DELTA BRAND NEWS

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Delta Mission Critical Infrastructure Solution helps build an international data center at the Wuhan Airport Economic & Technological Development Zone

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FROM THE EDITOR

The result of "2018 Taiwan's International Brand Value Survey" has just been revealed. Delta is selected as one of the top 20 international brands from Taiwan for the 8th consecutive year and our brand value has been growing for the 6th consecutive years, making it the large-scale industrial brand with the highest growth. As a provider of power electronics and energy management solutions, Delta continues to utilize innovative technologies to provide more efficient and reliable solutions for future living and to create low-carbon, sustainable cities. This is Delta's brand commitment and also the realization of its corporate social responsibility.

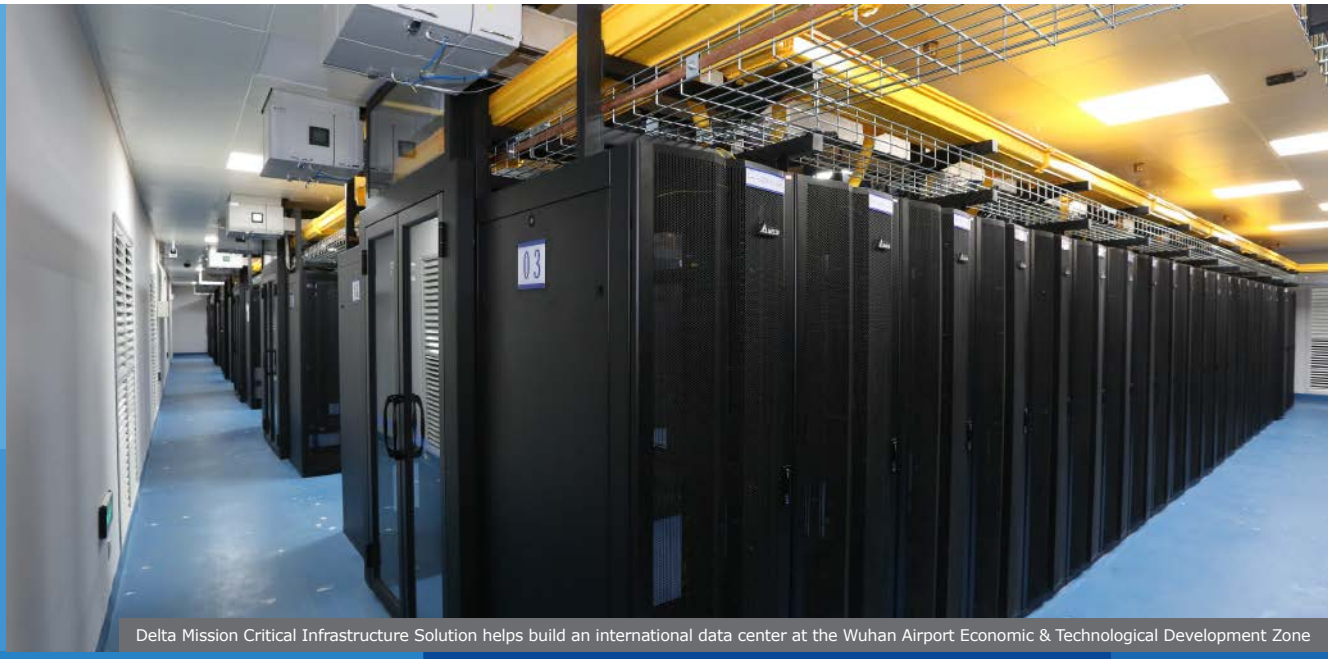
With increasing popularity of cloud computing and the rise of big data analytics, data centers play an important role in various industries. In this issue of "Special Report", we will share with you the story about Delta's Mission Critical Infrastructure Solutions that utilized UPS, smart power distribution cabinets, etc. to help Wuhan Airport Economic & Technological Development Zone build an international data center. In "About DSM" of this issue, we have a successful case from IA Wujiang Technology Application Center, in which Delta Intelligent Workstation with functions such as high-speed catching and precise positioning assist the packaging industry in improving production efficiency and realizing the progress of smart manufacturing.

This year’s Delta COMPUTEX 2018 presentation will exhibit “IoT-based Smart Green Solutions to Nurture Energy Efficiency in Cities”. Delta employs the "micro-grid solution" that integrates energy storage containers and electric vehicle charging, along with dispatch management, demand response, and power dispatch of renewable energy to achieve the goal of sustainability in energy. In "Brand People" of this issue, we interviewed Mr. James Chen, Assistant Vice President of ESDBD. He talked about the business opportunities and blueprints of the energy storage system, as well as his close to thirty-five years of experience with Delta and related thoughts.

With a highly recognized record in the promotion of green buildings, Delta won the "Green Pioneer Award" and "Industry Pioneer Award" at the 2018 "Greenbuild International Conference & Expo in China". By continuing to stay on top of the major trends in smart manufacturing and smart buildings, Delta showcased its quality solutions in Nuremberg international exhibition for electrical automation (SPS/IPC/DRIVES) and Venice Seminar for energy-efficient buildings. Possessing core display technology, Delta recently announced the world's first 25,000 lumens ultra-bright DLP® 8K projector with its affiliated partner Digital Projection in Japan. More exciting coverage will be shared in "Brand Circle".

In this issue’s "Delta Green Life", we analyze the "Special Report on Global Warming of 1.5°C" by the "Intergovernmental Panel on Climate Change" (IPCC) of the United Nations. In addition to letting us understand the impact brought by global warming to the environment and changes in ecosystems, it also promotes the importance of carbon reduction actions for mitigating the impact of climate change. In “People” column, we have exciting stories shared by colleagues from Taoyuan R&D Center. More exciting contents are not to be missed.

Brand Management Office



Delta Mission Critical Infrastructure Solution helps build an international data center at the Wuhan Airport Economic & Technological Development Zone

Delta Mission Critical Infrastructure Solution helps build an international data center at the Wuhan Airport Economic & Technological Development Zone

Text by DGC

On May 7, 2018, the Wuhan Airport Data Center Project by Wuhan Zhongwei Yifang Big Data Technology Co., Ltd. was officially launched in Wuhan, with a total investment of 13 billion yuan to build the largest international 5A data center in Central China. In less than six months, Delta's overall solution completed the deployment of 10 modular data centers, to help successfully finish the first phase of the data center project, with famous internet companies such as Baidu, Tencent, and iQiyi soon to follow.

Deploying a super large-scale IDC with Delta's pre-made micro-module data center

Known as the "Passageway of Nine Provinces" throughout its history, Wuhan is working hard to build a "Passageway for China" in the Internet world. In recent years, many domestic and foreign Internet giants have come to set up their operations in Wuhan, and the city is becoming a new force in China's Internet field. Among these developments, the project team for Wuhan Airport Economic Development Zone (WAEDZ) is committed to building a "network security industry port" by taking advantage of the city's location as China's economic and geographical center and its advantage in the industry as China's first "national network security base", which has attracted investments from many well-known domestic and international corporations. The "Wuhan Airport Data Center Base" built by the Wuhan Zhongwei Yifang Big Data Technology Co., Ltd. is one of the company's fist projects. Upon completion, it will feature a scale of 20,000 cabinets, which will bring many first rate Internet and industrial corporations to Wuhan.

The first phase of the project for the data center base was officially launched in May 2018. Delta's premade micro-module data center solutions include UPSs, high-compatibility smart power distribution cabinets, high-density cabinets, pre-engineered cabinet-top cabling modules, PDUs, air containment systems, and data center infrastructure management systems (DCIM). Designed for high-availability, quick setup, and green energy efficiency to cater to the needs of data center users, each micro-module is self-contained and can form an independent and complete space with excellent capacity expandability, high usability, and easy management.

Delta invited 30 media companies to visit the first phase of the Wuhan Airport Data Center Base, and witness the largest international 5A-level IDC in Central China

Because of the high-energy consumption, poor usability, and long set up time issues of traditional data centers, the "micro-module" has become a new data center trend. Delta's premade micro-module data center solutions are very mature, with advantages such as factory integration and testing to simplify and accelerate onsite installation while ensuring more predictable and reliable operation. At the construction site of the data center base, Delta engineers need only to assemble the premade modules into place one by one, with each module and its internal structure following a standardized installation program. This type of construction simplifies the amount and difficulty of engineering work, shortens construction time, and reduces cost. In the first phase of the project, Delta deployed 10 micro-module rooms, 2,318 cabinets and motor rooms. It utilized the Data Center Infrastructure Management System (DCIM) - InfraSuite Manager for tasks such as monitoring the temperature and humidity of each service room, sending alerts for water leakage of the precision air conditioning, monitoring voltage, resistance, and temperature of the battery, as well as monitoring and warning about UPS current and voltage. Completion of this phase took less than 6 months, and customers recognized the higher efficiency that resulted.

Delta's exclusive new technology creates trust with an international 5A-level of IDC

In response to the Internet "big link" strategy from the Hubei Provincial Government and the Wuhan Municipal Government, the goal of the construction is to build the airport data center on an international 5A-level data center. Upon completion, it will become the largest Internet data center in Central China, accelerating the infrastructure upgrade for a smart city while meeting stringent requirements for network data service in the airport and even in Wuhan and Central China.

The "A's" used in the international 5A data center are abbreviations that stand for Anyone, Anywhere, Anytime, Any-device, and Anything. They specifically refer to anyone authorized and certified who, at any time and in any place with Internet access, can use any terminal device to safely access applications and materials to fulfill their needs in work, study, and life, which is also the highest standard for the IDC (Internet Data Center).

Delta has deployed 10 micro-module rooms for its premade micro-module data center solution in the first phase of the project

With the arrival and entry of well-known Internet companies, the data center base must deal with a massive amount of data access, as well as various applications and emergencies for the network. For e-commerce, the nationwide "Double-Eleven Shopping Fest of November 11" will see an influx of tens of millions of visits per minute, and video content providers will require fast response speeds with smooth video playback at all times, which are all challenges for the IDC services.

In response to the 5A challenge, Delta utilized its DPH 500kVA series UPS, which is designed for ultra-large-scale IDC and employs the latest technology.

The DPH 500kVA Series modular UPS offers significant advantages such as: self-detection warning, a perfect balance between reliability and energy efficiency, full-module backup and redundancy, and a design for the industry's highest power density. With its rich data experience, Delta conducted in-depth research on the components inside the UPS that are prone to damage from aging, such as capacitors, IGBTs, and fans, and obtained valuable insight into their durability and lifespans. Based on charge and discharge performance, temperature curves, and changes in rotation speed, Delta can accurately determine component status and warn in advance for timely repairs and replacement, so that dangerous last moment for the UPS never comes.

As a major consumer of energy, the ultra-large-scale IDC is facing the pressure of operations and maintenance with a high volume of electricity bills. Delta's DPH 500kVA Series UPS design includes a highly reliable system sleep function that helps the system achieve energy efficiency by having one power module turn off every 30 seconds and enter sleep mode according to customer loading status. When encountering a power failure, the system quickly starts the entire UPS power module within 2 milliseconds and enters into a working state, striving for the perfect balance between reliability and energy efficiency.

In addition to the industry-exclusive technologies mentioned above, the DPH 500kVA Series also features leading technologies such as the industry's largest 10-inch full touch screen and designed with full-module backup redundancy, compatible iron-lithium battery, single-cell battery monitoring, ambient temperature, modular sleep function, and 500kVA highest power density. The modular UPS features single-rack expansion and parallel system expansion, which greatly improves the reliability of the power supply system and the selection of the expansion solution, effectively reducing the initial investment. The module with the industry's highest power density is only 3U high, and it is convenient for one person to install. Expanding the power module from 50KW to 600KW for single systems, allows customers to build a power system with a maximum level of up to 4800KW. The first phase of the Wuhan Airport data center base has 51 DPH 500kVA Series UPSs, which provide reliable power protection for the international 5A data center.

In response to the 5A challenge, Delta utilizes its DPH 500kVA Series UPS, which is designed for ultra-large-scale IDCs, employs the latest technologies, and has the highest power density in the industry

Dr. Charles Tsai, General Manager of MCIS, said Delta, as a solutions provider for data center infrastructure, provides small, large, and ultra-large data centers for users in different industries around the world. In addition to superior product performance and the industry's best-in-class technology, Delta utilizes its world-leading capabilities in R&D design that are based on customer needs and industry-catered applications to introduce more industry-specific product solutions, such as the DPH 500kVA Series UPS for ultra-large IDC data centers, that enjoy a significant advantage over those of its competitors. With the increasing popularity of cloud computing, the rise of big data, the arrival of the 5G era, and the construction of ultra-large-scale data centers, Delta looks forward to serving more users and continuing its successful experience with international data centers.

ESDBE Assistant Vice President Mr. James Chen

Exclusive Interview of James Chen, Assistant Vice President of ESDBD

Follow the trend, create new models for energy storage applications

Text by Brand Management Office

Delta debuted its energy storage system and electrical vehicle charging "Micro-grid Solutions" and renewable energy dispatch management at COMPUTEX Taipei 2018, presenting diverse solutions for power demands. In this issue of Brand People, we will be speaking to ESDBD Assistant Vice President (AVP) James Chen. We will have him speak about business opportunities and the blueprint for energy storage systems, as well as his experiences and reflections of his 35 years at Delta.

Center around the core technology, diverse product applications with battery technology

"ESDBD, created four years ago, aims for its target market in batteries and related application fields," continues James. "In 2014, we started a partnership with Mitsubishi Heavy Industries, Ltd. Japan and spent three years to introduce the battery cell technology into Delta." Teams worked tirelessly every step along the way, from construction of the factory to production lines, so that we would have a robust foundation in battery cell technology and a quality manufacturing. It was also integrated with Delta's thermal management products and energy management solutions to allow for the current energy storage systems (ESS), power conditioning systems (PCS), uninterruptible power supplies (UPS), and various other product applications.

The discussion on energy issues in recent years have given ESS an increasingly more important role. James also shared about his opinions on the issue with us. "As we promote awareness for energy transition today, there is a growing demand for renewable energy. ESS with renewable energy to increase reliability of power supply will become the main trend in the future." Indeed, we allow the steady supply of renewable energy through the conditioning of ESS, and the demand response and power dispatch are based on actual grid demands. The goal of energy sustainability is achieved under a steady supply of power.

In regards to the plans of development for ESDBD in the coming years, Mr. Chen indicated that "Our team would divide its efforts in two major aspects: technology improvement and product application." In terms of technology, cells are the focus of development. We continue to improve cells quality and capacities. In terms of application, we integrate battery technology with other Delta products as value-add solution to explore the business opportunity. Take the example of ESS, which is the integration of Delta batteries, PCS, EMS and other products and technologies, it allows for a more diversified development of the application and is an evidence of Delta's strategy and goal of transitioning from products to solution provider.

Balanced in-and-out, high integration for market expansion

James has many years of experience in R&D of technologies and market observation. He also shared about the current strategy for development and points of opportunity for ESS. "This is a new industry with a lot of demand and many opportunities. Our plan is to strategize and market the product with an approach that is balanced in-and-out." On the internal side, ESDBD eagerly searches for opportunities to integrate with other business groups in Delta and is currently working with ICTBG, MCIS, EISBG, PSBG, BABG, and other groups. This business groups span across telecommunications, network communications, energy infrastructure, and other fields. They share the common trait of products which require batteries and power storage to act as means of support. On the external side, ESS is used at the Taiwan Electric Power Research Institute (TPRI) Shulin Campus and the Delta Ako Energy Park in Japan to facilitate dispatch of power on the grid or in the power station on renewable energy. Also, Delta recently partnered up with Ørsted to build an "Energy Storage Research Center" at the National Changhua University of Education; whereas in Australia, Delta is currently collaborating with the MCIS team to integrate an emergency power solution for large data centers, which aims to promote the potential for development in the future through real applications.

"Our competitive advantage comes from our outstanding of technology and our skills in integration." James continued to express that as the systems and solutions have gradually become our future trend for development, the teams already have the ability to apply current components and standard products onto different applications. Only through continuous improvement on capabilities in technologies and integration, are we able to occupy a place in the highly competitive future energy market.

Improve applications, increase brand influence through quality technology

In terms of brand management, James also shared about his thoughts with us that we shall "train for technical skills in systems integration, and raise awareness of the brand through success stories in various locations." Mr. Chen thinks that "besides integrating with existing renewable energy and power plants, ESS are also slowly being introduced to basic infrastructures and other industries." He points out that nations with liberalization on electricity have many applications related to energy storage in response to innovations on business models. Energy storage is a new business at Delta. Our goal is to continue to follow up on the market trends, find possibilities of partnership with Delta business groups and various industries, study ways to improve technologies, and improve Delta's brand value.

Poland's Deputy Minister in the Energy Department (COP24 President) and clients visit Delta Taoyuan V Factory

Embrace challenges, follow market trends and step towards success

After 35 years in Delta, James has worked in automation, thermal management products, batteries, ESS, and other fields. He also shared about his thoughts on his career over the years. "Delta products and solutions span across many fields. The company is willing to offer a platform for R&D of technologies and business development so that all the fellow workers have a chance to perform in this environment." He greatly appreciates the company's perseverance and support. After the first few years of hard work, ESS has slowly found its way in product technology and market development. The discovery of new applications in a changing environment will continue to be a key issue.

"The value of quality products relies on a comprehensive platform for R&D of technologies.. Applying existing advantages to connect with future trends is the key to success." The interview concludes with these inspiring words from James.

CEO Ping Cheng, CBO Guo Shan-Shan, spokesperson Jesse Chou, BABG General Manager Bill Lo, EISBG General Manager Herman Chang, and ESDBD AVP James Chen at the Delta booth at COMPUTEX 2018

Delta intelligent robot workstation upgrades packaging industry for smart manufacturing

Delta intelligent robot workstation upgrades packaging industry for smart manufacturing

Text by Wujiang IA Factory Technology Application Center

With the development of smart manufacturing and the transformation and upgrading of the manufacturing industry, industrial robots have become an important application in the global market. This technology has made giant strides in recent years. Following the trends, Delta took the lead on development opportunities by setting up teams six years ago. Relying on strong R&D capabilities, the teams were devoted to developing the basic hardware layer of robots. At the same time, they accumulated excellent experience in software development technologies by integrating big data, and cloud computing into this area. By continuously putting their projects into practice, they accumulated rich experience in machine tools, food, electronic products, electronic motors, rubber and plastics, footwear, and other industries, and integrated vision, perception, interaction, and other technologies to achieve refined production operations that can replace human resources such as assembly, gluing, transfer, soldering, transportation, and more.

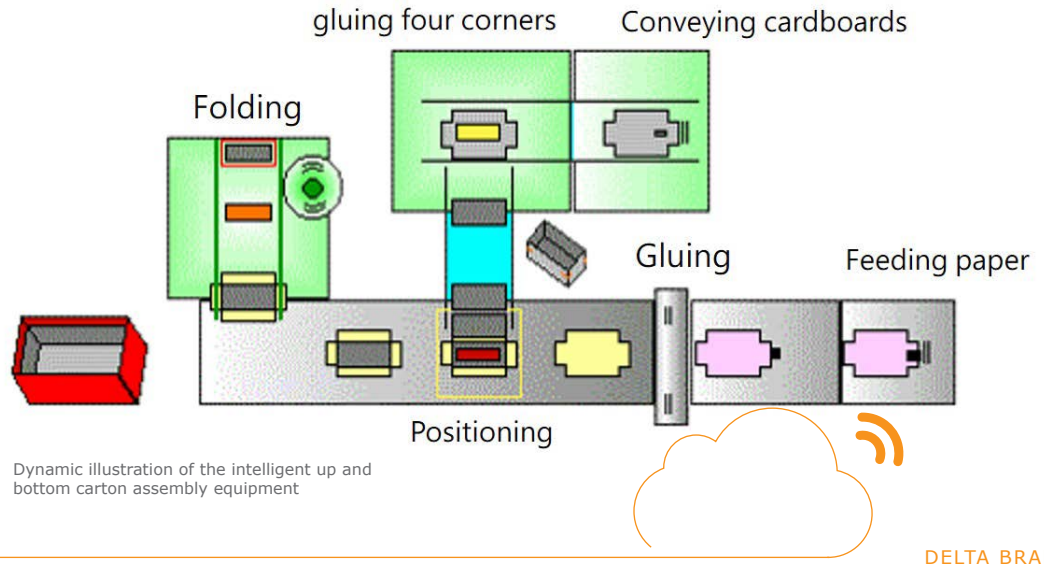
The packaging industry is typically labor intensive and characterized by repeated operations and long working hours. Traditional packaging equipment is unable to accommodate products of different sizes and shapes, thus flexible and highly-effective robots have been well received in the packaging industry. In recent years, the robots used in this industry have increased rapidly. The Delta robot workstation solution for the packaging industry, such as Delta's intelligent up and bottom carton assembly robot workstation, possesses high-speed grabbing, precise positioning, secure placement, efficient operation and other functions. It enables robots to completely replace manpower, improves production efficiency and product quality, and achieves quick changeover production for diversified sales.

The up and bottom carton, also called a lid and base box, is an ordinary paper packing box. It's easy to open and close, thus beneficial for product promotion and advertising, improving the added-value of products. It's extensively applied to various types of product packaging such as hard carton gift boxes, shoe boxes, underwear boxes, shirt boxes, mobile phone boxes, and others.

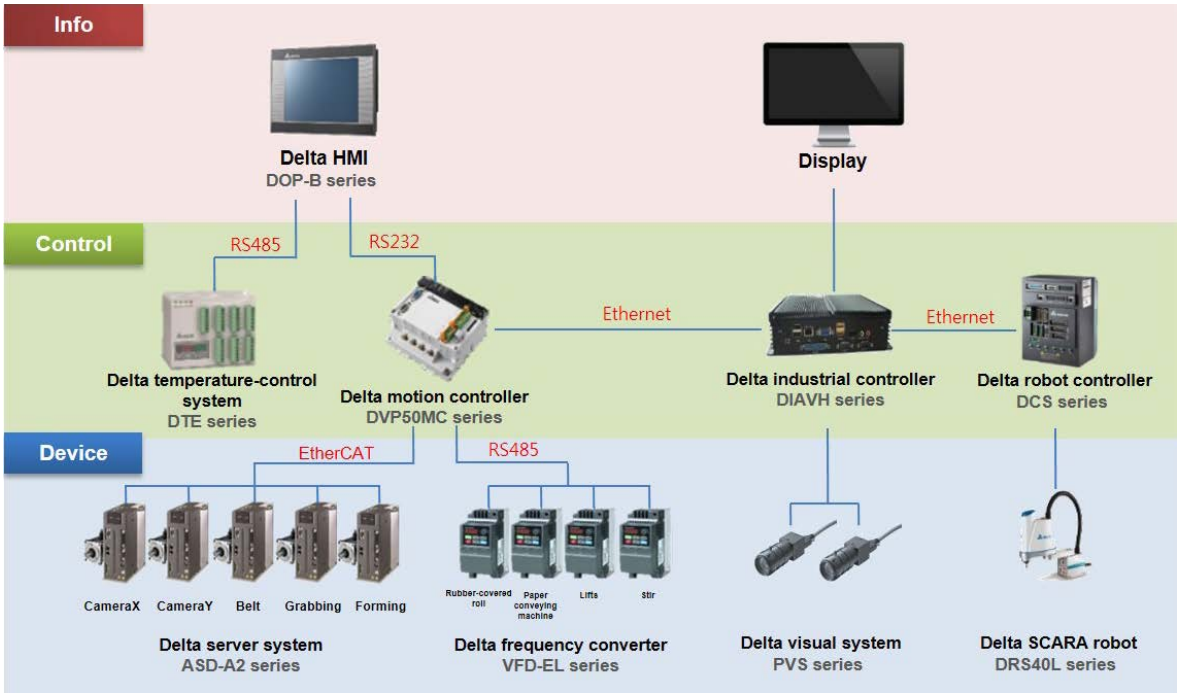
After the printing and corner cutting of the traditional up and bottom carton, it is still necessary to rely on manual or semi-manual auxiliary equipment to carry out the mechanical nailing process. The single-angle gluing is completed by nailing the nails in turn, and the four corners must be glued four times for the glue sticking process. This practice requires a large amount of manpower, has relatively low production efficiency, and adds to materials and manufacturing cost.

Using a carton former solves many problems in the prior art such as low manufacturing efficiency, high cost, assembly line occupying large spaces, and others. The carton former adopts a programmable logic controller (PLC), photoelectric tracking system, hydraulic and pneumatic system, human-machine interface, and more, and thus achieves automatic feeding of paper, paper gluing, automatic cardboard conveying, cardboard forming by gluing four corners, positioning gluing, cardboard molding and other processes that can be finished by only one machine. This significantly improves the production efficiency. With the use of photoelectric positioning, the gluing machine positioning of the up and bottom carton is simple in structure and convenient to adjust, but speed and precision are incompatible. When the manufacturing speed and quantity are increased, the positioning precision cannot be guaranteed. While manufacturing 3C product packaging boxes such as for mobile phone cases, which require high precision, the problem of unsatisfactory speed is revealed.

Besides effectively solving the problems above, Delta's intelligent up and bottom carton assembly robot workstation dramatically improves the automatic manufacturing effectiveness for up and bottom cartons. First, it adopts a SCARA industrial robot and visual system in the paper gluing area to replace traditional optoelectronic positioning, which results in high-speed and high-precision gluing. Second, it provides customized software to guarantee personalized operation and excellent time efficiency when changing products. This solution adopts the multi-axis motion controller DVP50MC series, the servo drive ASDA-A2-E series and the EtherCAT busbar-type configuration to ensure the high-speed and high efficiency of the entire machine.



Dynamic illustration of the intelligent up and bottom carton assembly equipment



Intelligent up and bottom carton assembly robot workstation system framework

With DRS40L as the actuator, the SCARA industrial robot is mainly responsible for grabbing cardboard from a fixed position and putting the cardboard on package paper from the package paper source. The visual system DMV is used to collect information. It takes photos and processes images of the box paper and obtains the current location and angle information of the cardboard. To ensure the entire machine is operating with high efficiency, the latest Delta EtherCAT busbar motion controller DVP50MC11T is used. Delta's ASD-A2-E series servo drive, which also supports the EtherCAT busbar motion controller, is responsible for belt feeding, grabbing the hand-grab box, forming, pressing, and more. The Delta VFD-EL series frequency converter is used to send the rubber-covered roll to get glue, convey paper, and others. HMI adopts the DOP-100 series to achieve human-machine interaction and send temperature orders and on-and-off orders to the temperature machine with RS485 as the upper machine. Delta's DTE series temperature controller tests the temperature of the glue and ensures the forming quality of products. Delta industrial graphic control system SCADA software monitors the entire production line and uploads production data to the MES system. Delta solutions also include operation software working with the up and bottom workstation, which has one button calibration, visual operation, quick changeover, real time rectification and other functions. In terms of operation it greatly reduces the time cost and maintenance learning cost for clients.

Delta's smart manufacturing is not limited to the up and bottom carton assembly robot station for the packaging industry. Delta also provides many mature application solutions in materials sorting, labeling, packaging/canning, stacking, and many others, to help various industries transform and upgrade and achieve smart manufacturing.

Delta named as Top 20 Global Brands in Taiwan for the 8th consecutive year

Text by Corporate Communications

Delta is selected as one of the top 20 international brands from Taiwan for the 8th consecutive year in "2018 Taiwan Global Brand Value Survey", and its brand value continues to grow for the sixth year, with a growth rate highest among large industrial brands. During the coming COP24 United Nations Climate Change Conference in Poland Katowice, Delta will be inviting world-renowned opinion leaders and think tanks in organizing official side events, participating in Sustainable Innovation Forum (SIF), and exchanging views with opinion leaders from all over the world on establishing sustainability through innovative technologies.

Delta named as Top 20 Global Brands in Taiwan for the 8th consecutive year, Ms. Shan-Shan Guo, Chief Brand Officer, received the award on behalf of Delta

Chief Brand Officer Ms. Shan-Shan Guo represented Delta in receiving the award and emphasized, "As the world faces climate change, Delta, as a power electronics and energy management solution provider, will continue to invest in product R&D and technological innovation, in order to establish sustainable low-carbon cities. This is Delta's brand commitment, as well as a practice of corporate social responsibility. In this year's COP24, Delta Electronics Foundation will be organizing official side events in United Nations negotiating area, and lead topic discussions for the first time. Delta will be inviting world-class opinion leaders and think tanks, including C40 Cities Climate Leadership Group, U.S. Green Building Council (USGBC), American Council for an Energy-Efficient Economy (ACEEE), Japan's Renewable Energy Institute (REI), etc. to exchange views on speeding up energy transformation and improving resilience."

According to Victor Cheng, VP and GM of Delta's Power System Business Group, who will be representing Delta in the Sustainable Innovation Forum, "Technological innovation is the cornerstone for Delta's brand growth, as well as an important factor in limiting global warming within 1.5 degree Celsius. For building sector which has high energy consumption, we provide energy-efficient building automation solutions, and for transportation which has a high potential for carbon reduction, Delta provides key components such as electric vehicle's drive motor, and builds charging infrastructure in various parts of the world for customers to boost popularity of electric vehicle. In line with the trend of decentralized energy, Delta also provides solutions such as storage, V2G/V2H charging, etc., assisting cities in achieving low-carbon transformation."

Delta launches the world's first 8K 25,000-lumen DLP® projector in Japan

Text by Corporate Communications

Delta announced the launch of the world's first 8K 25,000 lumen DLP® projector in Japan, along with Digital Projection International Ltd (hereinafter referred to as "Digital Projection"), an associate company of Delta and a global provider of high-caliber display solutions. As one of the pioneers in 8K technology for public broadcasting of major events, Delta has enabled its fully equipped 8K projection showroom, under co-operation provided by Fuji Soft Incorporated, with a 320-inch mega screen at the Akiba Theater located in Akihabara area as a new model to boost local 8K projection business and bring an extraordinary experience to audiences. Customers and partners are welcome to visit the showroom by reservation to enjoy extremely groundbreaking 8K images or test or develop related content, hardware and software for more applications.

Bruce Cheng, Delta's founder and honorary chairman, said, "Delta is committed to introducing its 8K projector in the Japanese market since the country is actively developing 8K technologies and planning the world's first commercial broadcast in December 2018. Delta's team in Japan has started providing 8K projectors to leading broadcasting providers to support 8K promotion. Our comfortable 8K showroom will serve as a platform for business partners and content talents to nurture the ecosystem for 8K. By the end of 2018, an 8K film on environmental education produced by Delta Electronics Foundation and NHK Enterprises will be presented to the public, to reflect Delta's efforts to advance corporate social responsibility by bringing high-quality environmental images through cutting-edge projection technologies."

C.H. Ko, executive director of Delta Electronics (Japan), said, "The upcoming Tokyo Olympic Games 2020 have brought tremendous business opportunities in Japan for industries to deploy and apply next-generation technologies, such as 5G data transmission and 8K display in various fields. Delta has not only fulfilled customers' needs with our latest 8K projectors for applications in public broadcasting, product advertisement, indoor company image display, building façade and more, but also offers a professional and experimental platform for collaboration with 8K hardware, software and content developers by setting up the 8K projection showroom to boost more future business together."

Kengo-Ka, CEO, Digital Projection said, "Customers today want a viewing experience that reproduces the big screen quality and entertainment at their fingertips. The new 8K projector leverages Delta's eco-friendly laser light source, thermal management and high-efficiency power supply technologies will give users an unforgettable viewing experience while saving power.

Delta founder and honorary chairman Bruce Cheng (middle), chairman Yancey Hai (L2), executive director of Delta Electronics (Japan) C.H. Ko (R2), general manager of display solutions business unit Jeff Fu (R1) and Digital Projection CEO Kengo Ka together attended the press conference

Delta at 2018 Greenbuild China and shares experience in green construction

Text by DGC

Delta was invited to attend 2018 Greenbuild China conference and was granted 2018 Green Vanguard award. Shan-Shan Guo (central), Chief Brand Officer of Delta, accepted the prize on behalf of Delta. Mahesh Ramanujam (right), President and CEO of USGBC and Andy To (left), Managing Director of North Asia, presented the award to Delta

On October 23-24, Delta attended the Greenbuild China Conference and Expo held by U.S. Green Building Council (USGBC). Delta was praised for its achievements in promoting green buildings and granted Green Vanguard and Industrial Vanguard awards. Under the special invitation of the sponsor, Ms. Shan-Shan Guo, Chief Brand Officer of Delta, attended the conference, made a keynote speech on behalf of Delta, and exchanged opinions with global leaders, experts and practice vanguard representatives in the green building industry about green building promotion experience.

Ms. Shan-Shan Guo shared her experience and achievements in leading Delta to be an international brand, and promoting enterprise to develop sustainably in Women in Green breakfast meeting. Then, she accepted the Green Vanguard award on behalf of Delta in the luncheon. Guo said, adhering to the concept of putting oneself in the place of another, Delta started to build green factories for itself in 2006 and gradually expanded to donations to the society. Now there are 26 green buildings constructed in total, twelve of which obtained USGBC LEED certification. In addition, Delta also built the world first LEED V4 ID+C certification data center. Only in 2017, certified green buildings of Delta saved electricity of 149 million-kilowatt hour, equivalent to a reduction of 9,268 tons in carbon emission. In recent years, Delta has been developing building automation as its core business, expanded its technological power to energy management, sensing and control system, smart lighting, air-conditioning, surveillance, and integrated service of buildings, further assisting buildings in saving energy and improving operation efficiency.

In the Greenbuild China conference, Delta was granted 2018 Industrial Vanguard award for its efforts in building the world first LEED V4 ID+C certification data center, Delta Wujiang Data Center. Through adopting Delta products and energy-saving solutions, the data center reached a gold level of 1.29 in its average annual Power Usage Effectiveness (PUE) value from 2015 when the center was put into use in the period of three years from 2015 to 2018. Its integrated performance in terms of site selection and traffic, energy and atmosphere, and water use efficiency all got a high LEED score.

The conference organizer specially arranged its guests to visit Delta Shanghai Operations Centre and R&D Building, a LEED platinum green building, on October 22nd. The building received LEED-NC Gold Certification (for new building) in 2013. After years of improvements on energy efficiency, it received LEED-EB Platinum Certification (for existing building) in 2017. The building adopted Delta products and energy-saving solutions and could save as high as 39% of energy when compared to Shanghai large public buildings and as high as 46% of water compared to LEED design norms.

Delta at "Transition for breakthrough, the new blue ocean shift" masters forum

Text by Corporate Communicatios

Delta CEO Ping Cheng and two international masters are invited to the forum to share about their experiences in company transitions

Delta CEO Ping Cheng was invited to the Masters Forum of "Transition for Breakthrough, the New Blue Ocean Shift" hosted by CommonWealth Magazine. Mr. Cheng was there to share the stage with Professors W. Chan Kim and Renée Maubogne of INSEAD (the Authors of "Blue Ocean Shift"), Professor Ji-Ren Lee (Department of International Business, National Taiwan University), and Joseph Huang (E.SUN Financial Holding Company CEO), and speak about the strategies and experiences of a corporation in a blue ocean shift. The forum had attracted a lively audience of over 1,000 professionals and managers.

Strategy masters Professors W. Chan Kim and Renée Maubogne, the authors of "Blue Ocean Strategy", "Blue Ocean Shift", and other best sellers, pointed out in the forum speeches that a company should move from the competitive strategic mindset of a red ocean market and shift to a value- and innovation-guided blue ocean strategy for developing new markets. The speakers also shared about many successful cases of companies applying a blue ocean strategy and summarized the methodology and steps for planning a blue ocean strategy.

Ping Cheng shared Delta's experience in its transition to innovation. After having the target of transition from key components to solutions confirmed, besides assessment on advantages, even more important are the ability to face company disadvantages, reinforcement of efforts and determination, and establishment of necessary management structure and functions. When an internal consensus is reached after communication, we should aim for the target market through organizational restructuring and gradually carry out transition strategies. During the talks, Professor Kim and Professor Maubogne praised about Delta's successful transition and Mr. Cheng's courage and determination as a leader of a large corporation directing its transition.

Professor Ji-Ren Lee of the Department of International Business, National Taiwan University, pointed out that the key to blue ocean strategy, the 3Ms representing Mindset, Methodology, and Management, echoed with the opinions of Mr. Cheng, Professor Kim, and Professor Maubogne. Professor Lee also encouraged managers in the audience to remain vigilant even in times of calm and continue to expand in the blue ocean.

2018 Tseng Hsu-pai Journalism Award cum "Delta Energy and Climate Special Award" results

Text by Corporate Communications

Delta Electronics Foundation Chairman Bruce Cheng presents Delta Energy and Climate Special Award in "Television Category" to Da Ai Television's "Journey of Your Clothes" team

The 44th Tseng Hsu-pai Journalism Award cum 2018 Delta energy and Climate Special Award ceremony was held on November 6th at Delta Sunshine International Conference Center, attended by Delta Electronics Foundation Chairman Bruce Cheng, Tseng Hsu-pai Journalism Award Foundation Chairman Zhang Rui-Chang, Central News Agency Chairman Liu Ka-shiang, the jury, professor Lin Lih-Yun from the Graduate Institute of Journalism, National Taiwan University, Homemakers United Foundation Chairman Lai Hsiao-fen, New Homeland Foundation Chairman Liao Chia-chan, International Federation of Journalists Executive Committee member Xu Jia-Zhang, etc.

Delta Electronics Foundation Chairman Bruce Cheng congratulated the winners, and once again appealed that climate change is the biggest challenge faced by humans today. According to "Global Warming of 1.5°C" recently published by the Intergovernmental Panel on Climate Change (IPCC) of the United Nations, compared to pre-industrial level, human activities have caused approximately 1.0°C increase in temperature. Following this trend, between 2030 and 2052, the increase in earth temperature will cross the 1.5°C line of defense. By then, human society may face serious environmental impacts such as melting glacier, vanishing coral reefs and water shortage. Taiwan, an island surrounded by sea, should deal with the issue of climate change more actively. To make the public aware of the urgency of climate change, we'd have to rely on the media to exert social influence.

Delta shares its experiences in energy savings for buildings with world leading telecom operators to pursue sustainability together

Text by Corporate Communicatios

On October 10th, 2018, in Venice, Italy, Delta organized a seminar parallel to the Biennale di Architettura 2018, one of the world's most prominent architecture exhibitions. The event was designed to highlight Delta's unique capabilities, experience and vision in enabling sustainability by optimizing energy savings in buildings of global leading telecom firms and beyond. Our event also featured presentations by influential representatives from Europe's three leading telecom carriers: Mr. Nilmar Seccomandi David, head of Network Infrastructure at Telefonica, Ms. Alena Trifiro', responsible for Energy Efficiency at Telecom Italia, and Mr. Aris Kalogeropoulos, head of Estates and Facility Management at Vodafone Greece. They underlined different energy efficiency initiatives in which they cooperate with Delta to attain sustainability.

Key managers from Europe's leading telecom firms (from left to right), Mr. Aris Kalogeropoulos from Vodafone Greece, Ms. Alena Trifiro' from Telecom Italia, and Mr. Nilmar Seccomandi David from Telefonica, shared their experience in cooperating with Delta in energy efficiency projects

In our Venice event, key representatives from Delta in Taiwan and in Europe underscored these capabilities and our future vision. Firstly, Delta's spokesperson, Mr. Jesse Chou, presented the company's global credentials, such as its presence in 5 continents, a highly diversified portfolio 7 energy solutions to create smart factories, green buildings, EV charging, renewable power plants and even green data centers. Mr. Chou also mentioned that Delta is deepening the synergies between its solutions to create the foundations of sustainable cities, such as 1) microgrids, leveraging Delta's energy storage systems, to smoothen the impact of mass EV charging to cities' electricity grids; and 2) vehicle-to-home / vehicle-to-grid (V2H / V2G) EV chargers that will allow electric cars to help power homes and the electricity grids when needed.

Delta's chief brand officer, Mrs. Shan-Shan Guo, explained how the company has become a world-class corporate citizen by enabling energy savings in its products and in its own operations. In fact, from 2010 to 2017, Delta's high-efficiency products and solutions have saved 24.3 billion kWh of electricity for its customers. Also, since 2006, Delta has built 26 green buildings, some of them donated to universities and schools. In Europe, for example, Delta's main office, located in the Netherlands, adopts a whole range of energy-saving solutions to reach more than 35% annual energy savings. Ms. Guo also elaborated on Delta's active participation in the UN Climate Change Conferences, to promote energy conservation to all global stakeholders. All these efforts have made Delta be recognized as the industry leader in its sector in the Down Jones Sustainability Indices' (DJSI) World Index 2018.

The event also included insights from Delta's key representatives in the EMEA (Europe, Middle East and Africa), Mr. Jackie Chang, general manager for the entire region, as well as Mr. Idilio Ciuffarella, general manager for its smart building business. Delta has been deploying its energy-saving solutions across the continent for years and has managed to help customers build solar PV power plants with capacity as large as 75.4MW in Denmark. Mr. Ciuffarella introduced Delta's success in deploying its energy-saving building automation solutions for buildings of telecom carriers. For example, the company deployed an automation system for HVAC in a central office building of Telecom Italia not far from Venice that is currently enabling annual electricity savings of up to 12%.

Delta LOYTEC in favor of China Mobile (Henan) Data Center to implement green environmental protection

Text by BABG

As the fast development of IoT technology and cloud computing technology, the need to build and manage data center keeps increasing. Delta LOYTEC building automation control system is open, integrated and extensible. It can effectively control the environmental monitor of data center, further reduce energy consumption and finally create a highly-efficient, energy-saving and stable data center operation environment. Recently, China Mobile (Henan) data center adopted Delta LOYTEC building automation control system in order to achieve their vision of environmental protection.

The data center provides cloud computing technology, and further implement green and environmentally-friendly technologies in the environment. China Mobile (Henan) data center extensively utilized natural cooling, waste heat recycles, 336V high-voltage DC power technologies, etc. In addition, Delta LOYTEC building automation control system provides various open interfaces, which can further connect to the equipment in the engine room, monitor in real time and thus reach energy-saving effects.

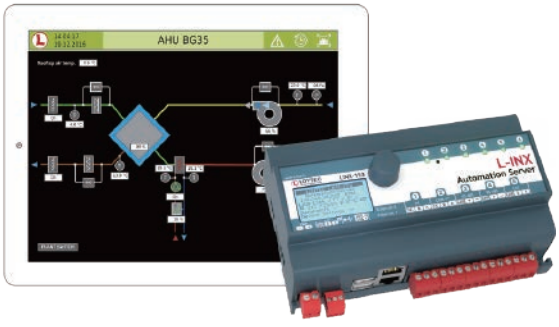
China Mobile (Henan) data center mainly adopted Delta LOYTEC building automation control system as the group control solution for refrigerating room to achieve effective management, which saved more than 22.5% of energy.

1.Adjust set operation automatically according to actual needs: auto-calculate the actual cold load of air conditioner, and automatically control the number of cooling towers to start or stop according to chilled water temperature, without wasting energy.

2.Intelligently connect and start protection control: conduct interlock control on water chiller set. It controls the equipment automatically to start or stop based on the sequence of the equipment in the set, avoiding wrong order leading to the malfunction of the equipment.

3.Real time alert as well as smart operation and maintenance management: intelligently monitor the temperature, pressure, etc. in the system. Once detecting any malfunctions, alert will be issued immediately to eliminate any disorder.

Delta LOYTEC building automation control system is used to achieve the goal of using one set of management system to reach all-dimensional distant control, ensuring the machine room to operate nonstop in 24 hours, 7 days a week. It can effectively reduce energy consumption and enable the management to be more effective.



Delta LOYTEC building automation control system was in favor of China Mobile (Henan) data center to implement green environmental protection

Visual feast by Vivitek ball screen projection lights up Western music festival

Text by DGC

Vivitek created an immersed projection ball screen theater, bringing audience to a romantic musical world with interplaying light and shadow

In the 2018 Dujiangyan Western Music Festival, Vivitek, a projection brand of Delta, broke the limit of plane projection in the past and presented a 720° immersed projection ball screen theater through twelve 8000-lumen laser projectors DU8090Z. It provided a visual feast with magnificent light and shadow for the Western Music Festival.

In addition to powerful beats, the magnificent show of light and shadow is also an important factor for the heated atmosphere in the Festival. In the 2018 Dujiangyan Western Music Festival, through use of twelve 8000-lumen laser projectors DU8090Z, Vivitek presented a 720° immersed ball screen projection theater. It created three-dimension immersed space effect through 3D projection technology on the huge ball screen that is 10-meter high and 20-meter wide. With metal, wood, water, fire and earth as five elements, many musicians and artists cooperated with each other to present new experimental music in the theater in which sounds and scenes interact harmoniously. The whole creative process of musicians looking for inspirations with sounds as the media was recorded in earnest. Musicians collected visual, audio and tactile materials, cooperated with artists in a crossover manner to present multi-scene music experience, bringing audience to a romantic musical world with interplaying light and shadow.

Delta laser DLP creates an information platform for comprehensive management of public security

Text by DGC

Recently, DLP large screen display system provided by Delta was successfully applied to the Comprehensive Management Center in a city in Sichuan. Through use of advanced fourth-generation light source (laser) DLP display wall, Delta designed a single-screen laser DLP display wall that is 70” in 5 rows and 6 columns in order to meet the application need of the Comprehensive Management Center. The screen is 9.3 meters wide, 4.4 meters high and has a total area of 40.5 m2. It effectively integrates information sub-systems in the center, forms an interconnection and presents a comprehensive display.

Delta Laser DLP Created an Information Platform for Comprehensive Management of Public Security

As the comprehensive management center monitors and supervises social security comprehensively and connects to the systems of its superiors and subordinates simultaneously, the screen display system requires high brightness and real color presentation. Therefore, Delta laser SLP system was chosen to present a better display effect. The fourth-generation light source (laser) DLP display unit in the project adopted the latest pure laser light source technology. The design of redundant array laser modules and Delta’s fluorescent color wheel provides ultra-high brightness, high contrast and high uniformity compared to LED light. It has reached an ultra-wide color range higher than 120% EBU, providing outstanding real color production.

The laser DLP large screen display system has put into operation in the comprehensive management center of the city. Delta solutions contributed to the smart city construction through making a better use of big data to promote the traceability, visualization and performance management of the comprehensive management information system.

Delta at eMove 360°

Text by EMEA

Delta joined eMove360° in Munich from 16 to 18 October 2018. This exhibition is one of the important events for the e-mobility and was giving future prospects for the industry.

Delta was nurturing the e-mobility sector with its portfolio of EV Charging Solutions. The mentioned offering includes Delta's 150kW Ultra Fast EV Charger with its unrivalled 4-in-1 configuration, meaning it can charge 4 EVs at the same time, an optimum feature to provide charge point owners and operators with the most capable solution to serve the rapid growth in electric vehicles currently experienced in key European countries.

Delta also showed other versatile DC wall-box EV Chargers, AC EV Chargers, and DC City Chargers as well as the new PCS100, which is designed for grid-tied energy storage system (ESS). It demonstrates industry leading power performance with high efficiency. It is ideal for various energy, power and performance requirements.

Delta joined eMove360° in Munich

Delta had numerous impressive and high-quality talks with key car manufacturers in the e-mobility industry such as Audi, Daimler AG and BMW Group. Besides the car manufacturers, you could also find a lot of energy providers as well as governmental companies that invest in e-mobility. This shows the importance of this industry and how it is growing every year.

With its participation, Delta made a further step to achieve its mission to provide innovative, clean and efficient energy solutions for a better tomorrow.

2018 Conference on smart lighting applications and design innovation helps build the DALI cooperation platform

Text by Building Automation Business Group

Delta partnered with Digital Illumination Interface Alliance (DiiA), the headquarters that promotes the DALI protocol, to host the "2018 Conference on smart lighting applications and design innovation" on November 2 in Shenzhen, the hub of China's lighting industry, in a bid to develop diversity of lighting designs in China and increase popularity of smart lighting through promotion of the DALI protocol. The conference attracted more than 120 representatives, including experts in smart lighting control, lighting designers, and smart building companies, who participated with great enthusiasm.

Dr. Scott Wade (third from left), DiiA Technology and Certification Manager, and Mr. Zhao Guochao (first from right), Product Director of Smart Buildings Division at Delta Greentech, participated in the forum

Experts at the conference all pointed out that the key to the promotion of a smart lighting that focuses on inter-connection and control lies in establishment of standards. In this regard, Dr. Scott Wade, DiiA Technology and Certification Manager, expressed that the DALI-2 version enhances DALI's advantages as a standardization protocol for digital lighting control, ensuring a coordinated operation of products of various functions in the lighting control system and their openness during maintenance. Zhao Guochao, Product Director of Smart Buildings Division at Delta Greentech, shared how Delta's LOYTEC smart lighting control system successfully created a better user experience and an energy-efficient model for building operation by utilizing applications such as constant light control, special-effect lighting, and scene scheduling under multiple cases of use, and getting interconnected with BA and a third-party system through its Internet of Things (IoT) structure.

Calvin Wang, Director of Delta Lighting Division, expressed that the cooperation between Delta Group and DiiA enabled lighting consumers and designers in China to enjoy the most advanced and user-friendly smart lighting solutions and products. Through this opportunity, Director Wang extended his invitation to the mainland's aspiring peers for working together, hoping that through such cooperative work, the efforts and operation of the platform will continue.

Delta announces partnership with CODESYS at SPS 2018

Text by IABG

Delta participated in SPS/IPC/Drives/Nuremberg 2018

Delta participated in SPS/IPC/Drives/Nuremberg 2018 (SPS 2018), a highly focused industrial event in Germany, and presented its smart automation products and solutions with the theme of "Innovation & Smart Automation for Industrial Upgrades". Delta announced a new partnership with CODESYS Group at the exhibition and unveiled its upgraded motion solution with the CODESYS motion control platform and the new PC-Based Motion Controller MH2 Series. Delta's industrial solutions highlighted a high-end PC-based motion controller, PLC-based EtherCAT motion controller, and motion systems for woodworking and packaging machines. For high-end smart equipment and production monitoring, Delta's new Human Machine Interface (HMI) DOP-100 Series is featured in an interactive live streaming car racing demo with a user-friendly operation interface and multimedia functions. For process automation, Delta presented a highly reliable, energy-saving, and automated water treatment solution based on its successes in Europe and Asia.

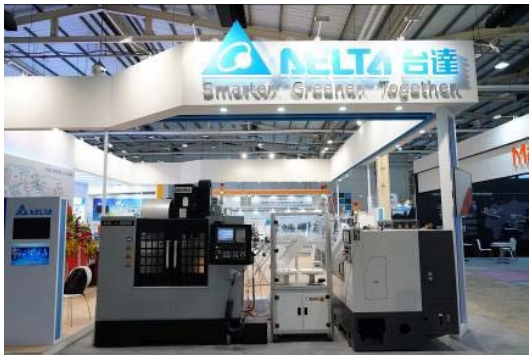
Mr. Andy Liu, General Manager of Delta's Industrial Automation Business Group, indicated that global manufacturers of all industries have started to apply smart manufacturing solutions to enhance their competitiveness in recent years. In response, world-class automation companies are focusing on industry-specific equipment and solutions with in-depth industrial know-how, high-end products and software. "Delta, with over twenty years' of experience in the automation field and strong R&D and manufacturing capabilities, adheres to providing smart, flexible, and the most suitable automation solutions for different industries," said Mr. Liu.

Andy pointed out that Delta's cooperation with CODESYS would bring motion solutions that satisfy the needs of many top automation players in Europe, and could also make CODESYS available to the large Delta customer base in Asia.

Delta features complete Smart Machine Solutions for changing industries at the 2018 Taiwan International Machine Tool Show

Text by IABG

Delta participated in the 2018 Taiwan International Machine Tool Show (TMTS) from November 7th to 11th to present a series of high-end automation and smart solutions for CNC machines and factories. Delta integrated CNC solutions, industrial robots, equipment IoT and related products to showcase its various smart machine solutions. In cooperation with machine makers, Delta featured a brand-new "2 machine tools + 1 robot workstation" demo that simulated automated machine tool processing and robot pick-and-place, which was a highlight of the booth. Delta also presented multiple complete and flexible CNC solutions with a series of advanced CNC controllers that deliver high speed, stable and reliable machining performance. The latest Delta Robotic Simulation Platform DRASimuCAD features built-in CAD/CAM functions to build models and generate work paths for automated robotic work and robot workstations. The equipment IoT solution connects smart machines, a Manufacturing Execution System (MES) and a visualization monitoring platform for a complete IoT structure.



"2 machine tools + 1 robot workstation" demo simulated automated machine tool processing and robot pick-and-place

Andy Liu, General Manager of Delta's Industrial Automation Business Group (IABG) indicated that Delta has developed a variety of smart industrial automation solutions based on its abundant experience in smart factories. Among them, Delta's CNC solutions integrate self-developed key components, including CNC controllers, servo drives and spindle motors, and have successfully penetrated into Taiwan and China, as well as other markets in APAC, Europe, and America. Delta CNC solutions were recently applied in processing the convex glass of vehicle rear-view mirrors and mobile phone cases, as well as by other industries to achieve highly precise control, efficient production, and smart management for customers, while saving significantly on labor requirements. At this event, Delta displayed its integration capabilities for customized smart manufacturing solutions, while strengthening the competitiveness of the local machine tool industries to meet the global trends of digitalization and smart manufacturing.

Think tanks and media delegations affirmed the significant achievements of Delta Wujiang smart manufacturing line

Text by DGC

Wang Hongguang (eighth from left), deputy director of China Academy of science and technology develop ment strategy, Hu Jianbo (tenth from left), director of the Industry and Planning Research Institute of China Academy of Information and Communications Technology, and Li Zhonglian (fifth from left), senior consultant of the China Academy of Machinery Science and Technology, and other professionals from government think tanks and media executive management paid a visit to Wujiang example smart manufacturing line, and praised the significant benefits of the line

A group of over 10 professionals from government think tanks and media executive management paid a special visit to Delta example smart manufacturing line and affirmed the completeness of the line and its outstanding achievements. With more than two decades' automation experience, Delta is not only experienced in developing smart manufacturing in its own factories, but also assists its clients to create a complete automation system and smart manufacturing line. Setting PLC example smart manufacturing line in Wujiang manufacturing base as an instance, the introduction of smart manufacturing line could improve 40% of manufacturing capability, reduce 62% of manufacturing area, and directly reduce 88% of manpower demand, etc.

Lear Li, smart manufacturing global business director of Delta Industrial Automation Business Group (IABG), said that Delta based itself on industrial automation product technologies for the past many years, integrated various advanced software and hardware technologies to develop smart equipment, smart manufacturing line and smart factory, and created smart manufacturing characterized in quick changeover and flexible manufacturing. The workshop introduced smart equipment and PQM smart monitoring system to accelerate the digital transformation. Successful experience of the example manufacturing line will be replicated in hundreds of manufacturing lines in Delta's various factories, and factories will move towards the smart manufacturing upgradation.

"CDCC scientific technologies traveling around China" lowers the curtain in Qingdao Delta shares innovations in green data center

Text by DGC

In 2018, the campaign "CDCC scientific technologies traveling around China" has toured through Wuhan, Chengdu, Xi'an, etc., and finally lowered the curtain in Qingdao. Delta, as the sole infrastructure solution provider of the campaign for China Data Center Committee (CDCC), was deeply involved in the campaign by sharing world-leading products and solutions as well as design and planning experiences of green and energy-efficient engine rooms with more than 2500 insiders. It also exhibited the latest energy-saving technologies of data centers through Delta Wujiang Data Center, which is the first to obtain LEED v4 ID+C (interior design and construction) gold certification in the world.

Ye Xinping, senior product manager of MCIS of DGC shared Delta LEED green engine room solution and helped users to obtain the performance results of green data centers

Ye Xinping, senior product manager of Key MCIS of DGC, exhibited important achievements of Delta LEED green data center solution in Qingdao campaign. He said, Delta built the world's first green data center with LEED v4 ID+C gold certification and pioneered in the LEED certification for non-individual building data center. Four Delta data centers around the world all adopted Delta products and energy-saving solutions and insisted on gold certification goal. In the future, the Delta-designed green data centers will conform to LEED certification standard and be able to help users apply for the LEED v4 ID+C certification.

Delta Media Salon
Excerpts from IPCC special report "Global Warming of 1.5 °C"

Text by Corporate Communications

Recently, an IPCC Special Report "Global Warming of 1.5 °C", acclaimed as the most important climate science report after the Paris Agreement, was issued in Songdo, Korea on October 8, 2018. Supported by scientific evidence, the report illustrates the environmental impact and biological system changes that our society and environment may encounter when ground surface temperature is averagely 1.5 °C higher than that prior to the industrial revolution, and our corresponding actions that must be taken. Delta Electronics Foundation planned a Media Salon for Taiwan society to possess the latest climate information and scientific evidence in time. The salon attracted nearly 50 opinion leaders from media, research communities and enterprises to watch live broadcast together and heatedly exchange opinions.

Yvonne Chan, special correspondent from Delta Electronics Foundation, is the sole Taiwan delegate in the IPCC Conference in Songdo, Korea, who shared the conference highlights live across the sea

Jesse Chou, Delta spokesman and Assistant Vice President for sustainable development, responded to the trend in the report by expounding the detailed carbon cut efforts of Delta. In 2017, Delta submitted its SBT to cut carbon emissions scientifically. The carbon emission will be decreased by 65.5% in 2025 when compared to 2010, which is in line with the carbon reduction path as mentioned in the IPCC Special report. In the report, industrial sectors are required to reduce 75-90% carbon emission by 2050 compared to 2010. In terms of popularizing electric vehicles, Delta not only provides key components and charging equipment for electric vehicles, but also became the first enterprise in the technology industry to join EV100 last month.

2018 Delta Environmental Law Forum holds in Beijing

Text by DGC

2018 Delta Environmental Law Forum, sponsored by Delta Group and organized by Peking University, was held in Beijing. Over 110 scholars, experts and graduate students across the straits specializing in environmental law, environmental resources law, energy law and other related disciplines gathered to discuss in depth the reform of the ecological and environmental supervision system and environmental law system.

Delta Environmental Law Forum was held in Beijing. Over 110 scholars, experts and graduate students gathered to discuss in depth the reform of the ecological and environmental supervision system and environmental law system

Eason Chen, director of Delta Public Welfare Department, indicated that Delta, with the support of its power electronics core technologies, has continuously developed eco-friendlier products and services, paid long-term attention to climate change and environmental issues, and promoted public welfare projects such as environmental education and green construction. Delta has been adopting high standards and challenging itself to fulfill its business mission of environmental protection and energy conservation, while frequently confirming its determination and strength of devoting itself to the sustainable development. We understand that sound environmental laws and environmental education are one of the key factors to deal with global environmental problems. Therefore, while continuously developing green and energy-saving products, Delta cultivates talents and supports the improvement and implementation of environmental protection systems through supporting the Delta environmental law education promotion program.

Innergie PowerGear™ 60C Won the "Taiwan Excellence Silver Award"

Text by Innergie

Innergie, a brand in consumer power solutions, won the 27th "Taiwan Excellence Silver Award" with its small but powerful laptop charger PowerGear™ 60C. Standing out from 1127 registered products, J.J. Chang, the General Manager of Delta Power and Systems Group, received the Taiwan Excellence Silver Award on behalf of the company.

World's smallest 60-watt universal charger

The PowerGear™ 60C 60W USB-C laptop charger is the world's smallest, high-power, and high-efficiency charger, measuring only 6x3x3cm in dimension and 55cc, which is 1/3 of the size of a typical laptop transformer. By using USB PD charging technology, five combinations of voltage (5V, 9V, 12V, 15V, 20V) can be automatically output to meet the needs in charging for a variety of mobile devices.

Manufacturing and R&D strength

The world's smallest 60-watt laptop charger is created using a combination of innovative R&D technology with multiple power technologies and patented designs. The first patented design with 3D circuit, along with the new 3D space, has created a better heat dissipation effect and improved efficiency. The integrated in-line circuit substantially reduced the size to 1/3 of the competing products in the market. The innovation includes use of a thin flat transformer as the main power supply component for the charger to constitute a perfect combination of performance and volume. In utilization of the USB-C charging technology, the use of USB PD charging specifications provides five kinds of variable voltage output that support a variety of needs in charging mobile devices.

User-friendly design to ease the experience in charging batteries

Two different versions of plugs are available for use. The folding version can be lightly stored and carried, featuring a patent for its design with two-way screws. It can also be used with international conversion plugs (US, European, and British) to support charging in more than 150 countries. Through the design with an all-in-one body, no matter where you are, you can have the full power on your hand.

Innergie PowerGear™ 60C won the "Taiwan Excellence Silver Award", and Mr. J.J. Chang (right), General Manager of Delta Power and Systems Group, received the award on behalf of the company. Seen on the left is award presenter Ms. Meihua Wang, Administrative Deputy Minister of the Ministry of Economic Affairs

DET wins Thailand's Top Corporate Brand Values Award 2018

Text by DET

Professor Bundhit Eua-arporn (right) , President of Chulalongkorn University, presents Thailand's Top Corporate Brand Values 2018 Award to Mr. Hsieh Shen-yen (left), DET President

Delta Electronics (Thailand) PCL. (Delta Electronics currently holds 20.93% ownership in DET) received Thailand's Top Corporate Brand Values Award 2018 by the Chulalongkorn Business School and organized in collaboration with the Stock Exchange of Thailand (SET). The award ceremony was held at the Stock Exchange of Thailand (SET), Bangkok. This is the fourth consecutive year for DET to win the prestigious award, achieving corporate brand value worth 58,378 million baht according to Chulalongkorn University's Corporate Brand Success (CBS) Valuation.

At the award ceremony, Professor Bundhit Eua-arporn, President of Chulalongkorn University, presented Thailand's Top Corporate Brand Values 2018 Award to Mr. Hsieh Shen-yen, DET President. Since winning the starting from the Rising Star Award in 2014, DET has won the awards for top corporate brand values in the electronic components sector for the subsequent three consecutive years.

As a SET-listed company, DET works to provide value-add to stakeholders and deliver on the company brand promise: Smarter. Greener. Together. Thailand's Top Corporate Brand Values Award 2018 recognizes DET's growing corporate brand value and is another clear indicator of the company's sustainable development.

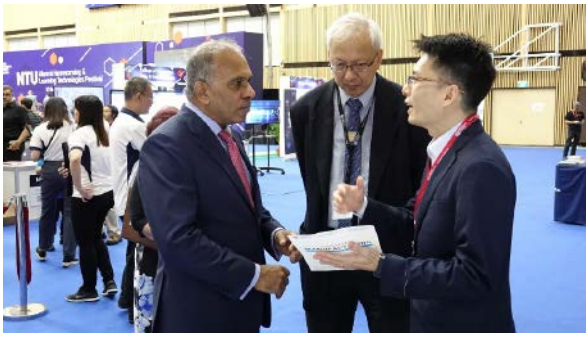
DeltaKnEW academy smart learning platform releases to help NTU alumni develop professional competitiveness

Text by DRC

The Delta-NTU Corp Lab, founded by Delta and Nanyang Technological University (NTU), recently released the new mobile learning app DeltaKnEW Academy and 8 Industry 4.0 courses at the NTU Homecoming Day. This a collaboration between Delta and NTU College of Professional and Continuing Education (CoPACE) to help professionals with lifelong learning and professional competitiveness improvement.

As an important event of the Homecoming Day, President Subra Suresh specifically made a reference to the platform in his speech "Lifelong learning is very important. We need to be informed on new skills and technologies and we hope to help our alumni in their personal growth and development."

Jack Sheng Kee, the lab's Co-Director, hosted the micro-seminar "Smart Learning and Corporate Learning Solutions" to help the alumni understand how to use the lab to develop new applications for learning assistance. The fee for the 8 courses ranges from 400 to 500 SGD. As a part of the Singaporean government's 2015 Skills Future citizen training project, Singaporean citizens and permanent residents may receive up to 90% of subsidies to taking the courses in this series. NTU alumni can even use their alumni course subsidies to apply for all the courses.



Jack Sheng Kee (first on the right), the lab's Co-Director, introduces the DeltaKnEW Academy online learning platform and courses solution to NTU President Subra Suresh (first on the left) and CoPACE Dean Ting Seng Kiong

Delta Taoyuan R&D Center

PEOPLE

A leader in smart manufacturing, embracing new challenges

Text by Delta Taoyuan R&D Center

Eilleen Wu / Manager, Sales Operation & Global Service, IABG

When I joined Delta's IABU in 1998, the manager transitioned from Mr. Simon Chang, the General Manager (GM) at the time, to our current GM Mr. Andy Liu. I've been in Sales Operation & Global Service for over 20 years. I still remember the US $10M sales target written on the whiteboard in the Sales Department. What a challenge! What an inspiring goal! In the blink of an eye, IABG revenue reached to nearly US $1,000M. We took steady steps in our pursuit of revenue growth each year, facing several financial crises along the way. All of this brought joy and a fulfilling sense of achievement to me. I was proud to be a part of the process.

Hosted by Manager Eilleen Wu, the Sales Management & Global Customer Service organized the eighth Maintenance Education Training in August, 2017, for its subsidiary in Americas to help achieve its goal through two-way close communication

The continuous change and evolution of the industry environment drove us to follow in its steps. From "Component to System, then to Software/Solution" and from "Attract New Customers, Create Profits" to "New Internal Business Product Lines and Strategic External Mergers", the transitions allowed us to grow with the group's strategic directions. We achieved every goal through internal and external conference communications, discussions, and negotiations one after another. Everyone developed a deep understanding that, in the rapidly developing industrial automation field, only efficiency and high quality before, during, and after-sales services can keep up with the times, satisfy the market demands, improve customer satisfaction, and further increase the global market share and brand value.

The Standard Operating Procedures upgraded from the "Paper-Based Processes" in early days to the "Collaboration Planning Forecast Replenishment and Customer Service System" in the current IoT era. The system's network helps control the comprehensive sales status, inventory, and customer restocking assistance on the sales management end. Make to Order production from the early days became the Make to Stock production now. On the customer service management end, customer service cases for technical service staff and distribution partners in all regions are processed in a more timely and efficient manner. Product improvement was conducted based on big data analysis using the information on customer returns collected from feedback on regional abnormality.

My fellow workers are energetic, friendly, professional, passionate, willing to respond quickly, and willing to grow and transform. I believe challenges will only increase in the future and it is privilege to work with this group and march into the future together. We will present better versions of ourselves and form confident teams to face every challenge. We will work hard and embrace greater and further goals.

Annie Tsai / Senior Engineer, IABG Global Customer Service Technical Service

Time seems to have flown by and I have already been a part of the Delta Family for four years. "The foundation of people is based on mutual support" is the quote that best represents my journey in the workplace during these past few years. I have some memory of when I just joined Delta. Though not being as nervous and clueless as a new graduate, I still felt like I was walking on thin ice. At a new workplace with new colleagues, everything was new. However, the interaction between coworkers and the guidance of every senior colleague were in a friendly and positive spirit. In these short couple of years, the customer service department became an essential unit in many corporations due to the increasing awareness for service. Delta was certainly no exception, and our department kept growing.

IABG has been promoting the global maintenance training program for a long time. In October, 2018, the Sales Management & Global Customer Service department held the 13th education training for its global after-sales service in Mexico. After three days of courses, people from all over the world have established a good relationship to join in providing customers with a high quality and efficient after-sales service

Our main purpose is to serve as a bridge between our partners and the Headquarters and help solve various issues. When it comes to customer service, of course everyone wants to have their issues resolved timely and even be offered a due date commitment. Thus, I developed an optimistic, flexible and high stress-resistant personality through this training, which made me more mature in my work and daily life. In addition to the after-sales service that is well-known to the general public, we also host seminars in locations around the world for frontline coworkers and distributors. This allows partners to quickly improve their product knowledge through a parallel method of theory and practice, reinforce repair skills, and improve their familiarity with Delta after-sales repair service platform, resources, and processes. Then the partners could continue to provide top after-sales services to the customers. We have a very close partnership with coworkers in related departments because we are the bridge between each department. Besides our cooperation at work, we also socialize outside of the office after work. I have learned a lot during these years at Delta IABG customer service. There is greater room in the future for me to grow and it fills me with gratitude and great anticipation.

Claire Peng / Sales Manager, IABG Sales Management Section

I am very honored to have joined the Delta IABG Sales Management Team. Time flew by so quickly, and now I've been with the company for more than three years! Delta Group is located across the globe. Sales management refers to the product sales assistance provided to frontline sales in branch offices and distributors around the world and the proper management of orders and inventory everywhere. The operation in the early days only involved processing of orders and arrangements for delivery, which is the so-called Made to Order production. Production begins in the factory only after an order is received, and the factory end sales provide the sales estimation. This results in a long lead time and inaccurate market demand predictions. Along with the growth of IABG, market changes, the increase of distributors and branch offices, "Build to Order" became a key issue and an important factor for the transition of the Sales Management Team. CPFR is the system we depend heavily on in daily operations and is a platform that we have developed during the time of the transition period. Nowadays, the frontline sales at the distributors and branch offices enter first-hand their sales predictions and inventory information that best resembles the market through CPFR. The system automatically calculates and creates our inventory restocking orders and product order estimation for the factory, which helps with subsequent material stocking and production planning and timely restocks the inventory in warehouses across the world. This significantly reduces the lead time, allows the sales teams around the globe to better follow up with the rapidly changing market demands, and further boosts the annual IABG sales increase!

Our supervisors have also always led us forward along with technology developments and the changing times. We also hope to develop processes and systems that will continue to optimize production and sales again in the future. It is inevitable that we are faced with difficulties and challenges in the work, but it is also the prime impetus that drives our own constant improvement! The passion and tireless working attitudes of my coworkers encourage me as well. I also enjoy moving in the right direction, doing the right things, alongside my fellow coworkers.

In addition to work, the Sales Management & Global Customer Service department did not forget to bring close the relationship between the colleagues in IA global customer service, as well as that between the company and its customers, which would help enhance tacit understanding during teamwork and strengthen efficiency in communication to quickly assist customers in solving various problems

Delta Configurable Power Supplies for Medical and Industrial Application

PRODUCT

Delta configurable power supplies for medical and industrial application

Text by DET

MEG is the series of Delta configurable power supply designed for both medical and industrial applications. The first release of MEG series is MEG-2K1A6 with a total output power of 2.1 kW that can support up to 6 isolated outputs. The outputs can be configured between 2Vdc to 60Vdc and output current up to 45A with a single slot single output module. The MEG series come with universal AC input from 90Vac to 264Vac and wide operating temperature of -20°C to +70°C (with full power up to 50°C). Additional features include current sharing, PC GUI for easy parameter setting and monitoring, and intelligent fan speed control. Communication adapters are also available to convert PMBus to USB, RS232 or RS485 according to the system requirement.

Major approvals include IEC/EN/UL 60601-1 (Medical) and IEC/EN/UL/CSA 60950-1 (ITE). The series is certified for EMC standards EN 55011 for industrial, scientific and medical (ISM) radio-frequency equipment, and EN 55032 for Industrial Technology Equipment (ITE) radio-frequency equipment. Full compliance with RoHS Directive 2011/65/EU for environmental protection is included.

Highlights & Features:

- Up to 2100W in 5"×10"×1.59" Package
- Up to 26.4W/inch³ Power Density
- 2×MOPP Isolation for Medical Application
- Output selectable from 2V to 60V
- Optional CV/CC Version on demand
- Current sharing
- Class B Conducted and Radiated EMI
- IEC 60601-1-2 4th edition immunity compliance
- Normal and Reversed Option for Global Remote On/Off
- Analog and Digital Voltage Trimming
- PMBus Ver 1.3 Supported
- Optional RS485/RS232/USB Communication Adapters

2018 Delta Media Salon: IPCC releases important report as world approaches "1.5°C rise"

Text by Tino Wang / DEF Climate and Energy Project Officer

October 8, after the recent celebration of the 30th anniversary of the founding of the United Nations Intergovernmental Panel on Climate Change (IPCC), the Global Warming of 1.5°C was released. The report is being recognized as the most important climate science proof since the birth of the Paris Agreement. It is the first study to compare the different global warming scenarios between a 1.5 °C and a 2°C rise, and will be used as a reference for policies during COP24 in Poland.

At the same time of IPCC special report's release, the Delta Foundation has organized the second "Delta Media Salon" to broadcast the press conference in Songdo, South Korea live, with simultaneous interpretation of the event. The Foundation also obtained the Summary for Policymakers (SPM) in the report through an exclusive channel, to inform the Taiwanese people of international climate news. Although the event was held in the morning of Monday, nearly 50 opinion leaders from the press, research community, and industries attended the live broadcast and shared their opinions.

The cover of IPCC special report "Global Warming of 1.5°C", raising the awareness of global warming with an artistic painting

Key Analysis: 1.5°C Temperature Rise Creates Incredible Impact

In fact, the special report that garnered a lot of attention originated from the Paris Agreement.

The Paris Agreement was signed at COP21 in 2015 and was once seen as a victory for the climate change camp. However, there was a lot of debate on the global warming control target. Therefore in the end, the written accord says "Global warming should be controlled within 2°C, but efforts could be made towards 1.5°C." This is because 1.5°C is the bottom line of survival for those in the frontline of the extreme climate, such as island countries and vulnerable areas. Now three years later, IPCC has released the "Global Warming of 1.5°C", which responds to the requests of island nations and is the latest scientific proof for all countries to reinforce actions for carbon reduction.

The report starts with the claim that once the global mean surface temperature rise exceeds 1.5°C above pre-industrial levels, there will be large and irreversible changes in the environment. The temperature rise will likely reach 1.5 °C between 2030 and 2052. The mid-latitudes regions will warm by up to about 3°C at global warming of 1.5°C. For the Arctic Ocean, 1.5°C of global warming makes "ice-free sea during summer" highly possible in this century. This likelihood is increased to at least one per decade with 2°C global warming.

For marine biology, existing coral reefs are projected to decline by 70–90% at 1.5°C global warming; with 2°C, 99% of the coral reefs will be destroyed. For water resources, more than 100 million people will face water scarcity with 1.5°C global warming, but at 2°C global warming, this number will double. As for the most sensitive "Carbon Budget" issue, the remaining carbon budget for a global warming controlled within 1.5°C is 420 to 580 GtCO2. If we calculate using the current annual global emissions of 42 GtCO2, the time left for humans to salvage the situation is continuing to shrink.

The Delta Foundation presents key items of the SPM in the "Global Warming of 1.5°C" special repor

If the temperature rise is limited to a maximum of 1.5°C, the world's greenhouse gas emissions (GHG) must be reduced by 40% to 60% from 2010 levels by 2030. "Global Warming of 1.5°C" also states the net zero must be reached in this century (2045 to 2050). "Industry" emissions must be reduced by 75–90% from 2010 levels. "Construction" GHG intensity must be reduced by 64% while the electricity share is raised by 55-75% (under the condition that the power system reaches net zero). "Transportation" has a higher burden, where the share of low-emission energy by various transportation would rise from less than 5% in 2020 to about 35–65% in 2050.

Scientific reports in the past with various assessments that mention a rise limited to 2°C mostly set the time for net zero to be achieved by around 2075. In comparison, the suggestion of "Global Warming of 1.5°C" to pull up the schedule (around 2050) is significantly earlier. Therefore, IPCC experts pointed out that we must, with unprecedented force, aggressively undertake actions including renewable energy, building energy efficiency, electrical vehicles (EV), carbon storage and carbon capture, land management, biofuel crops, forestation, and all kinds of carbon reduction plans. The global carbon emissions must begin to drop not later than 2030 to stop Earth in the process of warming.

IPCC Media Salon Live Broadcast

Expert analysis, parallel actions in energy efficiency, transport, and energy

In order to follow up on the report's status, the Delta Foundation has been in contact with and participating in the United Nations Climate Change Conference since 2007. This year, our special envoy Zhan Yi-Xie was sent there to be stationed at Songdo in South Korea one week ahead of the event. She also obtained the opportunity to participate in the event from NGO contacts in the Global Climate Community as the only Taiwanese representative and closely observed the review process for "Global Warming of 1.5°C".

Furthermore, the Delta Foundation also interviewed three international experts at the event on their analysis of the highlights of this report and its significance. Senior Consultant Dr. Manfred Treber of the Germanwatch thinks that for the transport sector to reach "carbon neutral" in this century, the sales of internal combustion engine vehicles must be completely banned by 2030, while public transportation system usage percentages must be increased. These are quite difficult for many nations.

Greenpeace CEO Jennifer Morgan, who visited Taiwan last year, provided her analysis that the key strategy is "coal reduction" while having better public transportation and energy efficiency, and following the trend of capital investments. Professor Dong-Woon Noh, who represents the local hosting nation South Korea government, further emphasized the importance of "electricity de-carbonization", and calls for existing energy systems to replace fossil fuels as soon as possible!

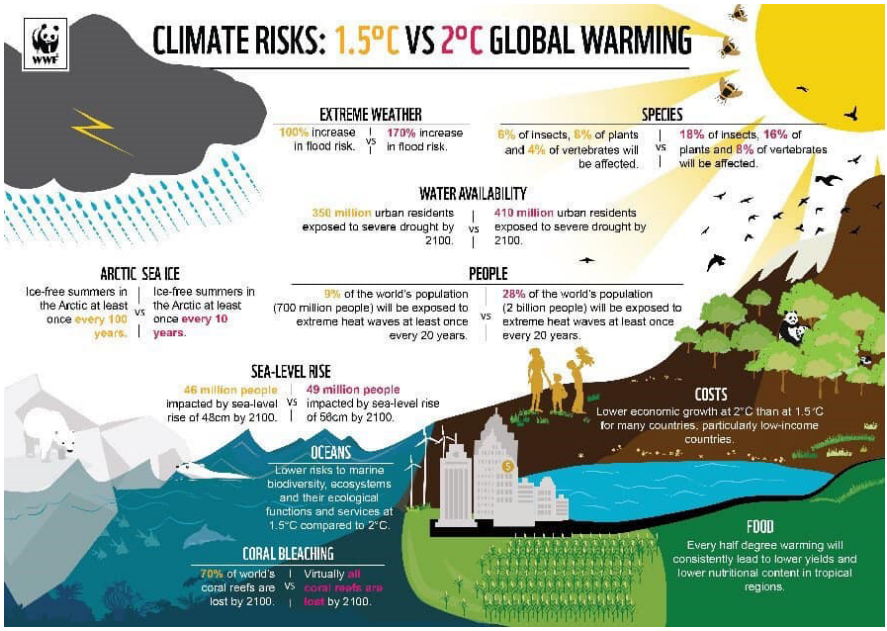
In response to the local conditions in Taiwan, Delta's presentation on the day referenced the "The Past and Future of the Climate in Taiwan" released by the Ministry of Science and Technology at the beginning of this year, and local experts were also invited to help analyze the information.

Besides immediately translating international reports, Delta also invited two local experts, Emeritus Professor George Chen of the Department of Atmospheric Sciences at National Taiwan University (NTU) (center) and Deputy Director-General Mark Cheng of the Central Weather Bureau (CWB) (second from the left), to speak about it at the event

George Chen, Emeritus Professor of the NTU Department of Atmospheric Sciences, is a former NTU Vice President who was given the name the "Plum Rain Expert". In his observation, Taiwan is located in the subtropical region with limited land and a large population, and certainly has the tendency to warm up faster than the world. Related climate risks are very important. CWB Deputy Director-General Mark Cheng reminded us that the actions in response to climate change must include "energy conservation and carbon reduction" (mitigation) as well as "adaptation". For many regions on the frontline of global warming, the wisdom to co-exist with extreme climates are even more important.

Delta's spokesperson and Assistant Vice-President of Corporate Sustainable Development Jesse Chou shared Delta's actions such as passing the Science Based Targets Initiative (SBTi) and proposing the goal of 56.6% greenhouse gas intensity reduction by 2025 compared with 2014. Also, in order to accelerate the transport sector move to low carbon, Delta has recently announced its participation in "EV100" International EV initiative, to use various corporate resources to assist climate actions.

At the end of the event, Delta Foundation CEO Guo Shan-Shan said to the nearly over-crowded venue "We don't have the option of choosing plan A or plan B but to accept them all, and complete every task!" Exactly. Faced with the final warning of the 1.5°C global warming issued by IPCC, we must hurry up our actions towards carbon reduction.



Climate risks scenario comparison between 1.5°C and 2°C global warming; figure created by World Wildlife Fund

Reference /

- IPCC "Global Warming of 1.5°C"
- 1.5°C Report SPM
- Download Chinese version of SPM and other information

International inter-disciplinary energy education Delta volunteer training includes EV material

Text by Tzu-Jung Chiu / DEF Project Director

In the spirit of our mission "To provide innovative, clean, and energy-efficient solutions for a better tomorrow", the Delta Electronics Foundation established Delta Energy Volunteers Team at the Taipei headquarters in 2008 and has been visiting primary schools near the office to promote energy education every year since then. It's estimated that ten thousand families have benefited each year. On October 5-6, the 10th Volunteer Training Workshop was held at the Taipei Headquarters. Shan-Shan Guo, Delta Electronics Foundation's Executive Director, was there to encourage volunteers from different plant and factories, especially the Delta volunteers in blue vests. The moment they step into campuses, they are the best Delta brand ambassadors!

In order to emphasize the importance of "transportation" to carbon reduction, this year's energy volunteer training will expand beyond the familiar building energy conservation field to address the most popular topics currently: low-carbon transport and electrical vehicles (EV). The course has designed a set of electromagnetism teaching equipment and related materials, and invited seed instructors from DET (DEI and DET are associate companies) and Delta Americas Headquarters (DPC) to participate as students. The two overseas factories are planning to begin the volunteering activities next year.

Volunteers work with motors, coils, electricity balls, and other teaching materials during the course

The majority of the Delta Energy Volunteers over the years have been engineers, and most of them have electromechanical backgrounds. Therefore, this year's course is designed to open with a science experiment, inviting Yu-Nian Su, a retired teacher from Huwei Senior High School, who has toured in over one hundred schools in remote areas. He has designed ten-plus patented teaching tools to tell the life story of and explain various scientific discoveries of the "Father of Electricity" Michael Faraday. Su's personal office is just like a science laboratory. He taught volunteers to operate the equipment and to work with motors, coils, electricity balls, and other teaching materials in person, hoping to "charge them up" for their future energy education volunteer work!

Then, the course was followed by two other instructors from outside the company: Eli Liu, founder of Green E2, and Xin-He Hsu, Taipei Bus Company (Capital Bus) Equipment Department Assistant VP. Mr. Liu shared personal EV driving and purchasing experiences, while answering related questions and debunking rumors. Mr. Hsu gave his opinions from the viewpoint of management in the public transportation industry and offered volunteers basic understandings of the EV promotion status in Taiwan.

Day two was carried outside the company. The morning was spent visiting the EV industry at the Tesla Branch Office in Neihu, and spent the afternoon at Minghu Primary School, where volunteers had the opportunity to try out their teaching skills. The afternoon portion of the course was hosted by the Qiankun employee Jin-Bei Lin, who was a volunteer since the volunteer project was initiated. He shared his experience as a volunteer guide at the "World of Physics" exhibition at the National Museum of Natural Science, and taught everyone how to transform seemingly-cold scientific knowledge into intriguing life experiences. For instance, the triangular spinning top instantly explains the driving principles of EVs.

Volunteers visiting Neihu Tesla Branch Office to understand the market trend

Electrical vehicle driving principles explained by using scientific experience in daily life

Despite the relatively abundant environment education resources in Taiwan, our energy education is generally lacking in teachers and professional teaching materials. Therefore, during the course development, the Delta Foundation especially wanted to dive in from the large trends of international carbon reduction while using real applications of Delta products as proof.

Following green buildings, this year's teaching materials were particularly focused on the transport sector, which has high potentials in carbon reduction. The teaching materials are also integrated with science education: from the basics of electromagnetism and demonstration tools to allow students to observe magnets, direct and inverse magneto electric effects, and other science phenomena, to understand that knowledge in the textbooks is not just for taking exams, but could be used on low carbon vehicles such as maglevs and EVs. We hope Delta volunteers will spread energy knowledge outside of the workplace to inspire more kids to develop an interest in scientific discovery, energy conservation, and carbon reduction.

Delta volunteers spread energy knowledge outside of the workplace to inspire more kids to develop an interest in scientific discovery, energy conservation, and carbon reduction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