themselves to the robotics industry with enormous enthusiasm. The senior colleagues are also unreservedly trying their best to help us grow. This has made me realize that the mutual help and advancement between colleagues can be a nice and fun aspect of my job.

Ever since I joined Delta, I have strongly felt that the philosophy of "To provide innovative, clean and energy-efficient solutions for a better tomorrow" is constantly adopted in every corner of the company in daily life; for instance, the faucets of the washbasins are installed with aerators; a battery recycle point can be found in the office building; the rooftop of the office building is installed with solar panels. Because all the employees bask in this philosophy, we are driven to practice the ideas of environmental protection all the time. This also manifests that Delta is a company with a strong sense of corporate social responsibility.

I like to play basketball in my spare time. Every weekend, I invite my friends to spend half a day playing a basketball friendly game that makes us sweat heavily. I also like to jog and read. I am now reading *The Universe in a Nutshell*. I hope that I can persist in exercising and reading. I remember that during the new employee orientation, Delta Greentech's IABG General Manager, Shih-an Lu, said that a good job makes you grow and brings you happiness. I hope that everyone can grow and be happy in their work.



Wei Fu loves to play basketball during his free time



Delta PMH series

PRODUCT

Delta PMH series of panel mount power supply with NEC Class 2 approval for household applications

Text by DET

Delta Electronics extends the PMH series of panel mount power supply with 24V 91.2W output certified to NEC Class 2. The PMH-24V100WCNS accepts universal input from 85Vac to 264Vac in a full corrosion resistant aluminium body. Power will not de-rate across the entire input voltage range, providing full power even if the input voltage drops below the nominal voltage. The highly efficient convection cooling construction can operate from -30°C to 70°C and at a no-load power consumption less than 0.3W @ 115Vac and 0.5W @ 230Vac.

The NEC Class 2 model is specifically designed for household electrical appliances with safety approvals to pollution degree 3 as well as including IEC/EN 60335-1, IEC/EN 61558-2-16, IEC/EN/UL 60950-1 (with NEC Class 2). In addition, the product meets the EMC approvals to EN 55014-1 / EN 55014-2 for household appliances and EN 61000-6-1 / EN 61000-6-3 for residential environment without extra EMI filter required.

Highlights & Features:

- ▶ Household appliance approvals for pollution degree 3 to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16
- ▶ Universal AC input voltage
- ▶ Withstand line input voltage surge 300Vac up to 7 seconds
- ▶ Full power from -20°C to +50°C operation @ 5000m or 16400 ft. altitude
- ▶ Full corrosion resistant aluminium casing
- ▶ No load power consumption < 0.3W @ 115Vac, < 0.5W @ 230Vac
- ▶ Low earth leakage current < 0.75mA
- ▶ NEC Class 2 certified

Please contact your local sales representative or distributor for product availability.

New models are introduced on a regular basis. For product details and enquiries, you can also visit www.DeltaPSU.com



Delta SCARA Robot Series DRS50L/DRS70L

PRODUCT

Delta releases new SCARA Robot Series DRS50L/DRS70L

Text by DGC

In 2015, Delta released its own brand SCARA industrial robot series DRS40L/DRS60L. Recently, new series DRS50L/DRS70L was launched in response to the demands in consumer electronics industry for a shorter product cycle, reduced production, more variety, and frequent production line changes. These demands are an indication of the customer moving from "automation" to "smart automation".

The Delta DRS50L/DRS70L series is a selective compliance articulated robot which features arm lengths of 500 mm / 700 mm. It has sensor-less compliance control function and provides exceptional speed, precision, linearity, and verticality at the same time, accurately and precisely conducting processes such as glue-coating, deburring, soldering, plugging in, assembling, screwing, transferring, transporting, and packaging. Its automatic process path planning function perfectly meets the requirements of tracking synchronized applications, and therefore increases productivity. While labor costs are rising and fixed production process machines are less favorable for lack of flexibility, the agile SCARA DRS50L/DRS70L series robot is truly a reliable solution.

Furthermore, the DRS50L/DRS70L series can be incorporated into Delta's industrial automation products to create a simplified and highly integrated robot workstation. The robot workstation has greater advantages against the unpredictable market demands and rapid production line changes, helping the manufacturing system gain greater agility and move towards smart production, effectively improving quality, production flexibility, and productivity.



DK8500Z can be applied to cultural tourism and theme parks, wall projection, stage art, exhibitions, and high-end projection applications in engineering

PRODUCT

Vivitek 4K projector DK8500Z officially released

Text by DGC

Vivitek, a projector brand of Delta, has released its 4K laser projector DK8500Z, which has attracted the attention of high-end engineering users at several major exhibitions such as InfoComm China 2017 and the Chengdu International Music (Performance) Equipment Exhibition. The 4K laser projector has been officially launched on the market and offers a brand new option to high-end projector users in the engineering field.

The DK8500Z, in comparison to products of similar size and brightness, is relatively compact yet delivers great performance. It is merely 29 kg in weight and can retain 90% of its brightness after 5,000 hrs of operation. This shows that DK8500Z has a significant advantage in brightness decay.

The professional laser source of DK8500Z with the high-contrast DLP projection system produces even greater sharpness and contrast. As its original resolution is already ultra HD 4k, the 100,000:18000 lumen high contrast ratio ensures a vibrant and rich image quality. The splice technology, a frequently used function for projector users, is also featured in DK8500Z which has a built-in edge-blending function offering options of top, bottom, left, and right, well serving the purpose of blending projections.

As 4K laser projectors have gradually become a mainstream product used in the engineering field, the compact, high-brightness, real 4K, stable, multifunctional, and highly compatible DK8500Z can be applied in cultural tourism and theme parks, wall projection, stage art, exhibitions, and other high-end projection applications in engineering. It offers a projection solution that is brighter, more stable, more attractive, and more energy-efficient, providing high-end system integrators and enterprise users with more options to carry out their work.



Delta announces the release of building microclimate database, adding momentum to energy efficiency in buildings



Text by Evan Kao / Project Director of DEF

In early March, Delta Electronics Foundation held a special press conference at Sunshine Theater, packing the room with more than 30 journalists and guests from climate, building and environmental protection sectors, where they witnessed the birth of Taiwan's first building microclimate database.

The term, building microclimate, sounds hard to understand, but why is it attracting so much attention? The reason is that these two topics are closely related to the dilemmas that Taiwan encounters in recent years.



Frequent power shortage news pushes for energy-efficiency in buildings

Power shortage in Taiwan is no longer news in recent years. Having gone through the frightening 2017, Taiwan is flagged with the first “orange alert” (indicates that the current daily reserve capacity is lower than 6%) in February, just before the New Year begins, sending a possible power outage alarm this year.

Due to consecutive days of cold weather, the peak power usage on the evening of February 5 hit 29,050,000 kW, an orange alert indicating a warning on power supply (the reserve capacity on that day was only 5.08%) was flagged for the first time in February, and Taiwan Power Company immediately applied for the restart of No. 2 nuclear power reactor which had stopped for two years, triggering criticism from environmental and anti-nuclear groups. Many are worried about another 815 massive power blackout.

	Industrial	Agricultural, Forestry, Fishery and Husbandry	Services	Residential	Institutional	Total
Rate of growth in power consumption	2.7%	4.0%	1.1%	-0.4%	-4.5%	2.2%
Contribution to growth in total power consumption	99.4%	3.9%	13.9%	-5.4%	-11.8%	100%

2017 Taiwan's power consumption increased by 2.2%, with Residential and Institutional sectors showing a decline
(Source: Risk Society and Policy Research Center, National Taiwan University)

How can summer power outage be prevented in 2018? There are different voices from different groups, with the pro-nuclear group stressing that the problem will be solved by operating the nuclear plants in full power, while the anti-nuclear group suspects Taipower has been falsifying power shortage information over the years, claiming there is no power shortage in Taiwan at all. Unfortunately, amidst the discussions (or war of words), everyone seems to be concerned with finding new energy sources, but forgets the importance of energy-saving.

According to “Review of Taiwan’s 2017 Power Consumption” published by Risk Society and Policy Research Center of National Taiwan University, Taiwan’s power consumption increased by about 2.2% compared to the previous year. The increase is not only higher than the previous year’s (2.1%), but is also higher than the average of past five years (1.4%). However, taking a closer look at changes for the six major power consumption sectors, “Residential” and “Institutional” are the only two that show a decline, providing some level of comfort.

In fact, in Taiwan, a densely populated country with 3/4 of the population concentrating in the urban region, reducing power consumption for buildings is definitely an essential measure. According to the statistics of the Central Weather Bureau, Taiwan’s average temperature increases by 0.7 degree Celsius in the past 100 years, with the average temperature in urban area increasing twice as much (1.4 degree Celsius). During the hot summer, the highly concentrated buildings, congested traffic, urban space with insufficient shading from plants, and inability to dissipate heat from road surface contribute to generation of heat island effect. To escape from the heat, the public either stay home with their air-conditioning on or flock to air-conditioned indoor venues (such as convenience stores, departmental stores, libraries), hence leading to consecutive years of increase in power consumption for buildings (including residential, institutional, services, etc.)



單位：百萬度
Unit : GWh

年別 Year	國內消費 Domestic Consumption							線路 損失率 Line Loss Rate (%)
	合計 Total	能源部門 自用 Energy Sector Own Use	工業 部門 Industrial	運輸 部門 Transportation	農業 部門 Agricultural	服務業 部門 Services	住宅 部門 Residential	
1996	134,306.7	14,259.4	62,938.9	253.8	2,223.3	27,051.7	27,579.8	6.14
1997	143,290.8	14,666.2	68,863.0	339.2	2,264.1	29,317.5	27,840.8	5.91
1998	154,569.3	15,577.9	71,931.0	379.9	2,064.0	31,670.7	32,945.8	6.06
1999	160,942.6	15,635.0	77,466.7	411.4	2,143.6	32,774.2	32,511.7	5.92
2000	176,510.9	16,483.8	86,889.4	455.3	2,262.1	35,877.0	34,543.3	5.58
2001	180,503.2	18,078.5	87,097.1	448.1	2,229.0	36,994.4	35,656.2	5.45
2002	190,266.4	18,132.0	93,205.7	474.6	2,326.2	38,937.0	37,191.0	5.68
2003	200,466.0	19,248.9	98,403.8	464.6	2,430.2	40,818.3	39,100.4	5.03
2004	209,889.2	18,938.0	105,518.9	518.5	2,510.7	42,815.0	39,588.1	4.93
2005	218,450.4	19,592.0	108,545.2	522.8	2,489.6	44,995.2	42,305.5	4.76
2006	225,966.8	20,292.8	113,476.2	551.5	2,601.9	46,580.2	42,464.2	4.85
2007	233,485.9	20,810.0	119,363.1	830.7	2,619.6	46,737.8	43,124.7	4.75
2008	229,684.3	19,600.7	117,060.4	1,100.6	2,600.3	46,635.5	42,686.8	4.58
2009	220,707.9	19,070.5	109,693.9	1,106.9	2,582.0	45,187.7	43,066.9	4.86
2010	237,399.6	19,062.4	124,154.3	1,150.4	2,615.5	46,989.9	43,427.0	4.66
2011	242,075.8	19,074.8	127,775.8	1,203.1	2,726.1	46,878.0	44,418.1	4.76
2012	241,205.4	18,672.8	128,413.5	1,228.6	2,707.9	46,909.0	43,273.7	4.42
2013	245,094.5	18,428.7	132,076.5	1,278.9	2,751.2	46,991.7	43,567.5	4.25
2014	251,073.6	18,875.6	135,266.8	1,321.4	2,832.9	47,603.0	45,173.9	4.09
2015	250,008.9	19,024.0	133,521.6	1,347.4	2,917.1	48,316.4	44,882.4	3.72
2016	255,381.0	18,931.1	135,683.5	1,361.4	2,922.7	49,149.9	47,332.4	3.85

From government statistics, buildings related to "Services" and "Residential" sectors show consecutive years of increase in power consumption
(Source: Energy Statistics Handbook 2016, Republic of China)



Climate information helps strengthen capabilities for energy-efficiency in buildings

Such trend has led to a demand of green building concept which emphasizes energy-efficiency and reduction of carbon emission. However, Delta which has been promoting green buildings over the years, as well as getting involved in the building and usage, discovers that that is a gap between the climate statistics available to Taiwan and actual requirements. Hence, it cooperated with two professional organizations, the Central Weather Bureau and Taiwan Architecture & Building Center last year, in delegating Tai-Jen George Chen, former Vice President of National Taiwan University and lifetime-distinguished professor of the Department of Atmospheric Sciences, as project director. After one year's of effort, Taiwan's first building microclimate database is published and made available for access by the public.



Taiwan's first building microclimate information platform compiles historical data over past 20 years from Taiwan's 13 weather stations

If during the design stage for every building, factors such as surrounding environmental features, adapting to local weather condition, and using passive design methods like increasing ventilation, natural lighting, building surrounding green belt, etc. are considered, and together with Building Information Modeling, a tool widely used in global architectural industry in recent years which provides big data and quantitative analysis system for design, construction, building, and subsequent maintenance and management stages for a building, it can reduce design error and resource waste during the construction process, as well as reduce the building's future power consumption and carbon traces from the source.

It means that if we are able to get hold of the historical data for a construction site such as sunshine, wind speed, temperature, humidity, rainfall, etc., through BIM simulation and analysis, it would better help architects in building eco-friendly green buildings that are energy-efficient and reduce carbon emission, establishing a comfortable living environment. Green building is no longer a castle in the air, but feasible solution close to actual conditions.



In response to extreme climate, the next step is to develop a more accurate information

The recently-released building microclimate database incorporates data from Taiwan's 13 stations with highest population. In the future, raster data for smaller geographical areas will be developed for link with real-time weather forecast information to provide more useful information on microclimate.

This action is essential. Though the government does provide official statistics at present, additional manpower is required to process them before the climate data can be used in the architectural drawing software and energy analysis system. For example, Taiwan's weather information provided by US Autodesk website is not recent enough and the locations of the detection stations are not wide enough, resulting in Southern building projects often using information from Northern weather stations when simulating future power consumption. As Taiwan is an island surrounded by sea, situated between the world's largest continent (Eurasian Continent) and largest ocean (Pacific Ocean) with the Central Mountain Range in the middle, there is huge climate difference in different regions. Also, with the extreme climate in recent years, more accurate and local information should be provided in order to help architects design resilient buildings that adapt to climate.



According to director of Bio-Architecture Formosan, Chang Lien Lin, most people think that Taiwan experiences northeast wind in winter and southwest wind in summer. In fact, climate in the mountains, beach, and every region is different. With more detailed microclimate data, architects can then determine which direction the window should face, precisely calculate window opening ratio, and design wind corridor, increasing the building's energy-efficiency.

According to government statistics, the total power consumption for Taiwan's residential and commercial sector (Residential + Services) in 2016 reaches 96.5 billion kW. With a saving of just 5% (about 4.8 billion kW), the power consumption saved would be almost twice of one years' solar power and wind power generation (2.5 billion kW). In other words, by making the best of weather information, implementing energy-efficiency for buildings and eliminating power shortage crisis in 2018 is not an impossible mission.



The building microclimate database presentation attracted many journalists, who also raised questions after the presentation



To improve capability for energy-efficiency in green buildings, weather information will be an indispensable method

Reference /

1. Risk Society and Policy Research Center of the National Taiwan University (Review of Taiwan's 2017 power consumption)
2. Green BIM building microclimate information platform (www.weatherservice.org.tw)
3. Delta Electronics Foundation's commissioned project, "Application of climate services on green buildings: Establishment of microclimate database for green building information model" (project director: Lifetime-distinguished professor of the Department of Atmospheric Sciences at National Taiwan University Tai-Jen George Chen; co-director: manager of Taiwan Architecture & Building Center Li Ming-Hao, CEO of International Climate Development Institute Kung-Yueh Chao; team members: Liu Yi-Ting of Wylin Architects)



Delta Electronics Foundation attends GCF Conference, keeping abreast of climate fund movement

Text by Zhan Yi-Jie / Specialist in climate and energy, Delta Electronics Foundation

United Nations Framework Convention on Climate Change (UNFCCC) has been established for more than 1/4 century. I believe as at today, there is consensus among developed and developing countries that human need to take action to fight against climate change. However, a cruel reality always exists, which is where the money comes from and how it should be used.

Green Climate Fund (GCF) was established under such circumstances, and has become an important body for administrating flow of global climate fund. In early March, GCF held its 19th Meeting of the Board at its headquarters in Incheon of Seoul. Delta sent its personnel to Incheon to bring firsthand information to the people of Taiwan.

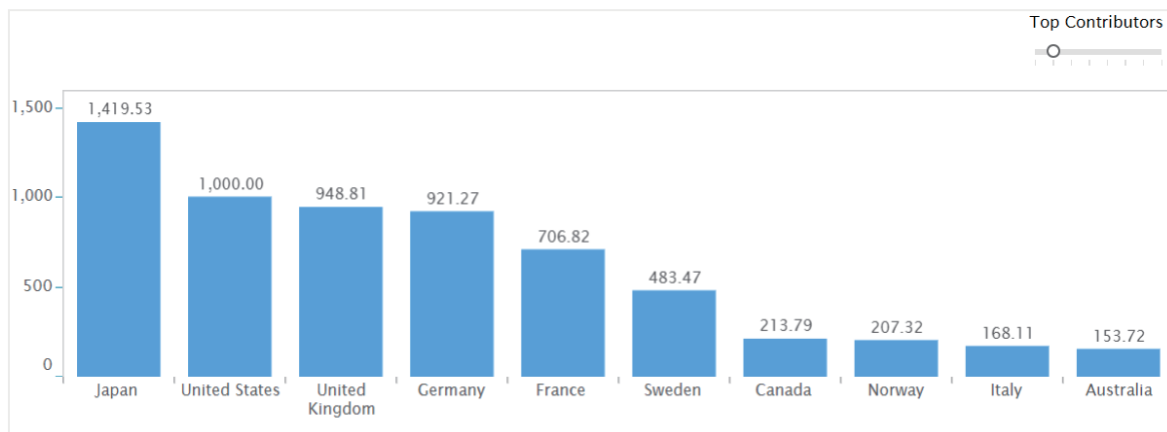


Late arrival of fund, accused of inefficiency in execution

GCF was born due to the disappointing 2009 Copenhagen Climate Conference (COP15). The following year, developed countries promised to pump USD 100 billion per year before 2020 to assist weak regions, such as the least developed countries (LDCs), Small Island Developing States (SIDS), African countries, etc. to deal with climate change, and GCF was set up in 2012 to manage this common fund.

GCF holds three regular meetings of the board every year. Delta Electronics Foundation, which has been following climate issues closely over the years, has also obtained an observer status in 2014 to attend the meeting and keep abreast of movement of the current global climate fund.

Total Contributions: **USD 6,783.21 million**

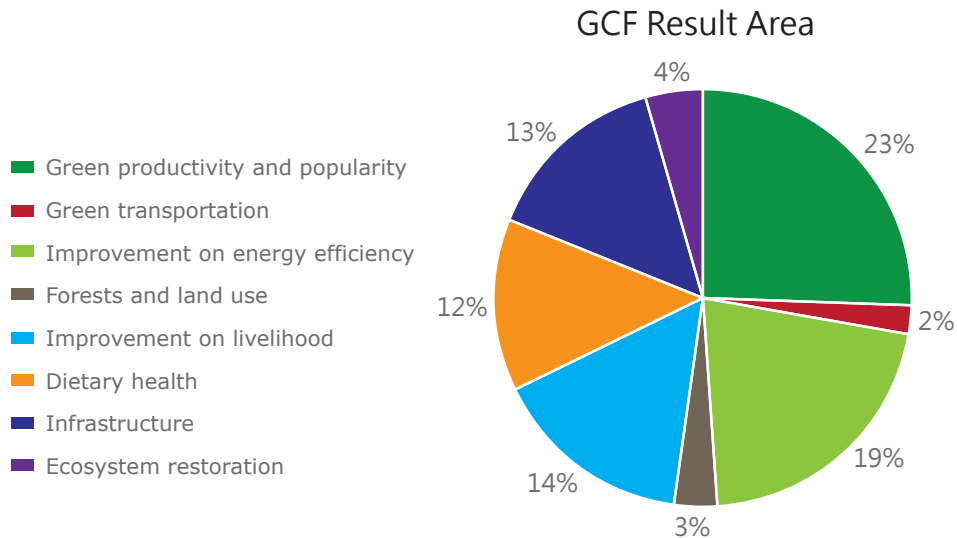


GCF has only raised USD 7 billion at present, which is a huge funding gap (Source: World Bank)

According to the latest official statistics, GCF has raised USD 6.78 billion as of now. There have been more than 300 GCF applications in the past 6 years, with approximately 1/3 having passed the preliminary selection and moved into the approval stage. However, as of end of 2017, only 53 applications have been approved, with a total release of USD 2.6 billion, which led to the organization being criticized for their inefficiency.

GCF has its considerations for being prudent. Firstly, with the numerous and varied international climate action plans, GCF has to be very careful in playing the role of an official fund for the United Nations, and uphold the principles of fairness and transparency during the process in order to prevent extravagant spending or being questioned for underhand dealings. Secondly, due to the delay in receipt of expected fund, the approved cases have utilized nearly 40% of the fund. Hence, they have to be very cautious so as not to fall into the dilemma of fund shortage.

Speaking of which, you must be curious how GCF plays the role of a gatekeeper. Firstly, every proposal has to pass through both the Secretariat and independent Technical Advisory Panel (iTAP) for approval to ensure the content complies with carbon emission reduction and environmental friendly benefits, promotes social participation and gender equality, and does not infringe the rights of the indigenous people, and then only can it be discussed during the meeting of the board. The six major investment criteria released by GCF are: potential of impact (carbon emission reduction benefits), potential for paradigm shift, potential for sustainable development, needs of the recipient (financial soundness), country ownership (the degree of cooperation with other countries' INDC programs), and efficiency and effectiveness.



The approved cases at present are mainly generating "green energy" and increasing "energy efficiency"
(data compiled by: Zhan Yi-Jie)

Where does the money go? Nearly half goes into "green energy" and "energy efficiency"

As at the end of last year, nearly half of the 53 approved applications involve renewable energy and increasing energy efficiency, which shows that these are the more popular and most easily approved mainstream projects.

In response to the accusation of inefficiency, GCF unprecedentedly approved 23 funding projects, totaling USD 1.09 billion, in the 19th Meeting of the Board held in March. This is significantly faster than the average of less than 10 cases per year in the past.

1/3 of the 23 newly approved new cases is related to energy resources, including a Brazilian city proposing to replace their street lamps with LED lights, Outer Mongolia proposing to build a green energy community, Paraguay and Vietnam subsidizing industrial energy-saving, etc., exhibiting significant carbon-reduction potential.



Observers are able to keep abreast of the GCF meeting through broadcast, and send representatives to express their opinions despite not having the right to speak



In fact, the approval process is not solely carried out by GCF personnel, as Civil Society Organization (CSOs) can also express their opinions. In this meeting, Delta correspondents, together with CSO members from other countries, wrote policy advice to GCF's Meeting for the Board pertaining to a few controversial cases. This increases Delta Electronics Foundation's visibility and influence in global climate communities.



With the global carbon reduction target set in the Paris Agreement, there have been ongoing discussions on ways to raise fund and use of the climate fund, proven by the outstanding performance of Green Bond in recent years. According to the statistics of Climate Bonds Initiative, compared to USD 13 billion in 2013, last year's issuance of Global Green bond increased to USD 155 billion. By understanding GCF's operation, we hope to help various sectors of Taiwan to keep abreast of the movement of international green finance and carbon reduction, and catch up with this irreversible wave.

Delta correspondents work with CSO members from different countries in raising policy advice for GCF review procedures

Reference /

- ▶ <http://fiftrustee.worldbank.org/Pages/gcf.aspx>
- ▶ <https://www.greenclimate.fund/-/gcf-board-approves-over-usd-1-billion-in-funding-for-climate-mitigation-and-adaptation?inheritRedirect=true&redirect=%2Fhome>
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