



## Delta supplies inverters for Southern Germany's largest ground-based photovoltaic plant



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## FROM THE EDITOR

This year marks the 10th year of Delta Brand News Bi-monthly. To go digital, the Brand News established its own website a few years ago and was integrated with Delta official website and Line last year to interact with readers and optimize reading experience. This year, we slightly adjust the contents and columns; a new column, "Sustainability," was added. Delta continues to pay close attention to corporate social responsibilities (CSR) and Environmental, Social, Governance (ESG) performances. We won 10 awards in "Taiwan Corporate Sustainability Awards" (TCSA) and "Global Corporate Sustainability Award" (GCSA) in 2020. Sustainable development is one important aspect of brand promotion. In this issue, we'll celebrate and share with you Delta's CSR achievements over the years.

Delta is dedicated to developing and using renewable energy. This issue's "Special Report" features the successful case of solar energy from Southern Germany. Delta used half the site to build 1,500 photovoltaic inverters and transformed the remaining space into a green space to help reduce the park's carbon dioxide emission, minimizing the impact to ecology. It is a great demonstration of environmentally friendly energy solutions. Please do stay tuned!

Used to follow regional marketing managers, this year "Brand People" will be featuring marketing managers from branded business groups/units. In this issue, we introduce IABG, which has 30 years of practice in brand promotion. Ms. Jasmin Hu, marketing manager from IABG, will be sharing IABG brand promotion projects and marketing strategies in industrial automation and smart manufacturing in recent years, as well as her experience and thoughts from her 11 years at Delta.

Global electric vehicles (EV) and charging infrastructure are rapidly developing. With years of experience, Delta collaborated with ElectrAssure from the United Kingdom to provide EV charging solutions for Volkswagen UK Ltd; while in Taiwan, our compact and powerful EV charger, AC MAX, has won "Taiwan Excellence Award". More exciting contents can be found in "Brand Circle".

This issue's "Green Life" features Delta (Taiwan) largest club - the Camping Club. Take a look at how they practice the brand spirit, "Smarter. Greener. Together.", and implement carbon reduction in outdoor activities!

Brand Management Office



# Delta supplies inverters for Southern Germany's largest ground-based photovoltaic plant

Text by Delta EMEA

The 150 hectare site in Berg im Gau, Bavaria, will supply electricity to around 100,000 local residents. Anumar, the EPC (Engineering, Procurement and Construction) services provider from Ingolstadt, is building and operating what is currently the largest solar park in Southern Germany, with output of 120 MWp. The Solarpark Schornhof project, located in the Neuburg-Schrobenhausen district to the west of Ingolstadt is scheduled for completion by the end of the first quarter of 2021 and will cut CO2 emissions by up to 77,000 tonnes per year. Currently, 70 megawatts are already connected to the grid. Anumar has chosen Delta as its inverter supplier.

Southern Germany's largest ground-based photovoltaic plant with output of 120 MWp will supply electricity to around 100,000 local residents







### Alternative use for agricultural land

The plot selected to house Solarpark Schornhof is located in what was once the largest area of fenland in Southern Germany. For many years, the fertile soils of the former Donaumoos fen were intensively farmed. However, the humus depth and moss content of the drained land shrinks by one to two centimetres every year, releasing greenhouse gases when the organic layer below comes into contact with the air. Landowner Alexander von Zwehl was looking for other ways to make his land productive, and decided to lease out the 150-hectare plot surrounding the former Schornhof farm for use as a solar power installation. The high level of local support, high feed-in prices in Bavaria, the size of the surrounding area and its proximity to the high-voltage line between Munich and Ingolstadt made his land the perfect site for a photovoltaic plant. It means that von Zwehl can still make money from his property, but the new method of exploitation stops soil erosion and contributes to the energy revolution.

### A strong partner for a successful project

2010, is responsible for the project. Work to insert aluminium posts into the soil at the site in Berg im Gau, which is equivalent in size to around 200 football pitches, started in March 2020. In total, 70,000 posts will be installed, as well as a framework of vertical and horizontal beams to support the 350,000 photovoltaic modules. Anumar chose Delta to fulfil the site's requirement for circa 1,500 inverters. "At such a large project like Solarpark Schornhof it was particularly important for us to have a trusted partner who is available around the clock. We have been installing equipment made by Delta for many years and already have several solar power projects under our belts in partnership with them. Delta has always impressed us during these projects with fast and easy to access support," explained Markus Brosch, CEO of Anumar. "An additional benefit is that Delta's M70A String Inverter complies with the new VDE Technical Connection Rules for High-Voltage (VDE-AR-N 4120), which is a basic prerequisite for connecting the plant to the high voltage grid," Brosch added.

At Solarpark Schornhof, sets of twelve cable bundles with up to 70 KW of power are combined in one inverter. This converts the DC output from the solar modules into 400 V AC, which is combined with the output from 20 more inverters and fed into one of over 60 transformer stations. There, the electricity is transformed to 20 kV, before a substation increases the voltage up to 110 kV for feeding into the grid.

"The power electronics converts the direct current from the solar power modules into alternating current, which can be used in our power grid. Thanks to its compact design, our M70A inverter is easy to transport and install, and is particularly well suited to use in large open-area commercial solar power plants such as the one we have here in Schornhof, as it features a high power density," said Andreas Hoischen, Senior Director of the Business Unit Photovoltaic Inverters Delta EMEA at Delta Electronics.

Marion Futterer, Business Development Manager Photovoltaic Inverters Delta EMEA, added, "We are especially pleased that Anumar has once again shown its confidence in Delta's capabilities and selected us to supply the inverters for the Schornhof project. We are looking after the project from construction through to completion, as befits our reputation for long-standing, personal and loyal partnership."



More than 1,500 Delta M70A inverters are being installed at Solarpark Schornhof



### Power purchase agreements and support under the German Renewable Energy Sources Act make the economic case

With peak output of 120 MW, the solar plant is designed to generate 110 GWh of electricity every year. The generated power is introduced to the 110 kV line between Schrobenhausen-Steingruff and Ingolstadt-Kothau via a dedicated substation. Some 30,000 homes will be supplied with electricity from Solarpark Schornhof, equivalent to the entire Neuburg-Schrobenhausen rural district. As project operator, Ingolstadt-based Anumar is footing the 60 million euro investment itself. It has created an operating company head-quartered in Berg im Gau, and has a lease allowing it to use the land until 2053, at which point the installation is slated to be dismantled. However, the landowner Alexander von Zwehl believes that the land will continue to be used to generate electricity using the power of the sun, potentially with new photovoltaic modules, long after that date.

The project is being financed based on power purchase agreements (PPA) and funding under the German Renewable Energy Sources Act (EEG). "PPAs are absolutely crucial to the energy revolution. They allow us to sell solar power projects directly, rather than relying entirely on EEG funding," explained Andreas Klier, CEO of Anumar. "Photovoltaic modules are currently the cheapest way of generating electricity. Here in Schornhof, generating costs are below 5 cents per kilowatt hour," continued Klier. The Norwegian state power company Statkraft is the PPA partner for a total of 90 MW to be produced at Schornhof. It will buy the electricity at a fixed price for a period of 10 and 11 years. Anumar will finance the remaining 30 MW of power through payments from EEG tenders.



### A power plant combined with a green oasis

In ecological terms too, the Schornhof project brings many benefits. Only half of the 150-hectare site will be covered with solar modules. The remaining 70 hectares will be transformed into a "green paradise" by the operator. This part of the project entails planting some 50,000 new shrubs and trees, with the existing perimeter woods being retained. These do not interfere with the installation since they are far enough away from the photovoltaic modules. In between the modules there is plenty of space for meadows and wild flowers to grow, providing a home to small animals, bees and other insects. Anumar is also planning to collaborate with local bee-keepers and is open to extensive use of the meadow, such as for grazing of sheep.

"At Delta we are proud to be working with Anumar on this project, and to be supplying a core technology for the energy revolution with our power electronics. Our employees, numbering more than 500 in Germany alone, make a contribution every day to developing smart, eco-friendly energy solutions," said Andreas Hoischen.



# Embrace Change to Continue Innovation

## Exclusive interview with Ms. Jasmin Hu, Marketing Manager of IABG

Text by BMO

The 2020 "Brand People" Column interviewed marketing executives of respective regions to understand Delta's localization marketing strategy from a frontline perspective. In 2021, we plan to extend the strategy to marketing executives of respective business groups. We hope gain a deeper insight into how to use the brand to promote businesses through these frontline promoters. Established for nearly 30 years, Delta's IABG is dedicated to industrial automation and intelligent manufacturing. For this issue of "Brand People", we interviewed IABG's marketing manager Ms. Jasmin Hu and had her share IABG's marketing strategy and brand promotion plan, as well as her 11 years of experience working at Delta.







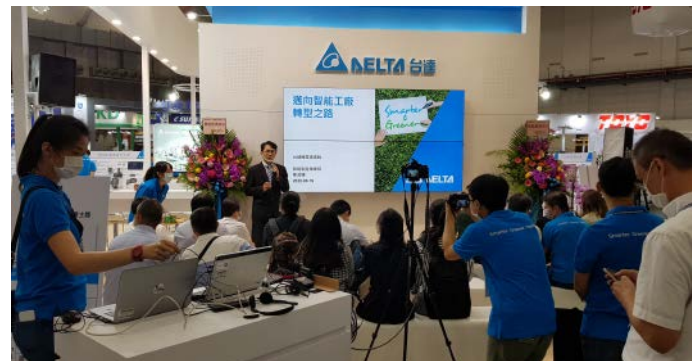
### Close professional workforce cooperation compounds effects of diverse development

In recent years, intelligent manufacturing has become an indispensable technical capacity to usher in Industry 4.0. With its efficient and professional division of labor and diverse marketing integration capacity, Delta's IABG marketing workforce has continued to enhance its brand awareness in the field of industrial automation. When sharing the workforce's organization and planning, marketing manager Jasmin said "Under IABG's organizational planning, the marketing workforce performs like platform units in the form of one-to-many that correspond to respective business units and respective countries." IABG's marketing colleagues include those who are good at planning and compilation, industrial design and multimedia design. They are not only professional but also equipped with the capacity of diverse integration. Jasmin added, "In addition to planning, our planning and compilation colleagues must also have proficient foreign language skills to communicate with the respective business units of each region. Aside from drawing design layouts, our design colleagues are also required to plan domestic exhibitions. From the course of planning and implementation, they have become capable of working on more diversified elements and have gained creative inspiration to make the designed interfaces and appearance more localized".



### Sharing of cloud tanks with non-restricted cross-region collaboration

In recent years, intelligent manufacturing has become an indispensable technical capacity to usher in Industry 4.0. With its efficient and professional division of labor and diverse marketing integration capacity, Delta's IABG marketing workforce has continued to enhance its brand awareness in the field of industrial automation. When sharing the workforce's organization and planning, marketing manager Jasmin said "Under IABG's organizational planning, the marketing workforce performs like platform units in the form of one-to-many that correspond to respective business units and respective countries." IABG's marketing colleagues include those who are good at planning and compilation, industrial design and multimedia design. They are not only professional but also equipped with the capacity of diverse integration. Jasmin added, "In addition to planning, our planning and compilation colleagues must also have proficient foreign language skills to communicate with the respective business units of each region. Aside from drawing design layouts, our design colleagues are also required to plan domestic exhibitions. From the course of planning and implementation, they have become capable of working on more diversified elements and have gained creative inspiration to make the designed interfaces and appearance more localized".







### Combination of online and offline promotion to have in-depth brand communication

The impact of the severe pandemic last year has changed the way we hold events and has accelerated the brand's digital transformation. Our 2020 product presentation moved from the original offline stage to the online platform in the form of a webinar. This allowed customers throughout the world to simultaneously participate in this outstanding event through a live broadcast. Jasmin further explained that "24 webinars were held last year, and more than 40 chapters and sections were excerpted. They were themed on the topics of smart manufacturing, industry solutions, joint promotion with intelligent manufacturing cooperation partners, equipment, warehousing, and more, and combined digital advertising to reinforce brand publicity. With this series of activities, we built a hardcore audience. The audience showed up at almost every activity. At the same time, through the live broadcast, we conducted a questionnaire survey on requirements for intelligent manufacturing consultation and were able to approach many potential customers and expand our business opportunities." With regard to the 2021 marketing strategy, Jasmin shared her planning and deployment as follows: "It depends on this year's pandemic status, but the development of online digital marketing will be the required focus. If the pandemic mitigates, we will hold project exchange seminars for key accounts in the Taiwan region, such as special class-type seminars, to explore different business opportunities. We also plan to participate in the Taipei International Automation Exhibition in August." By flexibly integrating online and offline marketing tools and switching the communication mode in a timely way, we hope to develop our brand publicity both broad and deep.

### Tertiary college cooperation with an industrial and academic alliance to build highly efficient momentum

To nurture automation R&D talent, IABG has unfolded their plans for industrial and academic cooperation since 2011. Narrowing the gap between industry and academia in diversified ways, such as establishing joint labs, organizing competitions, training, and others. Jasmin said, "We have carried out industrial and academic cooperation in Taiwan, mainland China, India, Thailand, Vietnam, the Netherlands, and others., in which the IA workforces of respective regions have communicated and negotiated with their local schools to set up automation labs—although it is not certain whether the lab has been established or not. In China, the Delta Cup University Automation Design Competition has been held by Delta Greentech in Wujiang for six years in a row, which drew tertiary college players from various countries to participate." With the help of talent cultivation and alliance competition, students can better understand Delta's intelligent manufacturing development concepts and technology. Jasmin continued to explain that, "The classroom image arrangement and product or project introduction have been designed and presented in accordance with Delta's template, so students become familiar with the Delta brand in their school years, which will further wield great brand influence."

### Embrace change to create a new future

Jasmin has been working at IABG's marketing unit since she first joined Delta, and it is going to be 11 years this March. She humbly noted that "I have learned a lot and actually can go further through collaboration which can even go beyond my limits and imagination. I anticipate that, whether it is the growth of work or performance, I will keep breaking through my limits all the time." Jasmin considers it crucial to set a vision and goal and keep an open mind to constantly learn new knowledge and make headway towards the goal step by step, which is the only way to lead to success. Thus, she encourages her colleagues to "embrace change to continue innovative thinking. While the external environment is unpredictable, we can only maintain sensitivity with an open attitude and get ready for upcoming challenges."



# Delta works with China's Hubei University of Technology to build the "AI Experimental Platform"

Text by DRC

Corporations are stepping up the efforts in smart manufacturing transformation to cope with the advent of the age of AI. An "AI Experimental Platform" which was built in collaboration with Hubei University of Technology in China was born out of this new digital trend. Instead of adopting the conventional industry-academic cooperation model, Delta aims to cultivate new generation of AI talents that meet industry needs.







## IIoT SMART SOLUTIONS

Consisting of more than 20,000 teaching staff and students, and focusing on engineering education, Hubei University of Technology in Wuhan is one of the key universities to carry out the "Excellent Engineer Education and Training Program". The "AI Experimental Platform" project established the production line on campus, aiming to promote the core concept of "intelligence". The platform not only enable both teachers and students to plan related courses according to actual needs of teaching and learning, but also can repeat practices at any time. Both students' needs for experimental learning and teacher's needs for R&D scenarios can be met; the contents taught by the teachers can be internalized more directly and immediately in the form of students' practical skills that connect seamlessly with the needs of enterprises. This new industry-academic cooperation project, scheduled to be officially launched in the new semester of 2021, is expected to cultivate more industry's talents and inject new blood to the industry.

### The solutions deployed by "AI Experimental Platform" include:

**Transformable intelligent machines (TIM):** To meet the needs of "small in volume but diverse in variety", the standardized cabinets of the transformable intelligent machines developed by Delta Research Institute is cable of connecting in series with various robotic arms and functional application modules. Depending on the need, machine functions can be disassembled and assembled whenever necessary.

**Automatic defect classification:** By collecting image data of AOI machines and utilizing visual computing and image analysis to perform deep learning and construct models, the automatic defect classification software introduced by Delta Research Institute can improve identification of nonconforming product and correct classification rate.

**Predictive maintenance:** By integrating monitoring data from the equipment, system and sensors, and utilizing AI algorithms to establish parametric models, the predictive maintenance solution can realize status monitoring and anomaly detection; its primary task is to monitor equipment status and detect anomalies. Some of its modules are open to teachers and students to conduct secondary development and experiments.

**PC-based control system:** Software programs in the PC-based control system can be controlled by dragging & dropping charts, which enables faster execution of machine and equipment software based on any production changes. It also allows users to control "transformable intelligent machine" and edit production processes.



Composed of intelligent hardware - transformable intelligent machine (TIM), and intelligent software - automatic defect classification, predictive maintenance, PC-based control system etc., Delta's "AI Experimental Platform" reproduces actual industrial application scenarios in universities.



## Keep up with sustainability trends: A comprehensive ESG roadmap

Text by Corp.comm

To meet the demands of its business divisions, Delta's Sustainability Office especially hosted professional ESG (see Note 1) training sessions within the company. The team originally planned three courses for the employees in Taiwan and it was estimated that there would be around 100 participants. Surprisingly, the number of people signing up for the courses exceeded expectations. Within one week, the number reached almost 1,000. In response to such enthusiasm, the team added another three courses and invited speakers specializing in procurement, HR, finance, legal affairs, information, and factory affairs. These speakers took turns speaking at each factory and generously shared their ideas about ESG trends and practices. Judging from everyone's active participation, it was clear that nobody could stay out of the ESG wave.



CSO Jesse Chou talks about global ESG trends and practices in an internal ESG training course







### Worsening climate crisis has made ESG performance an important indicator for investors

Simply put, ESG criteria review a company's responsibilities in terms of social development and human sustainability from three aspects— environmental, social, and corporate governance which also constitute the concrete framework for implementing the already well-known corporate social responsibility. When a corporation is analyzed and assessed by the outside world.

The world population explosion and rise of emerging economies have bringing destruction and impacts to nature and climate. The UN sustainable development goals report has clearly stated sustainability is an important mutual goal for everyone in the future. To keep the major trend, mainstream media has made ESG issues into cover stories. Many major investing entities see ESG ratings as an important indicator. Clients, investing entities, rating agencies, and news media are all significant stakeholders of Delta, indicating that ESG has attracted attention.

### The United Nations Climate Change Conference gained much traction as cities and corporations participated in reducing carbon emissions

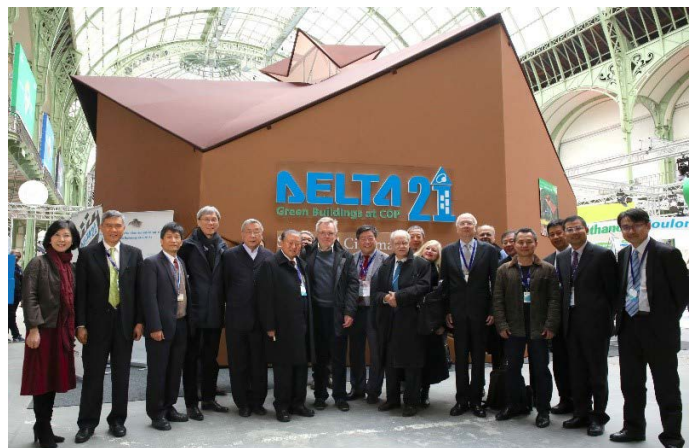
At the end of 2015, an important proposal was raised during the United Nations Climate Change Conference in Paris—one of the biggest gatherings of human history. The proposal placed more responsibility on local governments and companies for reducing carbon emissions and adapting to climate change, which used to be considered the responsibility of the national government. In particular, multinational corporations with sufficient resources were urged to agree on reducing carbon emissions to make more powerful contributions to combating climate change.

As a corporate citizen, Delta joined the conference with enthusiasm. Every member of the management participated in the peripheral forums and hosted an exhibition to connect with the international community. In the same year, Delta agreed to join the "We Mean Business (see Note 2)" coalition and promised to "voluntarily reduce carbon emissions," "disclose climate change information," and "engage in climate change policies."

Under the influence of the conference in Paris, Delta continued to meet with local governments from around the world and new clients, and eventually found feasible solutions and core businesses to satisfy client needs and gain profit.

### Self evaluation through external parties and internal work allocation to improve ESG

In recent years, many companies have worked with international rating agencies or joined global initiatives to keep up with global trends. Companies can find the basis for setting goals and regulate their own supply chain. Delta has participated in international ratings to acquire reports on its ESG performance. This effort focuses on the positive aspects of what has been done well and areas of improvement.



Delta management attended the United Nations Climate Change Conference in Paris, taking action to support the ESG and to connect with the international community



## SUSTAINABILITY

Among all the important international indexes, DJSI (see Note 3) updates its methodology every year in line with the trends and requests companies to publicize supporting evidence; its scope of assessment is wider, making it an important international ESG index. Delta's DJSI ratings have ranked high in its industry worldwide for three consecutive years. In 2020, Delta's overall score was 81 with a percentile rank of 100. Furthermore, it gained a score of 93 for environment issues—its specialization, while scoring 84 for social issues; the percentile ranks of both factors were top 1, showing Delta's exceptional work in climate change, social participation, and employee training. For corporate governance, Delta scored 70, ranking approximately third in the industry.

As to other indices and initiatives, Delta participated in the two categories in CDP ratings (see Note 4): "climate change" and "water management." Delta was also the first Taiwanese company to receive two A ratings in 2020.



Delta incorporates its ESG strategies with operational goals. The photo shows Delta Akaho Energy Park in Japan

Delta actually found several weak points and emerging issues from external ratings, including chemicals management, conflict minerals (see Note 5) management, information security, client privacy, etc. The management has paid extra attention to these problems and through the CSR committee (see Note 6), Delta has established nine ESG programs managed by different departments to implement improvements. Under the leadership of the CSR committee, the Sustainability Office acts as the general PM of all ESG programs as well as the think tank that promotes ESG within the company, responsible for educational training, recruiting external consultants, and setting up SOPs and methodologies.

In 2019, Delta created the position of Chief Sustainability Office (CSO) to keep up with global trends. This role is now undertaken by Jesse Chou, who takes charge of strengthening the formulation of ESG strategies, designing solutions, and implementation. In November of the same year, COO Simon Chang instructed to establish a RBA (see Note 7) head office in response to the increasingly important client needs related to ESG. The office provides support for Delta's business divisions/groups around the world when communicating with clients about ESG issues. Through a comprehensive sustainability management system and joint effort by all employees, Delta hopes to implement ESG strategies in its global operations.

### Notes :

1. Environmental, Social, Governance are the three factors defined by The United Nations Global Compact in measuring the sustainability/CSR of a company.
2. We Mean Business is a global non-profit coalition aiming at working with the most influential companies in the world to advocate action on climate change.
3. Dow Jones Sustainability Indexes was the first global benchmark to track the sustainability performance of companies for investors; it evaluates ESG performance of global corporations every year.
4. CDP stands for Carbon Exposure Project. As one of the most important sustainability indexes, it assesses climate-related risks and opportunities using questionnaires every year.
5. Conflict minerals include tin, gold, tantalum, tungsten, and cobalt extracted in countries of armed conflict and human rights violations.
6. Founded in 2007, Delta CSR committee is the highest sustainability management organization within Delta.
7. RBA stands for Responsible Business Alliance.





## Delta's 8K projection on cultural relics, showcasing the beauty of timeless treasures in the National Palace Museum

Text by Delta Electronics Foundation

The National Palace Museum invites Delta Foundation to collaborate in the making of "A New Vision of National Treasures 8K videos." The series of videos were released at Wenhuitang Auditorium of the National Palace Museum. The most representative calligraphy, painting, sculpture and canon were specially selected from the National Palace Museum's digital collection. By using digital technologies and 8K projector, which features the world's highest brightness, the beauty of these national treasures are more intricately portrayed with the uniquely magnificent and aesthetic effect of 8K projection technologies. Bruce Cheng, founder of Delta and chairman of Delta Foundation, and Yu, Pei-Chin, Deputy Director of the National Palace Museum, attended the release and experienced the vivid 8K images of the treasures. A total of six collections, comprising the famous Jadeite Cabbage, Meat-shaped Stone and the Tibetan Dragon Canon, as well as Fan Kuan's "Travelers Among Mountains and Streams," Guo Xi's "Early Spring," and Li Tang's "Wind in Pines Among a Myriad Valleys," reputed as the "Three Treasures of the NPM," were included in the 8K video filming.



(right to left) Guo Shan-Shan, Vice chairman of Delta Foundation; Bruce Cheng, founder of Delta and chairman of Delta Foundation; Yu, Pei-Chin, Deputy Director of the National Palace Museum; and Hsu, Hsiaote, Chief Curator of the Department of Education, Exhibition, and Information Services of the National Palace Museum; taken at Wenhuitang Auditorium of the National Palace Museum

Bruce Cheng, founder of Delta and chairman of Delta Foundation, said: "Delta's 8K projection technologies are widely used in the world of art. It has been used in art exhibitions and music and dance performances, where the audience is treated with an audio visual feast with sharp and clear images of artistic charm and body movement. We are very honored to be invited by the National Palace Museum to provide the 8K projector for 'A New Vision of National Treasures 8K video' project. It fully presents the intricate details of the national treasures on the 500-inch large screen, enabling the public to view the wonderful textures of the cultural relics without having to queue, thereby triggering them to re-explore those cultural relics."

## Delta showcases 8K smart theater solutions at China Tourism Equipment Expo

Text by Delta Greentech

Delta builds 8K UHD attractions smart theater solutions at China-ASEAN (LiuZhou) Tourism Equipment Expo using Delta's 8K laser projector and 8K@60Hz image input processing system, projecting intricate and stunning images on the 300-inch screen. It projects scenic films such as "Water with Life in Taiwan," a 8K environmental documentary sponsored by Delta.

According to Zhu Li, Delta Greentech's Display Business Unit Director, the world's first 8K laser projector was released by Delta, together with its affiliate, Digital Projection, back in the end of 2017. The 33.17 megapixel image quality brings real images to a new level, presenting the audience with an intricate and stunning 7,680x4,320 ultra-high definition. In recent years, Delta has been integrating advanced video technologies to build smart theater solutions, creating a perfect fusion combining modern technologies with amazing scenery and anime themes, and bringing fresh high-tech interactive experience to tourist attractions and theme parks.



Delta builds 8K UHD attractions smart theater solutions at 2020 China-ASEAN (LiuZhou) Tourism Equipment Expo



## Delta donates equipment for Delta Industrial Automation Lab and opens co-working space at KMITL

Text by DET Marketing



Delta Electronics Thailand opened the Innovation Engineering Co-working Space at KMITL and donated new Delta industrial automation equipment to the Delta Industrial Automation Lab. Left is Mr. Jackie Chang, President of Delta Thailand

Delta Electronics (Thailand) opened the Innovation Engineering Co-working Space at King Mongkut's Institute of Technology Ladkrabang (KMITL) and donated new Delta robots, industrial automation equipment and interactive display products to the Delta Industrial Automation Lab at the KMITL Faculty of Engineering.

Mr. Jackie Chang, President of Delta Thailand, and Associate Professor Dr. Somyot Kaitwanidvilai, KMITL Faculty of Engineering Dean, officially opened the new co-working space and Delta management demonstrated the donated equipment to KMITL staff and students. On the same day, Delta donated also its original six-axis articulated robots, new actuators and a NovoTouch interactive large-screen display to the Delta Industrial Automation Lab at the KMITL Faculty of Engineering. Speaking at the opening ceremony, Mr. Jackie Chang said, "Delta is proud to continue our pioneering development of automation education at Thailand's universities. Today we further strengthen our excellent collaboration with KMITL with the new

co-working center and our latest advanced equipment for the Delta Industrial Automation Lab here. We look forward to supporting more top universities like KMITL to foster Thailand's next generation of engineering talents who will help create a technology-driven and sustainable economy."

Around 1,000 Thai engineering students have already trained at the Delta Automation Academy so far. Delta has set up Delta Industrial Automation Labs in Thailand's top universities including: Chulalongkorn University, Kasetsart University, King Mongkut's Institute of Technology Ladkrabang and King Mongkut's University of Technology campuses in North Bangkok and in Thonburi.

## The 7th "Delta Cup" starts online contest

Text by Delta Greentech

Recently, during the online conference of International Educational Forum "Nurturing Talents for Smart Manufacturing" held by Chinese Association of Automation and Delta, the start of "the 7th Delta Cup: International Smart & Green Manufacturing Contest" was announced. The contest was themed as "Seeking Smart IIoT Talents".

"The 7th Delta Cup: International Smart & Green Manufacturing Contest" was previously named "Delta Advanced Automation Contest". Since its first event in 2014, it has become an important contest when it comes to thoroughly improving talent nurturing quality and its conference has become an international event. Affected by the COVID-19 pandemic, "the 7th Delta Cup: International Smart & Green Manufacturing Contest" will be held online over the entire course. There will be five major sections in the preliminary competition. All participating teams need to pass the online test and the review on works to enter the finals. The finals will include two parts: team contest and championship contest.

Regarding the topic, the new contest kept with the development trend of Industry 4.0 and green manufacturing. The topics are focus on automation solutions such as technological development, manufacturing process, performance and efficiency, and management decisions.



"The 7th Delta Cup: International smart & green manufacturing contest" is held online



## Delta's EV AC charger, AC MAX, won Taiwan Excellence Silver Award

Text by EISBG

Delta's compact and powerful electronic vehicle AC charger, AC MAX, won the Silver Award, the highest honor at the 29th Taiwan Excellence Awards. The organizer, Taiwan External Trade Development Council, commented that Delta has been dedicated to developing EV charging infrastructure for many years; through its core technologies of power conversion and energy management, Delta has developed EV charging solutions that integrates solar energy, energy storage and IoT technologies.

JJ Chang, General Manager of EISBG at Delta, stated that Delta has invested in developing EV charging products as early as 2010 and launched numerous AC and DC chargers and back-end management systems in more than 50 markets globally. In addition to high-speed charging, AC MAX, which won this year's award, also includes features such as leakage detection and overheating protection to protect car owners and their properties thoroughly. As to system integration, to manage power demand and distribution, AC MAX can be connected with energy management systems that assign power priority to a plurality of electrical devices at home or other appliances on-site. Moreover, AC MAX leads the industry with ISO 15118 plug and charge certification, and supports global charging standards, which provides optimal charging efficiency, ensures safety, enhances user experience, and satisfies the diverse charging demands from homes, buildings, shopping malls, and public charging stations.



JJ Chang, General Manager of EISBG at Delta (right), and Ruiyuan Xu, Director of EV Charging Solutions Business Group (left), represented Delta to accept the award

## Delta Novo wireless presentation solution won Taiwan Excellence Award

Text by EISBG

The 29th Taiwan Excellence Awards were organized by the Taiwan External Trade Development Council under the auspices of the Bureau of Foreign Trade, Ministry of Economic Affairs. Highly lauded by Taiwan's industries, the annual selections are based on five categories: R&D, design, quality, marketing, and manufacture in Taiwan. This year, Delta's Novo Wireless Presentation Solution also stood out among a myriad of products and won the award in the category of electronics and communication.

Based on the "wireless sharing and interactive collaboration system," the Novo Wireless Presentation Solution solves the connection limitations to, and inconvenience of screen sharing posed by traditional wired cable connections. Users can quickly share information and presentations from personal devices and enter into real-time interactive discussions. Supporting up to four people simultaneously sharing content, it significantly improves overall participation and interaction. While the pandemic has changed the way we meet, the Novo Wireless Presentation Solution can also help us to adapt to the change to the way meetings are convened. Delta's NovoTouch smart interactive display can be turned into a video conferencing platform by adding an external camera; the built-in electronic whiteboard enables users to write directly onto the display and immediately share it with all participants. More about Novo Wireless Presentation Solution: <https://www.taiwanexcellence.org/tw/award/product/1100697>

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EXCELLENCE 2021

Novo無線協作智能會議解決方案  
Novo Wireless and Collaborative Presentation Solution

Delta's Novo Wireless Presentation Solution won the Taiwan Excellence Award





## Delta and ElectrAssure provide Volkswagen UK Ltd with ultra-fast EV charging solution

Text by EMEA Marketing

Delta has partnered with ElectrAssure – the electric vehicle charging station specialist – to supply 100kW ultra-fast electric vehicle (EV) chargers to Volkswagen Group UK Ltd's Pre-Delivery Inspection (PDI) and distribution centre, located in Kent, to meet the growing demand for EVs in the United Kingdom. Delta's prowess in developing energy-efficient EV chargers and ElectrAssure's expertise in EV charging station integration have ensured that Volkswagen Group UK Ltd's PDI and distribution centre is able to meet its current and future EV charging requirements.

Nick Byrne, Volkswagen Group UK Ltd's group vehicle planning and logistics manager, said, "The system proposed by ElectrAssure with Delta's state-of-the-art EV chargers maps perfectly to our present and future needs. Our PDI and distribution centre now has the capacity to process even more EVs ahead of our customers being able to enjoy the efficiency benefits and driving enjoyment that the vehicles offer."



Delta and ElectrAssure provide Volkswagen UK Ltd with the ultra-fast EV charging solution

Loyd Davies, ElectrAssure's managing director, added: "Delta's leading technology and know-how in EV charging solutions made it an ideal fit for this application. The exceptional value and performance of Delta's solutions makes us certain that Volkswagen Group UK Ltd will have a PDI and distribution centre that's capable of meeting its needs for years to come."

Loyd Davies, ElectrAssure's managing director, added: "Delta's leading technology and know-how in EV charging solutions made it an ideal fit for this application. The exceptional value and performance of Delta's solutions makes us certain that Volkswagen Group UK Ltd will have a PDI and distribution centre that's capable of meeting its needs for years to come."

Commenting on the deployment, Vincent Lin, senior director of e-Mobility & Smart Energy Solutions business development, Delta EMEA, said: "Delta is proud to work closely with Volkswagen Group UK Ltd and ElectrAssure on this important project to foster together e-mobility. Our solutions provide the facility with the power and resilience it needs to operate successfully while satisfying the UK market's enthusiasm for EVs."

In anticipation of ever-more customers migrating to EVs and being processed by its PDI and distribution centre, Volkswagen Group UK Ltd was impressed by ElectrAssure's proposal, which showed how Delta's 100kW Ultra-fast EV chargers can be upgraded to 150kW. Thus, the modular system design enables the customer to start today with lower power at lower cost for locations with limited usage while keeping the flexibility for future expansion. Installation of high capacity chargers may improve cost efficiency and reduce complexities associated with a greater number of smaller capacity devices, reasons why the Ultra-fast EV chargers are favoured.

Delta's scalable and flexible solutions will enable Volkswagen Group UK Ltd's PDI and distribution centre to easily accommodate future changes such as site expansion, the addition of remote sites or changes in power supply capacity, while minimising energy costs in the event of a future supply upgrade. This provides Volkswagen Group UK with the peace of mind that comes from knowing that the solutions supplied via ElectrAssure will be able to address its charging and anticipated energy storage needs for at least the next ten years.

Delta's solutions for EV charging infrastructure include not only EV chargers, but also an Energy Storage System (ESS) and a Site Management System (SMS). To ensure grid reliability and service availability and optimize operation efficiency, Delta's ESS offers direct grid supply in order to avoid supply problems or penalties for over-use. Delta's SMS monitors and controls the charging systems while the overall energy management system integrates this with the ESS controller.



## Delta energy storage system - the first to be delivered and commissioned in Changbin Solar PV power plant

Text by EISBG

Delta 1.5MW/1.5MWh energy storage system installed at the Changbin Solar PV Power Plant has completed and is officially handed to the Industrial Technology Research Institute (ITRI) for commissioning. This is Delta's fourth megawatt (MW) energy storage system in Taiwan. Employing the brand-new outdoor battery cabinets and power conditioning system (PCS), the system can regulate Changbin Plant's solar power output and eliminate renewable energy's intermittent fluctuations, enabling electricity to enter the grid stably. This project is a one-stop energy storage solution, helping the client in creating the most cost-effective and applicable system configuration right from the initial stage of construction (including professional design, planning, simulation and prediction), with also the assistance of Delta's independently developed and manufactured PCS, battery system, and energy management and control system. They greatly reduced the difficulty of system integration and shortened the test time. Among all contract energy storage manufacturers in the Changbin Solar PV Power Plant, Delta is the first to pass ITRI's delivery test and has its system connected to the grid.



Delta 1.5MW/1.5MWh energy storage system installed at the Changbin Solar PV Power Plant

"It was a great honor to be able to participate in ITRI's Regional Energy Storage Demonstration and Verification Program commissioned by the Energy Bureau of the Ministry of Economic Affairs. Under the guidance of energy transition policies and led by industries, electrical energy will become the next generation tech industry. The rising proportion of renewable energy generation, returning of Taiwanese businesses to build new factories in Taiwan, increase of investment by the semiconductor industry, and the significant power demand driven by electric vehicles, will all bring challenges to the grid. Delta is an energy storage solution provider complete with independent R&D, local manufacturing, and technical support. It also actively works with industry partners to accrue experience in energy storage," stated JJ Chang, General Manager of EISBG at Delta.

Delta adopted the brand-new outdoor battery cabinets and the megawatt outdoor power conditioning system PCS2000 for the Changbin Plant. Unlike the traditional container, this open design saved space by eliminating the container walls and passageway inside the container, and concentrating all battery cabinets in the same area size to effectively boost the energy density. A lithium-ion battery system with up to 4,000 kilowatt-hours can be configured in a standard 40-foot container, which is three to four times that of a traditional enclosed container. Delta is capable of independent development, while maintaining the flexibility of customization and third-party integration. For example, the battery management system allows integration of different types of batteries to accommodate divergent energy storage applications; the DeltaGrid® EM energy management system can operate independently or interface with the system on-site. With a complete and diversified solution portfolio, Delta can meet the customization requirements of local power grids.



## Delta chosen by WhisperPower to create premium marine power supply and battery charger

Text by EMEA Marketing

Delta has announced the successful completion of a joint development project with WhisperPower, a leading Netherlands-based manufacturer of ultra-quiet off-grid power electronics, on the new WP-BC Supreme Pro battery charger. Combining the expertise of both companies, led to the successful development of the premium marine power supply and battery charger, which is ideal for systems in commercial shipping, industrial applications and the leisure marine markets. Unique in its size, versatility and robustness, the Supreme Pro Battery Charger pushes technological boundaries and sets a new industry benchmark.

"Within our market sector, we see that little is being renewed in the field of charging technology for professional applications," explained Roel ter Heide, Director-Owner of WhisperPower. "That is why, a few years ago, WhisperPower's design team set about developing a new range of safe and robust 24V WP-BC Supreme Pro chargers. They ensured the highest interference suppression (Class B) and standard UL conformity. For the professional maritime sector, the chargers offer full DNV, GL, and ABS certification. The compact and silent Supreme Pro is equipped with the required alarms and a volt/ampere meter at the front. It's the perfect main charger/power supply for a GMDSS system with back-up battery."

"WhisperPower reached out to Delta for its expertise in power supplies, product development, and manufacturing," said Kevin Hsu, Engineering Manager at Delta Electronics. "The marine environment presents unique challenges when it comes to power supply. This collaboration was a great experience for us, as both companies could learn from each other's expertise and the result was a truly exceptional product."

### Quality and reliability defined the collaboration

The WhisperPower engineering team and Delta Power Supply R&D engineers needed to ensure the new charger matched the high performance and quality standards of a truly premium product. The products were developed through detailed simulation and selection of performance-driven components. Delta's team assisted to meet EMI Class B, IP23, thermal and impressive acoustic requirements on the battery chargers and utilized its signature energy efficiency capabilities to make the product environmentally friendly. Both companies set out to create not only a market-conformant product, but a really innovative solution. After optimisation and multiple safety approvals, an uncompromising result that fully reflected WhisperPower's vision was achieved.

More information on the new WP Supreme Pro is available from <https://www.whisperpower.com>



The new WP-BC Supreme Pro battery charger





## Delta's mobile plant-growing control system facilitates agricultural automation

Text by IABG



Recently Delta introduced a mobile plant-growing gully control system to a customer in New Zealand who supplies vegetables, salad and herbs for baby food, to implement automated plant-growing gully conveyance

Recently, Delta has worked with Grow Systems, a Singapore company that specializes in agricultural technology, and introduced a mobile plant-growing gully control system to a customer in New Zealand that implements automated plant-growing gully conveyance. The customer who supplies vegetables, salads and herbs for baby food used to spend much time sowing, inspecting and harvesting on their large farm grounds. Delta's automated mobile gully control system advances plant growing by using self-developed products that save time, labor, and water for the customer.

Delta adopts the Human Machine Interface DOP-107EG Series to easily operate the mobile gully control system and uses the Advanced Slim PLC DVP-SE Series to control the movements of the system. The system runs based on the time intervals, speeds and directions configured. The water recycling mechanism makes good use of irrigation water. It consumes only 20% of the water used by conventional plant growing methods, and no wastewater is generated. The water recycling mechanism operates with the Compact Drive MS300 Series to adjust motor velocity and pump speed for optimal energy savings.

## Delta's screen printing inspection facilitates processes for MLCC production

Text by IABG

To enhance screen-printing precision and quality, Delta recently provided an automated and highly efficient screen printing inspection solution for an MLCC manufacturer in China. The manufacturer's screen-printing machines caused ragged edges or white dots on the printed patterns, or abnormal printing results of electrode positioning points due to long-term use. In addition, the manufacturer needed to implement 1st-piece inspection before mass production, where the 1st printed and slit ceramic film is inspected under a microscope before mass production, which can be time-consuming.

Delta has developed screen-printing inspection modules with its extensive experience in highly precise inspection. The modules execute automated multi-axis control by using Delta's self-designed DIAVision VGR Vision Software (for Robots and Motion) and motion controllers connecting via EtherCAT. The DIAVision VGR can achieve fast inspection speeds of up to 1,440 pieces per hour with efficient defect counting and precise size measurement.



With its extensive experience Delta has developed screen-printing inspection modules that execute automated multi-axis control via EtherCAT for diverse in-process workpiece inspection



## Delta help Formosa Plastics Group create its energy-efficient data center

Text by ICTBG

Delta's energy-efficient modularized data center infrastructure solution and system integration capabilities help Formosa Plastics Group create its energy-efficient data center. Delta delivers a PUE (power usage effectiveness) below 1.5, as well as up to 30% annual energy savings. Formosa Plastics Group (FPG), one of the world's largest petrochemical conglomerates. The aforementioned 750kW and 300 sqm data center in New Taipei City, which supports FPG's IT operations and data centers around the world

Madam Sandy R.Y. Wang, standing member of Formosa Plastics Group Executive Management Committee, chairperson of Formosa Biomedical Technology Corporation, underscored, "This new data center is the backbone of Formosa Plastics Group's entire IT infrastructure spread abroad, and therefore, long-term reliability, flexibility for future expansion, and energy efficiency are our top requirements. Delta's expertise and track-record in creating energy-efficient and resilient data centers were decisive factors within our decision process."

Mr. Victor Cheng, Delta's senior vice president and general manager of its Information Communication Technology Infrastructure Business Group, said, "Collaborating with a world-class corporation like Formosa Plastics Group has been a highly rewarding experience for our entire team. Moreover, we have been able to fulfill their specific needs by providing a comprehensive solution that enables high efficiency in terms of power management, cooling, as well as remote management of the entire infrastructure and PUE with our DCIM platform. This success cements our unique track record in the data center field, where we have established the world's first LEED v4 ID+C Platinum-certified data center in our Taipei HQs as well as our solutions implemented for global leading enterprises."



Delta help Formosa Plastics Group create its energy-efficient data center

## Delta dynamic-beyond series micro-module datacenter collaborates with VR for a new exhibition experience

Text by Delta Greentech

"2020 China Data Center Facility Forum" was grandly convened in Shenzhen, China, with the theme, "Sustainable Innovation in New Infrastructure". As the main supplier of the world's data center infrastructure, Delta shared with the industry peers during the event, Delta's latest dynamic-beyond series micro-module datacenter solutions which target on IDC and edge computing applications, establishing a green high-performance data center that meets the needs of the era.

The all new Delta dynamic-beyond series features higher scalability, space utilization and energy efficiency performance. As space in the data center is precious, the series maximizes economic benefits and increases infrastructure space and equipment utilization rate. In the exhibition, Delta Research Center's virtual reality technologies are used for the first time to construct a 3D interactive data center, simulating the dynamic airflow in the data center with visual effect. Users are able to explore freely in the virtual space and interact with 3D models. The rich VR immersive experience of stepping into the rack to explore is even better than the real experience, and the totally different exhibition experience received great response from the visitors.



Li Zhiguo, Senior Product Manager of Delta Greentech's Infrastructure Product Development Division, introduces the latest dynamic-beyond series



## Delta Controls' virtual summit presents IoT building solutions

Text by BABG

Delta Controls held their first-ever Virtual Global Conference in 2020 December. The conference featured information about the controls industry, IoT, modern and future building networks, lighting, access, security, clean air offices, and more!

Delta Controls introduced participants to its latest products including the new Red5 product line. Red5 are advanced IoT building controllers set to replace core controllers such as Delta's popular DAC, DVC, and DSC lines. Delta Controls also announced new cloud-based software tools that save customers time on installation and engineering. Cloud Deploy and enteliCLOUD join Cloud Engineering to allow partners to engineer, deploy and control building automation—all online.

Over the two-day event, sixteen Delta Controls specialists presented various topics ranging from occupant experience, technology focus, new markets, customer service, enteliOPPORTUNITIES, and next-generation opportunities. Joining the conference were six partners of Delta Controls, who introduced the audience to their businesses and offerings.

The conference brought in impressive viewing numbers and excellent interaction and comments from the attendees. The virtual event garnered over one-thousand registrants, and the livestream received over 5.2k views. During the livestreams, the Delta Controls presenters and specialists interacted with guests over the YouTube live-chat feature, discussing and answering questions. The comments and feedback received through the live-chat were positive and thoughtful and connected viewers worldwide.



Delta Controls' virtual summit presents IoT building solutions

## The Zhiyuan Building on National Chiao Tung University's Tainan campus

Text by BABG

Delta provides Zhiyuan Building one-stop consulting and engineering services for green buildings and smart buildings—from integrated planning of architectural design to execution of projects.

### Smart management for more efficient building operations

Using Delta Controls web-based graphic control software enteliWEB for central monitoring and the LOYTEC building control system that supports various open communication protocols, facility managers can monitor various subsystems, such as lighting, air conditioning, fire alarms, water supply and drainage, and emergency systems on a single platform to reduce management costs. The smart elevator call system can arrange elevator cars by identifying the number of people in a queue using the VIVOTEK 360° fisheye camera, which can save people's waiting times. The Vivitek NovoDS digital dashboard shows the elevator call status in real time, improving the efficiency of elevator operation.

### Intelligent monitoring of air conditioning and lighting equipment

In terms of energy-saving design, a pleasant temperature and humidity is maintained while saving on air conditioning by using a variable-frequency chiller, Variable Water Volume System (VWV) control, automatic scheduling control of exhaust fan, and more. In addition to fully adopting energy-saving LED lighting and implementing zone-based lighting control, the public area on the first floor also adopts the DALI system constant lighting control.

### Intelligent security management

Delta SmartPASS Access Control Management supports dual access control using RFID access control and facial recognition integrated on the same platform, which enhances management efficiency and convenience.



The Zhiyuan Building on National Chiao Tung University's Tainan campus





### LOYTEC and Delta Controls are both among the top 10 Brands of Ingenuity

Text by Delta Greentech



A few days ago, the awards ceremony of "China Intelligent Building Industry: Products, Brands, and Enterprises of Ingenuity" was held by China Construction Industry Association in Jinan, China. LOYTEC and Delta Controls are both among the top 10 Brands and Enterprises of Ingenuity. With LOYTEC's IoT-based building management platform and DALI Smart Lighting System, Delta won the "Top 10 Building/Park Intelligent Management and Control Platform" and "Top 10 Smart Lighting Systems". Meanwhile, O3 Room Controller developed by Delta Controls won "Top 10 Building Equipment Management System". This is another recognition received after being awarded with "Top 10 Building Control Brand" by QJ Smarttech. Roland Chiang, General Manager of Delta Building Automation Business Group, expressed that driven by the new infrastructure developments, digital building solutions enable enterprises to carry out smart management. Besides improving the operational efficiency of basic electromechanical systems, the environment also becomes more comfortable and supportive for good health.

LOYTEC & Delta Controls Awarded in "China Intelligent Building Industry: Products, Brands, and Enterprises of Ingenuity"

### Delta bluetooth panel light PA1 is the first UL IoT security lighting

Text by BABG

Delta's Bluetooth panel light PA1 has become the first smart lighting product globally to achieve a UL IoT Security Rating. Delta's Bluetooth panel light can be controlled via mobile phones, which can save wiring costs while increasing application flexibility, as well as provide an information backbone for smart buildings.

Calvin Wang, head of Delta's IoT Lighting Business Division, said, "Delta strives to develop IoT-based building automation solutions to promote the development of smart buildings. Lighting fixtures are one of the most common and evenly distributed infrastructures in buildings. The DeltaZhi™ lighting system not only provides lighting but also serves as a node for information acquisition and transmission as the backbone of smart buildings, supporting extensive value-added applications and services. The emphasis on cyber security has long been the principle for Delta's development team. It is an honor for Delta's Bluetooth panel light PA1 to be the first smart lighting product globally to achieve a UL IoT Security Rating. In the future, Delta will continue to strengthen the cyber security design of its IoT products to provide clients with more reliable products and services."

Jonathan (TsungHung) Chen, vice president and managing director of UL Taiwan, emphasized that "Cyber security is a key link in the current development of IoT technology, and UL's IoT security rating is an important indicator for evaluating the security performance of IoT products. The verification is based on the consensus standards of the global industry. Through rigorous multi-faceted assessments, UL actively detects potential deficiencies in the cyber security of products so as to introduce more effective security protection mechanisms. Delta attaches great importance to and responds to IoT product security certification quickly, demonstrating its determination and commitment to improving the security of IoT products while increasing the market's attention to IoT cyber security issues."



Delta's Bluetooth panel light becomes the first smart lighting product to achieve a UL IoT security rating, supporting extensive value-added applications in smart buildings



## Delta wins Pudong new area's "Technological Innovation" and "Outstanding Economic Contribution" awards

Text by Delta Shanghai Public Affairs

Delta Shanghai and Delta Greentech, with their outstanding performance in innovative R&D and economic contribution, won the "Top 20 Companies with Outstanding Contribution to Technological Innovation" and "Outstanding Economic Contribution" awards respectively in the "Award Ceremony for Companies with Outstanding Contribution to Pudong's Economy in 2019" organized by Pudong New Area People's Government. Professor Zhang Jinfa, Director of Delta Shanghai Design Center, was invited to the event to receive the certificate of honor from Mr. Tan Shangwei, the member of the standing committee of Pudong New Area and the Minister of the Organization Department.

According to Professor Zhang Jinfa, Director of Delta Shanghai Design Center, innovation is an integral powerful engine for the development of an enterprise. Delta highly values innovative research and development and Shanghai Design Center is dedicated in the design and application of innovative products, and they have since released many market-oriented innovative products. Delta will contribute more technological innovation achievements in the future, and hope that it will grow with Shanghai as it develops into a global technology innovation center, and together achieve another 30 years of great success with innovation. Facing the pandemic of the novel coronavirus, Delta Greentech has quickly bounced back under the leadership of General Manager Tan Yizhong, showing outstanding performance in the first three quarters of this year, and continues to contribute to Pudong's economic growth.



Delta awarded "Top 20 Companies with Outstanding Contribution to Technological Innovation" and "Outstanding Economic Contribution" awards

## Delta wins five major awards in a roll in motion control and robotics

Text by Delta Greentech

Delta Industrial Automation is focus on smart manufacturing and using innovative technologies to promote the digital transformation for manufacturing companies. Delta is recognized in the industry market and wins 5 awards in the fields of motion control and robotics. In the field of motion control, Delta is honored with the special awards of namely CMCD Award for Twenty Years (2000-2020) of Special Contribution in Motion Control and CMCD Most Influential Corporation in the Field of Motion Control for the Year of 2020. This signified both a commendation for Delta's stellar performance in the field of motion control for the past year and the recognition for its outstanding contribution to motion control over the past 20 years. In the field of robotics, Delta won the awards of the Influential Brand in 2020 National Robot Development Forum and 2020 Gaogong Golden Globe Award - TOP 50 in Robotic Industry Chain of China. Delta's SCARA robot flexible picking and unloading system solution also received the honor of 2020 Gaogong Golden Globe Award - Application Case of the Year for Smart Manufacturing with its full capabilities in integrations.



Delta won the awards of the Influential Brand in 2020 National Robot Development Forum and 2020 Gaogong Golden Globe Award - TOP 50 in Robotic Industry Chain of China



## Delta solar power management gateway among first to obtain Taipower's certification

Text by EISBG

Delta's DeltaGrid® solar power management gateway is among the first to have successfully obtained Taipower's certification. In the future, through the medium of energy IoT, it will be able to be connected with Taipower's Distribution Renewable Energy Advanced Management System (DREAMS) to build safe, stable, and energy-efficient solar power stations. DeltaGrid® solar power management gateway SGDC-D43-PV meets Taipower's requirements of DNP 3.0 and conforms to the certification specification of renewable energy monitoring equipment laid down by Taipower's Distribution & Service Division, enabling the gateway to be connected to DREAMS, and be directly managed and control by Taipower. The smart solar inverters can also monitor energy data on the grid to efficaciously reduce the impact of grid-connected PV system on the grid. With energy IoT technology, the solar power stations can be effectively managed, which further promotes green energy progress in Taiwan and increases the reliability of the power grid.



Delta solar power management gateway is among the first to receive Taipower's certification

## New 3-Phase with maritime approvals

Text by DET

Delta Electronics has added 2 new 3-phase models to the CliQ M series of DIN rail power supply. DRM-24V480W3PN and DRM-24V960W3PN comes with Advanced Power Boost (APB) to ensure continued system operation when there is a large inrush current detected due to faulty load on a multiple load connection.

The 3-phase models are designed in an extremely compact size and can operate full power up to +60°C, over a wide input range for 3-phase from 320Vac to 575Vac or 2-phase from 380Vac to 575Vac. It includes international approvals IEC/EN 62368-1, IEC/EN 61558-2-16, IEC/EN 61010-1 and UL 508. All models are fully compliant with RoHS Directive for environmental protection.



## Space saving with new Delta LYTE II series 120W and 240W

Text by DET

Delta's newest LYTE II series of DIN Rail Power Supply is up to 30% slimmer compared to its LYTE I version. It can help to save precious installation space. The series offers choices of 12V, 24V and 48V nominal output voltages in 120W and 240W. The overcurrent protection is designed to operate in constant current mode, which makes the LYTE II series suitable for inductive and capacitive load applications.

Certifications and approvals include IEC 60950-1, IEC/EN/UL 62368-1, IEC/EN 61010-1 & 61010-2-201, CCC, EAC and RoHS Directive. Electromagnetic radiated and conducted emissions are compliant to heavy industrial EN 61000-6-4 Class B Emission standard and EN 61000-6-2 Immunity standard.







## Warning from UN: Ecological conservation urgently requires our full attention

Text by Delta Electronics Foundation

With temperatures reaching record highs every year, more frequent floods and draughts, and unstoppable forest fires, plant and animal habitats have been disrupted and destroyed. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has stated that approximately one million species are now at risk of extinction.

Facing such an emergency, the UN Biodiversity Conference (CBD COP15) was originally set to take place in Kunming, China this year to propose new global biodiversity goals. However, due to the Covid-19 outbreak, it was pushed back to next year. To provide an overall review on this issue, the Global Biodiversity Outlook 5 (GBO-5) has been published based on the Aichi Targets, which were set by countries ten years ago.

### All biodiversity goals unfulfilled with only partial results

Disappointingly, only 7 out of 60 sub targets have been achieved (blue and green), and more than half of them need improvement (yellow). Some sub targets are even labeled as having no progress at all. However, the report shows that for target 11, which aims at increasing and improving protect areas, the percentage of protected areas is now around 1.5 times higher. Also, for target 12, which focuses on preventing extinction, there has also been some progress. The previous conservation work has saved almost a hundred species and prevented them from disappearing completely.

### 30 x 30 goal to revive nature

Globally 64 leaders gathered to establish the "30 x 30 Goal," promising to protect 30% of the world's land and oceans. Currently, the percentage of the world's protected oceans is only 7%, far from the 30% goal. Also, almost 61% of the oceans are beyond national jurisdiction. In order to achieve the 30 x 30 Goal, there must be marine protected areas (MPAs) set up in international waters.





# International “Net Zero” system makes building more eco-friendly

Text by Delta Electronics Foundation

### Energy use and modes of transport determine success of zero energy consumption and carbon emissions goals

Whether a building can reach net zero energy consumption and carbon emissions depends on the types of energy it uses, the amount of electricity used, how it offsets the consumption with renewable energy, and the commuting modes of the residents. To achieve net zero carbon and energy consumption, many large commercial buildings must seek more renewable energy sources; for example, the energy consumption of the outer shell, AC systems, and lighting equipment of a building must first be reduced while regular maintenance is carried out to save energy.

### Water use and resource efficiency are keys to achieving net zero water and waste

The calculation for water use is slightly complicated: when subtracting the total alternative water used from the total potable water consumed and adding the amount of water returned to original source, the result must be zero. Alternative water can be produced through collecting roof runoff, rainwater flowing on the ground, AC condensate water, steam water, and reclaimed water. Water returned to the original water source refers to water collected from the building systems; for instance, rainwater harvested from the water conservation facilities is returned back to the ground and local catchment areas. By doing so, floods can be prevented, and a sponge city can be created.

The EU has required all new buildings built in 2021 to be zero-energy buildings. Last year, a global initiative—“Zero Carbon Buildings for All”—was launched at the UN Climate Action Summit. China already publicized its criteria for zero-energy buildings and issued its manifesto for zero-carbon buildings. Taiwan can seriously consider keeping up with global trends, formulating relevant regulations for net zero energy, and maximizing the positive contribution that buildings can make to the environment.







## Diary for maintenance of the solar farm on an uninhabited island

Text by Shanghai Public Affairs Office

Solar power is a green, sustainable, and clean source of energy. Delta has many successful cases on the use of renewables. There is an uninhabited island located in the east of Shengsi Islands (Zhoushan archipelago); the boat trip to the island from the mainland is about 10 hours. To ensure communication and provide electricity for the lighthouse, a solar farm was built on the island.

The company quickly scheduled technical service personnel from Hangzhou and arrived at Shengsi Islands one day in advance when received call from Zhoushan. Upon arrival, I was told that I needed to prepare daily necessities, including potable water, crackers and food, flashlights, life jackets, etc. I travelled overnight so that I can arrive the next morning. After a long trip, I finally reached the top of the mountain. Instead of taking time to relax and enjoy the view, I entered the server room right away. There was no lighting and no air-conditioning in the server room. I could only get lighting using my flashlight. I unfolded the drawing and checked the equipment carefully. After an hour, I finally found the cause of the problem and confirmed that the problem arose from the control panel of the phase shift converter. Replaced with the spare parts, the solar power equipment was able to provide power as usual. As I walked out of the server room, I could see the solar panels under the sunlight and feel that the cold solar panels have turned into smiling faces.



"Smarter, Greener, Together" is Delta's mission. I am so proud to be able to undertake maintenance of the solar farm this time. By this time next year, I will visit you again.

## Power supply in "bath" on Double Eleven Day

Text by Shanghai Public Affairs Office

In 2017, a well-known e-commerce company developed a liquid-cooled data center by using a liquid-cooled power supply. Immersed in liquid to enhance heat dissipation and reduce power consumption while the power supply was running, the entire power supply was like being "soaked in a bath". During development, we encountered many issues, such as whether the power supply in the liquid can operate normally, what is the impact on the product lifespan of the power supply, whether overheating would arise during testing. We tackled these issues quickly with teamwork, so that the first batch of power supplies can be mass-produced on time.

Before the Double Eleven Day of 2019, the customer officially released the "fully-immersed liquid-cooled server", in which the server is soaked in a special coolant that draws the generated heat away into the outer loop. The energy used for heat dissipation in the whole process is almost zero, cutting back on 70% of energy consumption. The energy use of every 10,000 e-commerce transactions was reduced to 2 KWH, which means that the reduction in power consumption of all of the transactions made on the one Double Eleven Day could be equal to 200,000 kWh.

We have entered an era with a new generation of greener servers: by being "soaked in a bath" for over two years until the Double Eleven Day of this year, we can make significant saving of electricity for the society and a positive contribution to the reduction of carbon emissions. Thinking of this, is it more fun to shop online?







### Delta camping club



Lara Huang / PSBG / Zhongli Club Leader

I have joined the Delta family for 15 years already. My motivator for establishing a camping club was simple – to go camping with my colleagues. We put our teamwork into play from such tasks as setting up tents and watching each other's back. Camping is a self-challenging outdoor activity, and it's not really that comfortable as one may think. But surprisingly, at the end of camping, I began to miss this experience! Beside adult camping activities, we also arrange family activities where the little ones can learn knowledge that is not taught in classrooms. Under the starry sky, we toast to our lives; in stormy days, we cooperate to secure the tents. We support each other to make each camping experience count, whether sweet or bitter. We welcome all who like to challenge a camping life to join us!



Jiming Wu / FMBG / Taoyuan Club Leader

I have joined Delta family for 13 years, and work in FMBG as a power charger designer. My original intention for starting the club was to enable more diverse activities and create great camping experience with my workmates. The most impressive was the Christmas Party we co-hosted with the Zhongli Club in 2019. There was one time, when we had a 36-hr non-stop rain; and another time, a series of gusts almost the scale of a typhoon that nearly blew away our tents. There were so many unforgettable experiences. They gave me a different life experience outside work. Life is filled with both favorable and adverse situations, but the world is how you perceive it, if you turn your mindset it's a whole new world.





## DELTA GREEN LIFE - PEOPLE



TK Lin / FMBG

I have worked in Delta for 10 years as a fan mechanism designer. I'm now into the 7<sup>th</sup> year of my camping life, and so far, I have gone camping more than a hundred times. I have never imagined that I could be engaged in an outdoor activity for six years! Now I realize, this so-called outdoor activity has already become a part of my life. Many people are wondering, what's fun about camping? Well, the processes of gathering members, and setting up tents and fires for cooking, are not easy tasks. But seeing the smiles on everyone's face and the enthusiastic discussions in the group channel after the event, I felt not only satisfying and moving, but also a sense of achievement!



Linda Liao / EISBG

I have been in Delta for 14 years and I'm responsible for drawing the PCB layout. I was persuaded by Lara's passion and thus joined the camping club. Camping with colleagues outside of work was, to me, like an outdoor activity that can strengthen the chemistry between work partners. At my first campout, I did not understand what was so charming about camping – choosing to sleep in the middle of nowhere with many inconveniences over the comfort of hotel rooms. It was almost afternoon when we arrived in the mountains. The Club Leader ardently assisted us to set up the tents. After having everything sorted and setup, we started preparing for dinner together. There was also a screen and a small projector set up for the kids to experience an outdoor cinema! My first campout ended in having a good time with everyone. I call upon more colleagues to join us, put down your smartphone and come out into the open!





## DELTA GREEN LIFE - PEOPLE



Jason Lo / PSBG

I'm an EE and I have already joined Delta for 12 years. My original intention to join the camping club was hoping to give my children the opportunity to get close to the nature. I remember there was one time in summer, we chose a high elevation camping ground to escape from the summer heat. It has a gravel area, rain shelters and wood cabins, very suitable for first timers. It was during the glowworm season in May, and we were visually feasted and impressed by the beautiful glitters dancing in the valley. The two club leaders are highly hospitable. You're very welcome to join us!



Sylvie Chen / HR

I came in touch with camping because I wanted my children to engage in outdoor activities and to learn from them in nature. In Christmas 2019, we had our first campout and my greatest reward from it was the growth I saw in my children, from shy around strangers in the beginning to having several friends now, who they explore, catch insects and adventure together. Although there are hard works involved, such as packing the baggage, setting up the tents, and tidying up things afterwards, children will learn to share their parents' works, thereby developing a cooperative and responsible personality. Camping is a great activity for physical and mental relaxation during the holidays. It not only promotes family bonding and keeps the children away from electronic media devices, but also increases the positive interaction between colleagues and improve peer relationship. Come and join us!



Jimmy / PSBG

I'm responsible for notebook/cell phone charger development. This is my 11th year in Delta. I'm also a father of two. My weekdays are normally engaged by work and so I would make the most of my week-ends and holidays by arranging family activities. When I knew about Delta's camping club, I registered the whole family immediately. In these campouts, we once came under stormy rain, trying to setup up tents all wet; we also came cross scale 13 typhoon-equivalent gusts, terrifying the kids who were crying to go home, while the adults were worried the tents might get blown away. Thought the process might not be all that perfect, they were one of our most memorable camping experiences.



