



Delta provides UPS system for 2018 FIFA World Cup Russia™

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Delta's smart building and
micro-grid Energy
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unveiled at COMPUTEX 2018

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FROM THE EDITOR

The 2018 FIFA World Cup Russia™ has just successfully concluded. Using Delta's uninterruptible power solutions, the stadiums' emergency lighting, broadcast, and information transmission equipments as well as its safety monitoring system were protected from power failures or instability. It was our contribution to this one-month global event for soccer fans around the world.

To reduce air pollution and prevent Greenhouse effect, countries around the world are dedicated to policies that promote transportation electrification. Delta has long been established in the market with products such as electric vehicle motors, automotive inverters, and is gradually transforming into a total solutions provider. In this issue's Brand People, we invited EVSBG General Manager, Mr. James Tang, to share with us the trends and business opportunities for electric vehicles, as well as his strategies and thoughts on brand management.

Delta is rapidly developing smart manufacturing in recent years. We provide leading energy-saving plant solutions for many customers. This issue's Manufacturing Topic invited Patrick Yen, manager of the Applied Technology Center of Delta's Industrial Automation Business Unit (IABU), to share with us firsthand information on how to implement green manufacturing. With equipment and energy-saving construction, they develop a manufacturing system with a high technology content, low resource consumption, and low environmental pollution, building a modern, energy-saving, and environmentally-friendly factory at various levels.

In the exhibition "Wondering in the Solar System" at the National Museum of Natural Science starting at the end of June, Delta presented high-definition celestial images provided by NASA. Using Delta's 8K projection technology, visitors found themselves immersed in the mysteries of the cosmic galaxies. This year's Delta COMPUTEX 2018 presentation "IoT-based Smart Green Solutions to Nurture Energy Efficiency in Cities" for the first time exhibited Smart Building Solutions and Micro-grid Solutions in compliance with the framework for the Internet of Things. About automation, we have exciting coverage of the IA 5th Delta Advanced Automation Contest. BABG, with its Astra super wide-angle advertising light, stood out from more than 1200 participating items from the world, to be awarded Products Award in 2018 Alighting Award. These exciting content could be found in this issue's Brand Circle.

For this issue's "Delta Green Life", we learn through the environmental reports prepared by Japanese academic institutions how Japan promotes colleges in fulfilling their social responsibilities. When they develop their own systems of environmental management, the young generation is encouraged to care more about environmental issues. Do not miss this issue's "People" column, as our Beijing colleagues have some exciting stories to share with you.

Brand Management Office



Delta supports mission critical applications at 2018 FIFA World Cup Russia™

Delta provides UPS system for 2018 FIFA World Cup Russia™

Text by EMEA

Delta has been chosen to provide backup power supply solutions for critical equipment and systems at the five football stadiums that host games of the main football competition of this year. Delta UPS systems provide backup power supply to ensure uninterrupted transmission of video and audio flows during games and an integrated fire suppression system.



For the first time in its history, Russia was granted the right to host the World Cup in 2018. Twelve stadiums in eleven cities throughout Russia have been selected and approved by the Fédération Internationale de Football Association. Under an agreement, Russia was to provide modern stadiums equipped with all the necessary technical means that would meet strict requirements for the 2018 World Cup. A significant part of the rules and regulations is devoted to security issues. The Fédération Internationale de Football Association does not tolerate any departures from the rules and requires 100% compliance.

According to the rules, the stadium should be constructed on a land plot with a total area of at least 18 hectares. Preferably, such land plots should be located in the central part of the city and surrounded by developer-ready transportation and engineering infrastructure. If construction takes place on the outskirts of the city, the host country is required to provide the stadium with the necessary transportation routes and engineering communications. For a major international tournament, the venue should have a capacity of 40,000, for semi-finals the venue should have a capacity of 60,000, and 80,000 for opening and closing ceremonies. Each stadium should be ready to accept additional 10% of spectators. The venues with a capacity of 60,000 should have parking lots for 10,000 passenger vehicles and 500 buses.

It is recommended to pay great attention to the way people flows are organized when designing a stadium that would host World Cup games. Not only the throughput capacity of individual entry and exit points is important in this case, but also the trajectory of the spectators flows movement and where food courts and information booths are located. To improve the understanding and enjoyment of the game, at least two video boards, which should be visible from all the stands, is a mandatory requirement for a stadium that would host World Cup games. Natural sounds of matches are supplemented with high-end acoustic equipment. Natural illumination is complemented by powerful LED spotlights. To ensure their continuous operation, the stadium is equipped with power supply sources independent of urban infrastructure.

Safety factors are of the highest priority when designing and building such facilities. Therefore, fire suppression systems and solutions for radiation, biological, and chemical safety are included in the project design of each stadium. Explosion protection engineering principles and counter-terrorism protection measures are developed and introduced.

During construction and operation of the World Cup 2018 stadiums, special measures are in effect. These include security, materials, equipment and structures movement control, and the barrier gate and permit regime. This is how it works in reality, only non-combustible materials are used during construction, any slippery floor coverings are avoided, the proper stadium signage is developed and introduced, protective fences and video surveillance systems are installed.

Stadiums that host the World Cup 2018 games should also meet relevant environmental standards. To this end, a Green Goal program was developed to promote environmental optimization. The program's main objectives are to create an efficient energy-saving system, reduce drinking water consumption, reduce waste, and increase the share of public transport to shuttle spectators to match venues.

In preparation for the World Cup 2018, technical experts from Delta conducted preliminary expert reviews of key energy users at all infrastructure sites, analyzed the required capacity, and proposed uninterruptible power supply sources that would meet all the requirements. As a result, the company supplied equipment for the five stadiums in different Russian cities.



The venue sets up a source of electricity supply independent of the utility infrastructure, to ensure the continuous operation of equipment



Suitable equipment for both stadiums has been selected based on power, battery life, expected installation location, and other criteria. The primary mission of equipment was to respond to the needs of all the relevant systems. One of these systems is a fire suppression system. It includes alarms, fire alarm announcements, and automatic fire extinguishing solutions. Today, Delta UPS systems ensure uninterruptible operation of various equipment in the event of a power failure. In the event of an emergency, the stadium public announcement system will be activated. The stadium PA system will give clear and simple evacuation instructions to the spectators.

- ▶ Two of the five stadiums feature Delta's 500kVA three-phase single unit Ultron DPS series UPSs and Ultron HPH Series UPS 20-120kVA. They provide reliable uninterruptible backup for fire suppression systems such as automatic fire suppression systems, alarms, and others.
- ▶ One of the football stadiums features Delta's 400kVA three-phase single unit Ultron DPS series and 120kVA HPH series UPSs. They provide uninterruptible power supply for the football field spotlight system, as well as general and emergency lighting of the stadium.
- ▶ All the five stadiums feature Delta's 20-40kVA HPH Ultron series UPSs. A flexible technical architecture of these UPS allows for accurate response to the ever-changing needs, provides reliable uninterruptible power supply for alert systems, and all fire suppression infrastructure.
- ▶ The single-phase Delta Amplon RT 1-10kVA series UPSs are responsible for the uninterruptible operation of all communications networks, databases, and stadium office equipment.



Delta UPS group for the World Cup

Delta UPSs with a capacity of more than 3MW provide uninterruptible power supply for football field equipment and emergency lighting system (more than 1.2MW load), general lighting and fire suppression systems (more than 1.5MW load), and video surveillance and data transmission systems (about 300kW load).

The single unit Delta Ultron DPS series UPS with a capacity of 160-500 kVA is a three-phase dual-conversion and IGBT rectifier UPS. It features industry-leading performance of up to 96% AC-AC efficiency. Ideal power/cost efficiency ratio is achieved using the single unit Ultron UPS of the HPH Series. Its capacity is in the range of 20 to 120 kVA, the output rate is close to 1 (kVA = kW), and its conversion rate is 96%. The single-phase Amplon UPS of the RT-Series features a capacity of up to 10 kVA, parallel 1+1 redundancy, high input power factor (above 0.99), and low iTHD (less than 5%). Due to these capabilities, Amplon RT Series is an ideal uninterruptible power supply source for high-density servers, network equipment, and the entire data center infrastructure.

Delta's integrated solutions provide uninterruptible backup power supply for systems of any complexity. Many of these systems were used at the stadiums hosting the World Cup 2018 games. These integrated solutions include not only uninterruptible power supply, but also food distribution systems, modular racks, monitoring and management systems. Working together, they ensure uninterrupted operation of connected equipment and reduce maintenance costs. Standardized power cabling ensures the stability of the entire infrastructure and its individual components. Delta is recognized as an industry leader. Delta UPS have proven their effectiveness in large-scale sports and other kinds of events.

*Disclaimer: The capitalized terms "FIFA", "FIFA World Cup", "2018 FIFA World Cup Russia", "Atos", "CEBIT" or other marks, trademarks, or trade names mentioned herein are trademarks, trade names, or copyrights of their respective owners and are herein referred to only for explanation of facts or descriptive purpose and to the respective owners' benefit, without intention of any use, implied sponsor, introduce, or infringement.



EVSBG General Manager Mr. James Tang

Capitalize on advantages and generate global business opportunities through advanced technologies

Interview with Electric Vehicle Solutions Business Group (EVSBG) General Manager, Mr. James Tang

Text by Brand Management Office

To reduce air pollution and stop the greenhouse effect, countries around the world have been establishing various policies to discontinue the use of gasoline and diesel vehicles in the future and move towards an era of traffic electrification. Delta, to fulfill its corporate mission "To provide innovative, clean, and energy-efficient solutions for a better tomorrow," has been a market player with products such as electric vehicle motors, automotive inverters and drive units for many years, and has gradually transformed into a total solutions provider. For this issue's Brand People, we have interviewed EVSBG General Manager, Mr. James Tang, in which he shares with us the business opportunities and blueprints for the electric vehicle market, and his over twenty years of experience at Delta.



Consider every aspect and establish complete electric vehicle solutions

"EVSBG was officially established early last year to target the electric vehicle market in the automotive industry," says Mr. Tang. "In line with our organizational restructuring, EMBU (E-Machine Business, previous AEBU), which develops traction motor was integrated into the APABU (Automotive Power Asia Business Unit) and the APEBU (Automotive Power Europe Business Unit), which specialize in power products for electric vehicles. To strengthen product competitiveness, the TIBU (Traction Inverter Business Unit) was set up in the middle of last year to focus on the development of traction inverters of electric vehicle." Through the team's untiring efforts, Delta will be gradually evolving from a components to systems provider and finally become a total solutions provider.

Having been in the electric vehicle domain for many years, Mr. Tang shared his opinions with us, "As governments and major automotive companies around the world pay attention to environmental protection, energy saving, and the implementation of related carbon reduction agreements, the trend of electric vehicles replacing traditional fuel-powered vehicles has become irreversible. This trend will completely change the supply chain ecology intrinsic to the traditional automotive industry of the past century, and many key components and accessories companies will reshuffle. It is expected that by 2030, the world's electric vehicle market share will increase from today's 1.5% to above 25%." With such developments, Delta will continue to strengthen its technology development capabilities and cooperate with major automotive companies to grasp the opportunities of this rapidly growing market, generating fast and stable revenue growth.

As for the EVSBG's development plan for the next few years, Mr. Tang says that, "Electric vehicle power management-related products have always been Delta's strength, with strong development teams in Taiwan, Shanghai and Soest Germany at present. Motors and traction inverter are at the core of electric vehicles, and our Tainan team has more than ten years of experience in the research and development of motors. The newly established TIBU is setting up a traction inverter core design team in Detroit and a product development team in Zhongli." These arrangements not only make Delta products more complete, but also gradually attain Mr. Tang's goal of transforming from a components provider, to a systems provider, and finally a solutions provider.

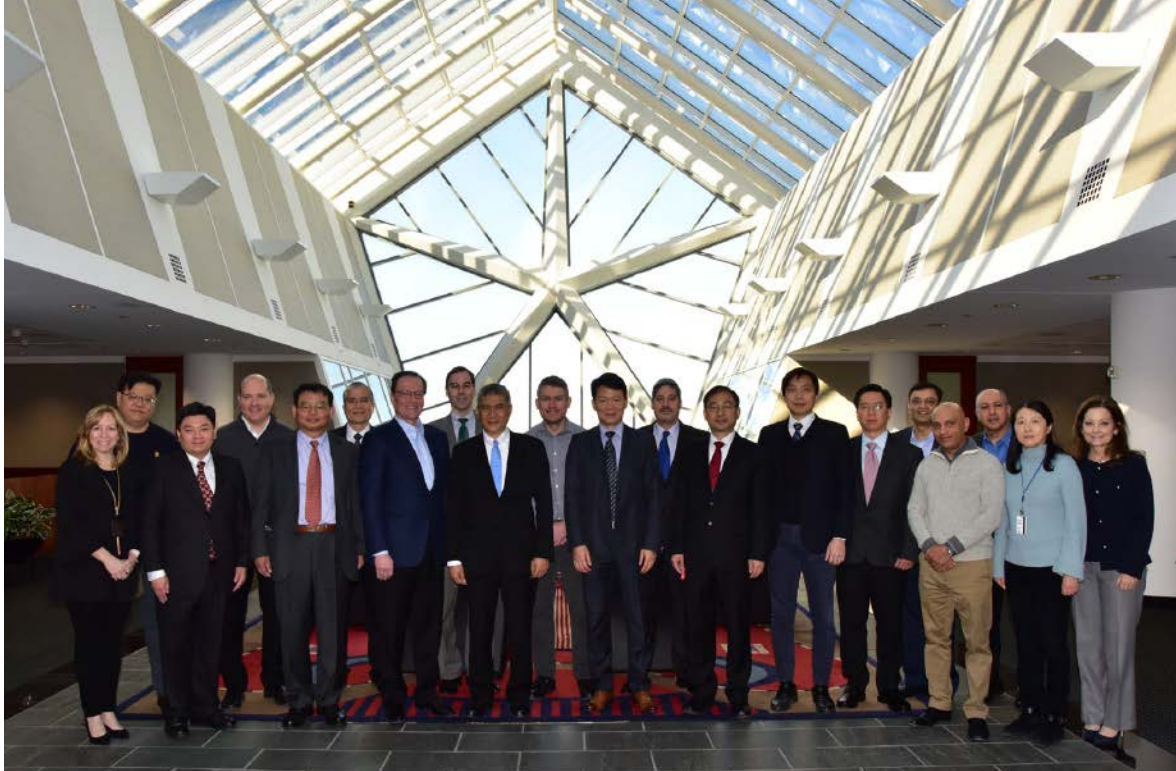


In-depth integration increases market share with diversified strategies

Delta has been working on the electric vehicle market for a long time. Mr. Tang shared with us the business development strategies and opportunities of the various regions, "Our business development began initially in North America and Europe and has been doing well in the China market in recent years. We are now actively expanding in the Japanese and Korean markets." He gave power products, which have the longest development history, as an example. The APABU has mass produced power management products for three major automotive companies in North America (GM/FCA/Ford) as well as Tesla, and has been expanding its motor and driver business opportunities recently. With the Shanghai team's all-out efforts, we currently have ongoing projects with China's major automotive companies including FAW, BAIC, SAIC, GAC, NIO, and others. In charge of markets outside Europe, the APABU is currently working to expand the Japanese and Korean markets, and discussing new projects with automotive companies such as Toyota, Honda, Mazda and Hyundai. The APEBU, in charge of the European market, has successfully entered the supply chain of major automotive companies such as VW Group (VW/Audi/Porsche), Daimler (Mercedes Benz) and Renault-Nissan-Mitsubishi, and is actively dealing some key projects with other major automotive companies such as BMW, PSA and Volvo.



"Our greatest competitive advantage comes from our outstanding technological capabilities", Mr. Tang added. Delta's existing capabilities are in developing multi-functional integrated products. In the future, as systems and solutions become a trend, the next step is to develop an integrated drive unit for motors and traction inverter. Only by continuously upgrading our technological capabilities can we win a place in the fiercely competitive new energy vehicle market.



Chairman Mr. Yancey Hai (front row left 5), and James Tang (front row left 6), General Manager of EVSBG at the FCA "One Voice" top management meeting



Continuous improvement increases brand value

In terms of brand management, Mr. Tang shared with us his strategies, "Regardless of components and accessories, systems or even total solutions, as long as they are sold to customers under the name of Delta, they represent the brand of Delta." Mr. Tang added, "We hope that in the future, electric vehicles on the road will upgrade from 'Delta Inside' to 'Powered by Delta', and finally to the ultimate goal of 'Driven by Delta'." From another perspective, customers will ultimately select Delta's products and services due to the differences between Delta and its competitors. Maintaining our competitive advantage and continuously upgrading Delta's brand value and benefits in the market will be the goal that we continually strive for.



Dare to innovate and become the industry leader through our own experience

Mr. Tang has been with Delta for nearly thirty years, holding positions in materials, procurement, overseas support, operations management, and others. He shared with us his experience through the years as "Grasp opportunities and gain experience, cultivate and excel in various functional aspects, and improve your people skills. They are invaluable growth opportunities." In terms of technological development or brand management, he feels that capitalizing on advantages, understanding by analogy, and pursuing innovation are the only ways to become a leading company in the industry.

"Accept challenges and dare to take on responsibilities. Every new attempt will bring new benefits," are the words of encouragement Mr. Tang has for his colleagues at the end of the interview.



Chairman Mr. Yancey Hai (front center), and James Tang (front center), General Manager of EVSBG, at the Delta Detroit Automotive Office renovation opening



Delta IABG Manager Patrick Yen

Building energy-efficient factories, achieving green and smart manufacturing

Text by DGC

Green and smart manufacturing is the inevitable path for industrial transformation and upgrade.

In the face of the rapid development China's manufacturing industry, the Ministry of Industry and Information Technology (MIIT) and other agencies have jointly released "The Guidebook for Green Manufacturing 2016 – 2020" to define clear green manufacturing goals and to emphasize that green manufacturing is an important part of the building of an environmentally-friendly society. It requires green manufacturing systems that feature advanced technology, low resource consumption, and low environmental pollution to accelerate the implementation of green production.

Over the years, Delta has made great progress in smart manufacturing and green manufacturing and has provided many clients with beneficial energy-efficient factory solutions. To learn more about the development of energy-efficient factory and green manufacturing solutions at Delta, we have obtained a first-hand account from IABG Applied Technology Center Manager Patrick Yen. In this article we share this with our fellow coworkers, along with how to achieve green manufacturing and build modern, energy-efficient and eco-friendly factories, in which industrial automation technology plays an important role.





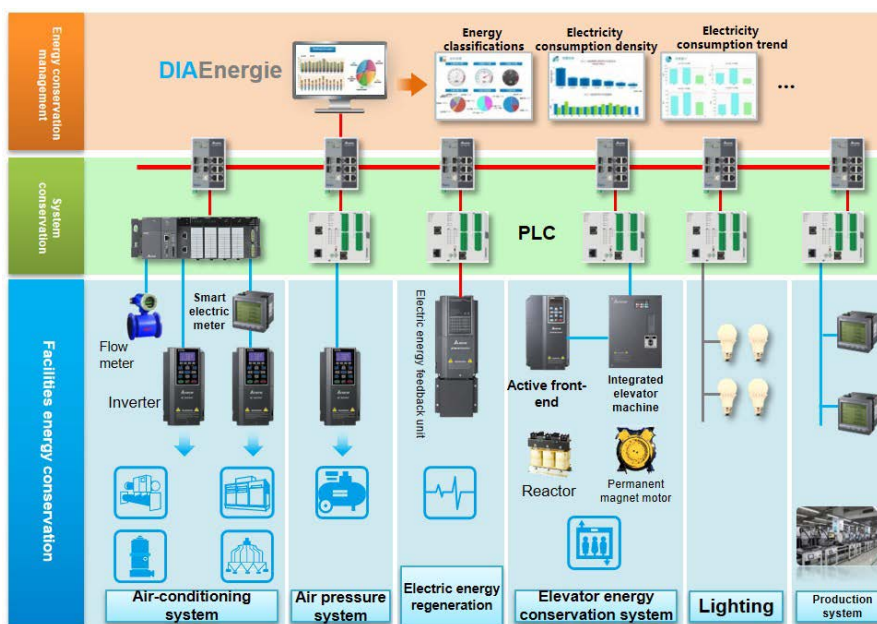
Multi-aspect approach in building an energy-efficient system

Patrick Yen says, "The key to building an energy-efficient factory is to understand the information of its operations and energy consumption, adjust or establish an energy strategy accordingly, and upgrade the equipment and heavy energy consumption points. The factory will be smarter, more transparent, and more visual. This is the future of energy-efficient factories." The range of energy-efficiency covers all aspects of a factory. Energy-efficiency stems mainly from the following aspects:

First is the overall layout of the factory. One factory often has various functional zones. The key energy efficiency considerations of management are: how each zone is utilized; minimizing the area while maintaining the same capacity, functions, and efficiency; and reducing unnecessary energy consumption.

Second is the production line. There are huge fluctuations in the energy consumption of production lines. This depends primarily on whether the operators are able to implement reasonable optimization at various periods of time. The evidence shows that different production lines in the factory have significant differences in energy consumption at different times. The operation habits and energy-efficiency awareness of the production line operators are critical factors.

Third is the energy efficiency of the main production equipment. One production line will often carry multiple units of equipment, but Yen thinks the key is to select advanced automation and energy-efficient products, so that the production equipment is efficient in terms of production and energy consumption. The main sources of power consumption must be identified and have energy-efficient equipment applied, such as inverters, to reduce power consumption and improve the operation efficiency of the machinery and equipment.



The framework of Delta's energy management system (EMS)

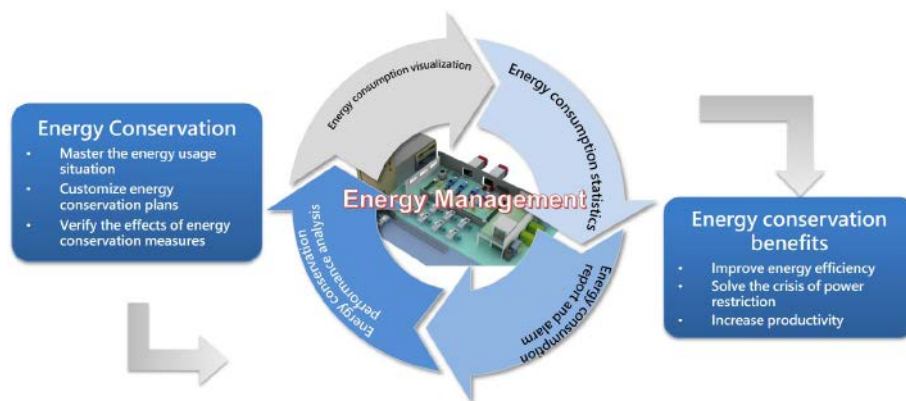




Customizing exclusive energy-efficient solutions for our users

Delta offers its users a series of energy-efficient solutions aimed at the demands of an energy-efficient factory, and customizes exclusive energy-efficient solutions. The energy-efficient products include high performance inverters, energy management systems (EMS), industrial configuration software SCADA, energy regenerative units, burn-in energy recovery systems, smart meters, smart sensors, and efficient LEDs. For example, the EMS and SCADA industrial configuration software monitor the energy consumption status of each piece of equipment and every production line in the factory, and provide visualized information for energy use to find opportunities for conserving power. Inverters are installed to improve energy consumption of the equipment for production and factory facilities. Mobile equipment such as elevators, cranes, and vehicles is installed with energy regenerative units for energy recovery and reuse. Smart meters directly display the equipment energy consumption status. Delta PLCs and smart sensors are used to control air conditioning and fan systems, compute in real-time, and ensure the proper inverter output frequency for stable and controlled indoor positive pressure and energy efficiency at the system level.

As an industrial automation leader, Delta's efficient industrial automation products and technologies improve the efficiency of its customers' equipment and production lines, which further minimizes and optimizes energy consumption. In recent years, Delta has been dedicated to the development of green and smart manufacturing solutions, which integrate automation equipment and construct automated, smart and energy-efficient factories by combining manufacturing execution systems (MES), IoT, big data analysis, and cloud-related technologies.



The benefits of Delta's energy management system (EMS) solutions



Creating energy-efficiency concepts and awareness

In Mr. Yen's opinion, energy efficiency involves every aspect of the factory, and corresponding measures are diverse and depend on the specific conditions of individual factories. For instance, many essential facilities in the factory have huge potential for energy conservation. According to related data, aside from the production equipment, other facilities such as air-conditioners, lighting, and elevators account for a large proportion of the factory's energy consumption. Air-conditioners alone may account for over 60% of the factory's power consumption.





To conserve energy at facilities, Delta adopts professional inverters to reduce and adjust the power consumption of air conditioners, and installs smart sensors in key locations in office areas, such as air vents, to monitor external temperature and humidity variations and link with the air conditioner control system. The air conditioning system operates based on environmental conditions, which effectively reduces energy consumption.

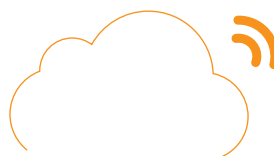
"For energy-efficient factories the energy efficiency awareness of each manager and equipment operator is even more important than the amount of energy-efficient products applied to the equipment," says Mr. Yen Liang-Yi, who believes that energy efficiency is system engineering. A truly green factory must be built with various energy-efficiency measures along with energy efficiency concepts and persistence.



Delta's Wujiang production base is renovated with a demonstration smart manufacturing production line, which reduces the number of operators and the operation area, increases capacity, and achieves green and smart manufacturing

The execution of an energy-efficiency plan is often in conflict with existing production operations, especially the working habits of operators. For example, in factories that have undergone energy efficiency reforms, operators do not always consider energy-efficiency habits necessary or a part of their duties. They pass the responsibility on to the staff in the facilities department. The concept of energy efficiency must be applied throughout daily actions. Examples include turning off lights when leaving the room, turning off equipment during idle periods, frequently checking energy consumption of key equipment, and optimizing settings.

Since 2011, Delta has continuously adopted its self-developed energy execution information system to implement daily energy management at each of its factories. The system offers real-time monitoring and analysis, assisting each factory's energy management team perfect their energy management measures. Energy-efficiency at each site centers around areas such as air conditioning systems, air compressors, injection machines, lighting systems, burn-in, energy recovery, and production process improvements for energy conservation and carbon reduction. At the same time, this application experience is continuously shared with clients to demonstrate Delta's energy consumption savings of 30% and more using energy-efficient solutions. For the future, Delta will continue to develop various energy-efficient products and energy conservation solutions, expand applications related to energy efficiency, devote itself to continuous improvement of automation areas such as procedures, processes and logistics, and provide clients with more energy-efficient factory applications.





Delta's smart building and micro-grid Energy Infrastructure Solutions unveiled at COMPUTEX 2018

Text by Corporate Communications

At COMPUTEX TAIPEI 2018, Delta showcased its IoT architecture-conforming "Smart Buildings Solution" and "Micro-grid Solutions" through the scenarios of an EV charging station that combines both shopping and leisure. Delta showcased the V2H/V2G two-way EV charger for the first time. On the opening day, management figures, CEO Ping Cheng, CBO Shan-shan Guo, Spokesperson Jesse Chou, General Manager of the BABG Bill Lo, General Manager of the EISBG Herman Chang, and Vice President of the ESDBD James Chen, shared how Delta has realized energy sustainability with technologies.



Delta CEO Mr. Ping Cheng, CBO Ms. Shan-shan Guo, Spokesperson Mr. Jesse Chou, BABG General Manager Mr. Bill Lo, EISBG General Manager Mr. Herman Chang, and ESDBD Vice President Mr. James Chen took a group photo at the Delta exhibition area



Delta CBO Ms. Shan-shan Guo presents the Innergie PowerGear™ 60C which won the 2018 COMPUTEX Best Choice Award

Cheng accentuated, "Delta has been continuously improving the energy efficiency of its components since its establishment. Through integration of software and hardware, it has expanded into management of the overall energy efficiency for the indoor systems and even micro-grids. By combining industry knowledge with its core technologies in power electronics, Delta has partnered with the industrial ecosystems to gear itself toward the five key markets, namely IA, BA, ICT infrastructure, energy infrastructure, and EV in an effort to provide customers with solutions that conform to the IoT architecture."

Guo expressed, "This year we built a hybrid electric vehicle charging station at COMPUTEX, which shows the balance and adjustment of the micro-grid through scenes from daily life. The energy education is also integrated into the exhibition, and various scenarios of the micro-grid operation are demonstrated through the grid control screen, allowing the visitors to see that Delta not only saves energy, but also solves the demand for electricity with its innovative technology to create an energy-sustainable city."

For smart buildings, Delta has collaborated with its subsidiaries such as Delta Controls, LOYTEC and VIVOTEK. In response to the issues of air pollution, Delta has launched an indoor environmental quality service program. For micro-grid infrastructure, the outdoor charging station in the exhibition area incorporates Delta's V2H/V2G bi-directional EV charger, which has actually been operated in the energy storage containers and power control system that in Delta's Ako Green Energy Park in Japan and Shulin Site of Taiwan Power Research Institute.

Innergie, a consumer power brand of Delta, exhibited the PowerGear™ 60C laptop charger, which won recognition of the COMPUTEX TAIPEI Best Choice Gold Award, and a series of the latest USB PD charger products. The PowerGear™ 60C is the world's smallest (60-watt grade of output power), high-power, high-efficiency charger.

Through its wireless interactive collaboration products in combination with the NovoDS 4K digital messaging system, Delta also displayed the application scenarios such as digital messaging and collaborative discussions in a coffee shop.



Delta's 8K laser projector made an appearance at National Museum of Natural Science

Text by Corporate Communications

The special exhibition of "Wondering in the Solar System " at National Museum of Natural Science was planned by the Director-General Sun Wei-hsin, through Delta's 8K projection technology to present the high-resolution celestial images of the sun provided by NASA of the US. The special exhibition presents the scientific content in an artistic way, making visitors feel as if they were walking through the mysterious cosmic galaxies and experience the new achievements in astronomical science and the visual impact.

As Dr. Sun expressed, the central celestial body of the solar system has to be the beginning of the story, so he has been thinking about how to show details of the solar activities and make images of the sun impressive. The Solar Dynamics Observatory (SDO) launched by NASA in recent years provides an unparalleled and exciting view of the sun. Launched in 2010, this solar observation spacecraft operates in geosynchronous orbit and is controlled by NASA's Goddard Space Flight Center (GSFC). It captures 10 high-resolution images in UV range every 12 seconds and has done so for 7 years without interruption, having accumulated a large amount of images!



Delta Founder Mr. Bruce Cheng (middle), Mrs. Cheng (third from right), Minister of Transportation and Communications Hochen Tan (second from left), Director-General of National Museum of Natural Science Wei-hsin Sun (third from left), Chief Brand Officer and Executive Director of the Delta Electronics Foundation Ms. Shan-shan Guo (first from left), spokesperson Jesse Chou (second from right), and Deputy Executive Director of the Delta Electronics Foundation Mr. Wim Chang (first from right) participated in the opening of the exhibition

Bruce Cheng, Founder and Honorary Chairman of Delta, expressed that in addition to providing high-luminescence energy-efficient projectors for the entire exhibition area, the 8K laser projector developed by Delta's engineers, which is the first in the world with a brightness reaching 25,000 lumens, making it the brightest in the world. With the resolution 16 times greater than the Full HD TV at home, it can fully present the 8K images provided by NASA. Visitors will be able to get a close-up view of the vivid, sharp and clear images of beauty that make the sun look and feel completely different from the past.

Highlights of the special exhibition, in addition to the NASA-produced 8K exclusive film in combination with Delta's superb projection ability, the presentation of the astronomical science exhibition that incorporates the artistic concept also emanates uniqueness. Designed through thoughtful ingenuity in lighting, video, and space, the exhibition area offers a feeling, upon entering, as if one were viewing the stunning sun beams in the vast universe, looking up at the eight major planets that are hung high in the exhibition area, and overlooking the mysterious cosmos. The arrangement in the exhibition area that cleverly integrated art with science represents an ingenuity that conveys great creativity and educational significance.



2018 "Delta New Power Electronics Technology Seminar" supports innovative talent Tsinghua University Professor Xiao Xi named "Delta Scholar"

Text by DGC



As a successful entrepreneur and known as the "Godfather of Environmentalism" in the media, Delta founder Bruce Cheng was invited to give a speech at the seminar on "Corporate Management and Social Responsibility" and share his experience in founding a company.

Electrical Engineering at Tsinghua University with the 2018 "Delta Scholar" recognition, while Professor Jin Ke of the Nanjing University of Aeronautics and Astronautics, and Professor Li Hong of Beijing Jiaotong University were awarded with the "2018 Delta Young Scholar Award".

Professor Fred C. Lee (overseas member of the Chinese Academy of Engineering, and member of the US National Academy of Engineering) said in his opening ceremony speech that, over the past 18 years, "Delta Power Electronics Science Education Project" and "Delta Scholar Project" have funded 249 innovative research projects, handed out 28 recognitions of Delta Scholar and 14 Delta Young Scholar Awards, financed overseas academic exchanges for 20 Delta Visiting Scholars, awarded 1,110 outstanding graduate student scholarships, and held 17 new power electronics technology seminars. China's power electronics field is at the forefront of the world, and plays an important role on the international stage.

As a successful entrepreneur and known as the "Godfather of Environmentalism" in the media, Delta founder Bruce Cheng was invited to give a special report at the event on "Corporate Management and Social Responsibility". He pointed out when sharing his story of building a new business that though companies are sustained by profits, it is more important to remember to apply your own expertise and skills and contribute to society. In Delta's example, realizing industrial automation and smart manufacturing through the integrations of existing industrial automation, conversion of electrical energy, energy storage, Internet, and software and hardware integration of system management can reduce costs and provide better and low-pollution living environments.

This year, there are nearly 30 academic papers presented in the seminar, which discuss the key technologies and hot topics in power electronics power systems, reliable grid connection for new energy, advanced power transmission systems, new electric materials, and Internet of Energy (IoE). The 25 sessions of academic achievement reports were given by invited scholars and experts including recent winners of the Delta Scholar and Delta Young Scholar Awards and team leaders of funded scientific projects. It was a successful exchange platform for university research and industry-academia partnerships.

The 2018 "Delta New Power Electronics Technology Seminar", which was hosted by Delta and co-organized by Tsinghua University, was held at the Tongli Lakeview Hotel in Wujiang, Jiangsu Province in early June. The seminar was attended by about 350 students, faculty members, experts, and industry professionals from more than ten top universities in power electronics and drives (PE&D) including Tsinghua University, Zhejiang University, and Nanjing University of Aeronautics and Astronautics. The attendees unite to focus on the frontier of international academia and major technology innovations. They participate in in-depth discussions and exchanges on key technologies and hot topics in power electronics power systems, reliable grid connection for new energy, advanced power transmission systems, new electric materials, and Internet of Energy (IoE).

On the opening ceremony, Fred C. Lee (Virginia Tech Professor and academy member) and Bruce Cheng (Delta founder and Honorary Chairman) jointly presented Professor Xiao Xi of the Department of



Excellent universities from China, Taiwan, India and Thailand participated in the 5th Delta Advanced Automation Design Contest

Text by IABG

The 5th Delta Advanced Automation Design Contest has just been held at Delta's Wujiang Plant in Jiangsu, China, from July 23-26. After two days of fierce competition, the winners of the "Special Award", the highest honor, went to: Shanghai Jiao Tong University "Team Magic Control" (China) which built an Intelligent Container Terminal Logistics System. Aside from the Special Awards, the First Prize, Second Prize, Third Prize and Editor's Awards were also presented among the other 72 teams at the award ceremony on July 26. (Please go to <http://mkt.deltagreentech.com.cn/2018/jingsai/winnerslist.asp> for detailed information.)

At the ceremony, Mr. Bruce Cheng, the founder and Honorary Chairman of Delta Electronics, Inc. said, "Automation plays a key role in helping industry's transformation to smart manufacturing. The Delta Cup Advanced Automation Design Contest has come to its 5th anniversary, as it actively builds a platform for teachers and students from both domestic and overseas schools to share their teaching and technology experiences. We hope that students of automation will enhance their skills and creativity through acquiring new knowledge and exploring their individual visions, and ultimately help the trend of industrial transformation."

Shao Yuan Lee, Vice Chairman of the Chinese Association of Automation, also said at the opening ceremony, "Today the manufacturing industry is facing a rapid change as traditional production and operations suffer a great impact. To echo this change, Industry 4.0, China 2025, and many American advanced manufacturing industries will continue to lead the Chinese manufacturing industries to transform and head toward smart manufacturing as technical professionals play a key role. We have found many innovative and applicable concepts through the Delta Cup event. Participating students also gain a lot by enhancing their skills for job positions in the future, becoming the smart manufacturing talents that will transform the industry."

During the 4-day final contest, contestants needed to pass two stages including a team competition and a championship contest followed by a proposal introduction, a demo kit display, and a Q&A session directly with the judges. At the team competition, all 76 contestants presented their ideas and demonstrated their demo kits' functions and features to all the judges. Finally, after thorough review, 15 teams out of the 76 were chosen to compete in the championship contest, where they conducted a project presentation, an on-site demo, and a Q&A session.



The team from National Kaohsiung First University of Science and Technology adopted both Delta's SCARA and Vertical Articulated Robots to build the solution of a unmanned robot workstation, achieving an optimized process of high-precision manufacturing



"Seeking Smart Manufacturing Talents" - The 5th Delta Advanced Automation Design Contest in Wujiang, China



Shanghai Jiao Tong University "Team Magic Control" and Xiamen University "Team Gemini" win the championship of the 5th Delta Advanced Automation Design Contest, and receive the prizes on stage at the luncheon ceremony



Delta video walls at the heart of India's first smart city

Text by DSBV

Delta, in collaboration with channel partner – Alpha Digital, has set up state-of-the-art Video Walls at the Control and Command Centre of GIFT City (Gujarat International Finance Tec-City). With this addition, operators would be able to monitor real-time data and improve the availability, safety and efficiency of services in GIFT City.

Being India's first smart city that has been constructed from scratch, GIFT has been included in the Smart City Mission Statement with its futuristic infrastructure. Located between Ahmedabad and Gandhinagar in the Indian state of Gujarat, GIFT is also home to BSE's & NSE's International Exchange which has earned for India a place in global capital markets. The City Control and Command Centre (C-4) of this smart city is a first of a kind ICT platform, allowing effective utility infrastructure monitoring/management as well as city surveillance from a single location.

"The City Control and Command Centre (C-4) is a mix of software and hardware platform that acts as a single central command and control location for managing traffic and utilities remotely. Delta Video Walls at the center will not only monitor utilities but will also provide real-time monitoring of security and surveillance. Operators can manage the city's growing population and infrastructure with this solution – with minimum effort and maximum efficiency," commented Mr. Nilesh Purey, Vice President IT at GIFT City.

Delta has installed two sets of 100 square feet of DLP Video wall made up of 72" WUXGA DLP cubes with redundant power supply at the City Control and Command Centre. The sharp image quality of Delta's Video Walls ensures to offer operators' a high level of attention to every kind of detail, from intricate graphics to minute text.

Inaugurated by the Prime Minister of India, Mr. Narendra Modi, GIFT also hosts India's only International Financial Services Centre (IFSC), which will certainly aid in the economic growth of the entire nation.



Delta video walls at the heart of India's first smart city- GIFT City (Gujarat International Finance Tec-City)

Delta's full color LED displays light up new baseball season at Taoyuan International Baseball Stadium and Xinzhuang Baseball Stadium

Text by DGC

Delta once again produces outstanding results in professional display solutions integration in sports stadium, with 3 large outdoor LED panels and curved display successively completed in 3 stadiums. Delta Display Solutions, with its reputation in building full color large LED displays for the country's stadiums over the years, which include the outstanding curved display at Taoyuan International Baseball Stadium two years ago, is once again chosen by Taoyuan City Government to build the 25.6 meters wide, 9.6 meters high, high definition full color LED scoreboard, featuring 6000 nits brightness and 7000:1 contrast.

At the LED scoreboard's launching ceremony, Cheng Wen-Tsan, Mayor of Taoyuan City, said, "support professional baseball, support Lamigo; we are launching the LED display built by Delta!" R.T. Tsai, Vice President of Delta, was also invited to the ceremony. The latest full color LED scoreboard developed by Delta Display Solutions is equipped with multimedia audio, visual playback and scoring function, and will be the largest and widest LED scoreboard in Northern Taiwan.

It will provide baseball fans with richer match information and more enjoyable visual experience, while helping to gain more opportunities in hosting international games in Taoyuan.

After Fubon Guardians adopted Xinzhuang Baseball Stadium, there has been significant software and hardware revamp, with the largest amount spent on Taiwan's first frameless full color LED display and Infield's curved LED display. Delta is very fortunate to be awarded the display solutions project. Delta's very own high energy-efficient LED 16mm pitch display products not only need to meet various types of playback requirements during the match, but also require stable backup mechanism. Its customized performance portrays Delta's sophisticated software development capability.



Taoyuan International Baseball Stadium's new LED full color multimedia scoreboard (left), providing fans with high definition match experience



Delta offers reliable energy management support to brilliance auto body welding workshop

Text by DGC

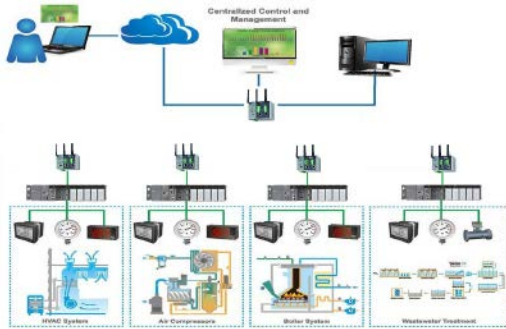


Illustration of the brilliance auto body welding workshop energy management system framework

Auto body welding is the important expertise in automobile manufacturing. Delta has provided Brilliance Auto with a reliable power distribution system for its auto body welding workshop energy management based on its demand and actual situations. The solution includes data acquisition and technical support on the wireless network and control, which helps monitor and analyze the data of three types of energy (water, electricity, and compressed air) in the entire workshop and each major working area as a basis for decision-making.

Based on multiple factory sites, administrators and executors of different industrial users and the demands of different on-site environments (diverse measurement meters and data acquisition methods), the energy management system (EMS) offers various tools such as real-time monitoring, energy consumption analysis, energy performance indicator analysis, energy management worksheets, anomaly alarms, and authorization control for convenient power efficiency management.

All of the key components in the Brilliance Auto body welding workshop energy management project, such as power meters, PLC, and wireless network equipment, are Delta's industrial automation products. Among the products, the key power data acquisition power meter is the Delta standard DPM-C520 multifunction power meter series. Through the effective implementation of Delta's power distribution system, users can monitor the energy consumption of the overall body welding workshop and each working area in real time, and analyze the production status of the workshop. In the future, it achieve the goals of energy conservation and balance.

Delta attends 2018 industrial automation and robotics show in Wuhan

Text by DGC

Delta attended 2018 Industrial Automation and Robotics Show (IARS) (Wuhan) to present the latest visual power-efficient factory solution, robotic solution, servo drive system ASDA-A3 series flexible control platform, and various industrial automation products. During IARS Wuhan, Delta used 12 large LED analog displays to show the production status on the production line and the energy consumption, which show Delta's strength in manufacturing visualization and energy management.

On the June 6th Delta press conference, Delta spokesman Jessie Chou indicated that Delta stays true to its own commitment in daily operations, the consistent corporate mission "To provide innovative, clean and energy-efficient solutions for a better tomorrow", and continues to provide efficient and reliable power-efficient total solutions. Delta proposes and initiates smart manufacturing, implements smart manufacturing models, and continues to develop "smart manufacturing capability" with smart equipment, smart production lines, and smart factories.

Chen Minren, General Manager of Delta Greentech IABU, indicated that smart manufacturing requires a large amount of smart and flexible production equipment, as well as smart, transparent, and visual integrated manufacturing systems and energy management systems (EMS), for real-time control, planning, and optimization of factory operations.



Delta attends 2018 Industrial Automation and Robotics Show (Wuhan) to demonstrate its perfect "smart manufacturing technologies". Spokesperson Jessie Chou (3rd from the left) and Delta Greentech IABU General Manager Chen Minren (3rd from the right) were also at the event



Delta staff introduces the production management & visualization platform (DIAMMP) to the press, which allows real-time control, planning, and optimization of factory operations, and illustrates the realized automatic, smart, and power-efficient manufacturing of factories



Delta solutions for smart manufacturing at SPS IPC drives in Parma, Italy 2018

Text by EMEA

For the fourth consecutive year Delta Industrial Automation has presented their wide range of products and integrated solutions at SPS in Parma. The highlights of this year included the motion control Gearwheel demo, the conveyor Tracking Glue Dispensing Robot workstation and our Digitalized Factory Control and Management Solution.

Luca Cavagnari, head of sales, Delta Industrial Automation Business Group (IABG) in Italy, said, "The products and solutions Delta is bringing to SPS IPC Drives Italia clearly reflects our commitment to the Italian market. These products are going to help industrial facilities here to improve their energy efficiency, production output, and quality by updating to the latest smart, green technologies."

Monique Appeldoorn, Delta IABG's marketing & communication manager for the Europe, Middle East & Africa (EMEA) region, said, "The next revolution in manufacturing is underway, and our customers are building factories that are more profitable, flexible, and environmentally friendly by taking advantage of the latest innovations in automation and control. But these investments need to be made wisely, so that all the systems can integrate with the facility's infrastructure. With two decades of experience in the field, Delta is coming to Parma with products, software and integrated solutions that allow manufacturers to create entire automated lines and factories."

A summary of the key technologies and solutions that were shown at the Delta booth including: Digitalized Factory Control and Management, Industrial Robots, Human Machine Interfaces, AC Servo Drives, and Motion Controllers. For more information, please visit:

<https://www.youtube.com/watch?v=cS58If1SV3A>

<https://tv.bitmat.it/2018/06/sincronizzazione-perfetta-3-000-rpm/>



Delta solutions for smart manufacturing at SPS IPC drives in Parma, Italy 2018

Automation for Changing Industries – Delta Features Complete Smart Manufacturing Solutions at Taipei Int'l Industrial Automation Exhibition 2018

Text by IABG

Delta, a world-class provider of industrial automation solutions, has announced its theme of "Automation for Changing Industries" for the Taipei Int'l Industrial Automation Exhibition 2018. Combined with its own factory experience, Delta will display its complete smart manufacturing solutions for factories, production lines and machines. For smart factories, Delta integrates industrial automation hardware and software, helping customers manage manufacturing execution and energy consumption in their factories. Delta will introduce its High Flexibility Multi-tasking Smart Production Line for the first time in Taiwan; and with a Smart Conveyor, it sorts customized gifts quickly for real-time order processing. High-end machine solutions are Delta's highlights, including the new Electric Servo Press, Screw Driving Robot and 3D Inspection Solution that support customers building smart factories and leading their industries to an automated future.

Simon Chang, Delta President and COO, indicated that the digital manufacturing era has come, and industries must implement smart manufacturing and digitalization in response to market trends demanding more product variety, faster turnover rates, and higher quality. As a result, smart factories that integrate smart production lines, manufacturing execution and data analysis is a critical next step for all industries. As a leader in industrial automation, Delta not only assists customers build complete automated systems and smart production lines, but also implements smart manufacturing in its own factories. For example, the Delta PLC demo line enhanced our production capacity by 40%, reduced production space by 62%, and lowered labor demand by 88% after implementation of our smart manufacturing solutions and smart machines. This successful experience has been deployed on all of Delta's production lines to achieve complete smart manufacturing.

Delta IABG's General Manager Andy Liu pointed that Delta has over 20 years of experience in the industrial automation fields, and has developed a wide range of automation product lines and software, covering field devices, drive and motor systems, sensors and meters, controllers and Ethernet switches, a manufacturing management platform, and data analysis software. Delta facilitates smart, green production with data analysis and management, energy consumption management, and quality inspection, helping customers from electronic assembly, metal processing, photoelectric and other industries build their own smart factories.



Delta features complete Smart Manufacturing Solutions at Taipei Int'l Industrial Automation Exhibition 2018



Delta reveals total Edge and Cloud Data Centre Infrastructure Solutions at CEBIT 2018

Text by EMEA



Delta team showcase total Edge and Cloud Data Centre Infrastructure Solutions at CEBIT 2018

Delta's Datacentre Infrastructure Solutions for cloud and edge data centres were on display at the world's leading digital innovation tradeshow, CEBIT 2018, to serve as the very foundation of the digital economy — the focus of CEBIT 2018. The modular DPH series and the monoblock DPS series UPSs, respectively with 500kVA and 600kVA capacity each, satisfy the high power needs of cloud data centres while the brand-new RT series UPSs offer flexible configurations of 10-20 kVA for edge data centres. The new Li-ion Battery Solution for UPS systems, which boasts leading energy storage footprint with up 51.8kWh in a 19" cabinet, is an ideal solution to substantially reduce the total cost of ownership (TCO) in data centres.

"As the IoT megatrend continues to expand rapidly, we're seeing a lot of data centre resources moving to the edge. With billions of devices generating vast amounts of data that has to be stored and processed, it is impossible for centralized data centres to accommodate all the traffic. A global leader in colocation services in the

Asia Pacific region, for instance, recently selected our power container solutions for their edge network," said Jackie Chang, Delta's President & General Manager for Europe, Middle East & Africa (EMEA).

Delta's total data centre infrastructure design concept provides an efficient and reliable backbone for digitization as the overall market shifted to fewer but larger data centres. However, as IoT drives data centres to the edge, they need to become more adaptable, scalable and flexible. The two trends that are defining the data centre infrastructure market right now — small, decentralized edge computing data centres and the increasing size of large centralized data centres — are both reflected in Delta's product portfolio on display at this year's CEBIT.

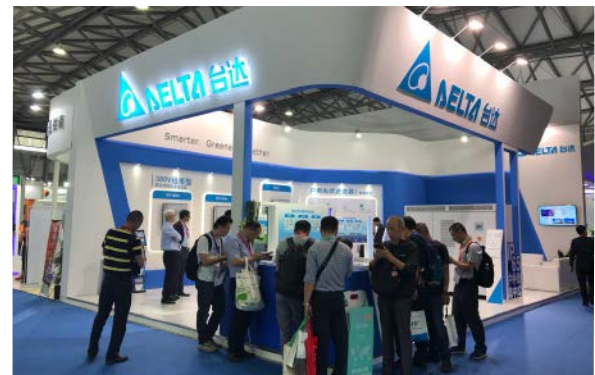
Charles Tsai, head of the Mission Critical Infrastructure Solutions (MCIS) Business Unit (BU) at Delta, said, "Unsurprisingly, these two trends — Cloud and Edge — are also evident in what our customers are doing with our solutions here in Europe. Last year, for instance, Atos, a Spain-based global leader in digital transformation, implemented our modular UPS solutions to protect their MW data centre".

Delta makes grand appearance at 2018 International Photovoltaic Power Generation and Smart Energy (Shanghai) Exhibition & Conference

Text by DGC

The 12th International Photovoltaic Power Generation and Smart Energy (Shanghai) Exhibition & Conference (SNEC) was held at Shanghai New International Expo Centre from May 28th to 30th. Delta, with its smart and high-efficiency solar photovoltaic system solutions, makes its grand appearance at the conference, exhibiting inverter products for household, commercial purpose, large power plants, etc.

Dedicated to energy conservation and environmental protection, Delta possesses vast experience in large-scale projects, which include building the world's largest outdoor central inverter power generation project at Fanchang County of Wuhu City (in Anhui Province), assisting Wuhu City's Sanshan District in building the gigantic mountain photovoltaic power station, etc., helping more customers achieve green sustainable development.



Delta makes grand appearance at the conference with its smart and efficient solar photovoltaic system solutions, exhibiting inverter products suitable for household, commercial purpose, large power plants, etc



Delta Thailand in new SET Thailand Sustainability Index

Text by DET

รายชื่อหุ้นที่อยู่ในดัชนีความยั่งยืน "SETTHSI Index"

กลุ่มอุตสาหกรรม	จำนวนหุ้น	รายชื่อหุ้น
Technology เทคโนโลยี	5	ADVANC บริษัท แอวอนซ์ อินโฟร เซอร์วิส จำกัด (มหาชน) DELTA บริษัท เดลต้า อิเล็คโทรนิคส์ จำกัด (มหาชน) DTAC บริษัท โทเทิ่ล แอ็คเซ็ส คอมมูนิเคชั่น จำกัด (มหาชน) THCOM บริษัท ไทยคอม จำกัด (มหาชน) INTUCH บริษัท อินทัช โฮลดิ้งส์ จำกัด (มหาชน)

Delta included in the SET's first Thailand Sustainability Index for outstanding sustainability performance

Delta Electronics (Thailand) Public Company Limited is one of 45 companies listed on the Stock Exchange of Thailand's (SET) first Thailand Sustainability Index (SETTHSI Index). Last month the SET announced the launch of its new SETTHSI Index for top performers in Environmental, Social and Governance (ESG) aspects. Delta is one of the five companies from the technology sector in the first SETTHSI Index.

In 2015, the SET created the Thailand Sustainability Investment (THSI) list as an alternative investment in high-performance ESG stocks. Delta has been on the THSI since 2016 and won two Thailand Sustainability Investment Awards from the SET. The SET defines companies that embrace risk management, supply chain management and innovation together with responsibility for ESG aspects as sustainable. It created the SETTHSI Index to indicate the price of its

listed sustainable companies that pass the index's market capital size and liquidity criteria. Criteria include listing on last year's Thailand Sustainability Index, a market capitalization of at least 5 billion Baht and free float of at least 20%. The SET will revise the index in June and December every year.

As a SET-listed company with global operations, Delta commits to world-class corporate citizenship to create a sustainable business with value-add for all stakeholders. Delta's inclusion in the new SETTHSI Index is another clear indication of the company's good performance and healthy sustainable development.

Delta Thailand in Thaipat Institute's ESG100 universe for fourth consecutive year

Text by DET

Delta Electronics (Thailand) Public Company Limited is one of 100 best-performing public listed companies in the Thaipat Institute's ESG100 Universe for the 4th consecutive year. Founded in 1999, Thaipat is a leading advocate in Thailand's corporate responsibility and sustainability movement. Delta is one of nine companies in the 2018 ESG100 Universe's technology sector recognized for outstanding performance in Environmental, Social and Governance (ESG).

Since 2015, Thaipat Institute's Rating Unit has been compiling the ESG100 list based on the guiding principles of the Global Initiative for Sustainability Ratings (GISR). This year the Thaipat Institute assessed 683 companies public listed on the Stock Exchange of Thailand (SET) from 39 industries. The 2018 assessment examined over 12,648 data units referenced to publicly available documents from six data sources. The 100 companies selected for outstanding sustainability performance on the ESG100 list are part of Thaipat's starting universe that will address the growing demand on sustainable investments in Thailand. This year's inclusion in the ESG100 list is yet another success for Delta's Sustainable Development Committee which includes Mr. Hsieh Shen-yen, Delta President, and Mr. Anusorn Muttaraid, Delta Executive Director.

As a Thailand-based public company with global operations, Delta commits to corporate citizenship for a sustainable business that benefits all stakeholders. The company's many recognitions from national and international institutions are a testament of its continuous improvement in sustainable development.



100 อันดับหลักทรัพย์ที่มีความโดดเด่นในการดำเนินงานด้าน ESG (ESG100)

ADVANC	AJ	AOI	BAPS	BAY	BOH	BOI	BOFC	BOM	BOB
BOM	BH	BUC	BTS	BWG	CENEL	CK	COM7	CPALL	CPF
CPN	D	DELTA	DTAC	DTG	EDCO	EPW	GLOW	GPSC	GULF
HANA	HAPPD	INTUCH	IPC	IRPC	ITEL	ML	JASLE	KBANK	KCE
KOP	KSL	KTG	KTC	KYE	LH	LFG	LPH	M	MBK
MINT	MOONG	NG	NTV	PE	PPS	PSH	PET	PTEP	PITOC
RUH	ROBNG	SBL	SAT	SCB	SOC	SG	SMART	SMPC	SNK
SPA	SPAL	SPR	SPRC	STANLY	SUC	SWC	SYNEX	SYNTEC	TACC
TCAP	THANAKA	THAN	THP	TSCO	TGS	TMB	TMD	TMT	TOG
TOP	TPCH	TPRP	TTW	TU	TVO	TPCC	VGI	VNT	WINNER

Agri & Food Industry (AGRI) Consumer Products (CONSUM) Financials (FINANCIAL) Industrials (INDUS)
 Property & Construction (PROPCON) Resources (RESOUR) Services (SERVICE) Technology (TECH)

Delta in THAIPTAT ESG100 Universe 2018 for outstanding sustainability performance



Delta Electronics celebrates 30 years in Thailand with a commitment to the future

Text by DET

Delta Electronics (Thailand) Public Company Limited is ringing in its 30th anniversary with several renewed focuses. Founded in 1988, Delta Electronics Thailand originally focused on the design and manufacturing of power and thermal management products. Over the past 30 years, it has become the largest electronics supplier listed on the Stock Exchange of Thailand [SET: DELTA] and won numerous awards for innovative and sustainable business practices. Since 2017, Delta Thailand has reorganized its business into the three categories: Power Electronics, Automation and Infrastructure.

Now Delta's prominence and diverse interests enable it to help define the curve of technological progress in Thailand as it shifts priorities to solutions that meet the demands of megatrends. These include Industrial Automation, Data Centers, Electric Vehicles (EV), Renewable Energy and Energy Storage Systems. Together they will align Delta Thailand's values with the government's Thailand 4.0 initiative, uphold its reputation as a forward-thinking international company, and ensure stockholder returns well into the future.

"Delta is positioned to gain the benefits of exciting new technologies that will help businesses and the world to operate in a clean and efficient manner," said Delta Electronics Thailand President Hsieh Shen-yen. "The world is changing fast, and we had agile adaption within Delta to put our resources into emerging technology sectors that will make the most impact."

Moving into its fourth decade, Delta Thailand will maintain its shift toward technologies of the future, for which it has already received accolades. In February 2018, Delta Thailand gained worldwide recognition when it became the only Thai electronics company to win the RobecoSAM Bronze Class 2018 Sustainability Award.

As it advances to meet the ever-changing technological needs of business and society, Delta continues to commit itself to business growth based on sustainable development. High demand for its solutions worldwide, particularly in India, Australia and ASEAN countries, will continue to drive Delta's growth.



Mr. Hsieh Shen-yen, Delta President (center) at press conference-Delta Electronics 30th Anniversary: Towards a Better Tomorrow

Delta wins 2018 alighting award for innovative super wide-angle astra lighting series

Text by BABG

Delta considers power efficient sustainability as its corporate DNA, and has been won the grand award in China's lighting industry - the Alighting Award, for its Super Wide-Angle Astra Lighting Series released this year. Delta stood out from the fiercely competitive and historical 1200-plus entries to win the honor of Top Ten Products Award. Calvin Wang, Director of the LTBU, received the award on behalf of Delta and indicated that the new super wide-angle lighting series Astra is developed, designed, and manufactured entirely by Delta. The most striking feature is the application of the same optical technology as in Delta's super short focal length projector, which designs exclusive asymmetric lighting pattern and demonstrates Delta's profound technical capabilities and experiences accumulated through its long-term dedication to the lighting field.

Product Manager Su Yi-Chia further explained that Astra's unique optical design allows for a super wide-angle and uniform lighting from a single lamp with a range three times wider than that of traditional lights. In the case of lighting for advertisement walls, Astra saves the client around 60 - 75% in the number of lamps and energy consumption. Even more noteworthy is that Astra's lighting pattern is extremely uniform. The product's exclusive design received high recognition from the jury. In the case of Delta's own lighting replacements, a wall that requires fifteen 20W lighting units would only need four Astra lamps for replacement, and the power consumption is also reduced from 300W to 80W, saving 73% of the energy.

The super wide-angle Astra series lighting comes in a simplistic exterior design, suited for indoor commercial advertisement lighting or facade lighting. It also offers high wattage products for outdoors that could be used in various large advertisement billboards outdoors.



Astra's unique optical design offers uniform lighting three times wider than that of the traditional lights. In addition to the indoor illumination series winning this year's Alighting Award, the series includes high wattage products suited for large advertisement billboards outdoors



Delta receives two main awards in 14th UPS user satisfaction results publication ceremony

Text by DGC



Delta awarded two main awards in 2017, "Top 10 Corporate Brands" and "User Satisfaction Award"

In the recent "2018 14th UPS Power Supply System and Infrastructure Technology Summit and User Satisfaction Results Publication Ceremony", co-organized by China Computer Users Association, Beijing Institute of Electronics, China Green Data Center Advancing Federation, "UPS Applications" magazine and Jifang360.com, Delta won two main awards for 2017, the "Top 10 Corporate Brands" and "User Satisfaction Award", with its world-renowned brand value and leading micro modular data center solutions. This is also the sixth consecutive year that Delta continues to lead the industry.

According to the organizing committee, "Delta has always regarded R&D and innovation as its corporate core competitiveness, providing users with leading UPS, communication power supply, cabinets and precision air conditioning products. Winning the two main awards, the Top 10 Corporate Brands and User Satisfaction Award, it reflects the recognition and affirmation that power supply system users have on Delta's products and technologies. We look forward to Delta's continuous endeavors to provide more outstanding innovative technologies and products for users."

In 2017, Delta launched MDC (modular data center) solutions, which include three main series: Micro Datacenter, Dynamic Datacenter and Cloud Datacenter. It completely covers the various requirements from micro to macro data centers. Equipped with the 3 core values, "modular structure, grow on-demand", "energy-saving, green benefit" and "smart management, convenient operation", it provides better data center infrastructure solutions applicable for many industries such as IDC, finance and education.

Delta energy storage technology named "Top 10 Energy Storage Technologies 2018" in energy storage innovation competition

Text by DGC

Delta's high efficiency, power-saving technology has received the industry's recognition once again. Great news was reported back from the 2nd Energy Storage Innovation Competition award ceremony at the China National Convention Center, in which the "energy storage two-way DC power converter module and its series-parallel connection technology" developed by the Delta Energy Storage Technology Team was named the "Top 10 Energy Storage Technologies 2018" for its outstanding performances in terms of high efficiency, compactness, lightweight and low cost.

The Delta Energy Storage Technology Team has extensive experience in power electronics and power-efficient technologies, and has developed the high power, high voltage energy storage system with a two-way DC converter and series-parallel transformer. The device uses a flying tri-level and high frequency modular technology to achieve high efficiency, compactness, lightweight and low cost. The Company's application of the flying tri-level technology is leading the industry. The series-parallel control and self-control realizes plug-and-play, with the number of series-parallel connection reaching 32 units and system power being more than 4MW.

Delta is currently applying various patents for the said technology and has received one certification, and one software copyright. Furthermore, Delta has begun partnerships with renowned international corporations such as CRRC and General Electric Company for the said product and solution. Its market application has a wide and promising outlook.



The "energy storage two-way DC power converter module and its series-parallel connection technology" developed by the Delta Energy Storage Technology Team was named the "Top 10 Energy Storage Technologies 2018" in the 2nd Energy Storage Innovation Competition



Delta PSBG-CNBU Dongguan Engineering Division awards "Technology Innovation Award" in Canaan Creative's first supplier conference

Text by DGC

A leader in blockchain industry, Canaan Creative recently hosted its first supplier conference in Beijing. With the high-efficiency smart power supply product customized for Canaan Creative Bitcoin miner, Delta PSBG-CNBU (Power and System Business Group, and Computer & Networking Power Business Unit) Dongguan Engineering Division was awarded "Technology Innovation Award". Delta PSBG-CNBU Dongguan Engineering Division, based on customer requirements, developed the Bitcoin mining power supply product, and introduced the solder type connection method, which significantly increases the stability under continuous operation, and achieves 93% efficiency under full load condition. Delta PSBG-CNBU general manager, Dr. Zhuang Shi-Chang, attended the conference and received the award.

Bitcoin miner is a computer used for earning Bitcoin, normally equipped with professional mining chip and requiring 24h uninterrupted operation and high power consumption. Hence, Bitcoin mining companies have higher demand for high-efficiency, energy-saving power supply products. PSBG-CNBU Dongguan Engineering Division, after several dialogues with its customers, customized and developed the 1600W and 2000W professional Bitcoin mining power supply. Delta's Bitcoin mining power supply products totally solve the instability problem of hot swap power supply in old miners, significantly increasing the stability of uninterrupted operation of mining machine. Under full load condition, it can reach an efficiency of 93%, a 3% increase compared to the industry standard of 90%. It is able to adapt to high temperature and high humidity environment, and meet the 24h uninterrupted operation requirement of mining.



Delta PSBG-CNBU Dongguan Engineering Division awarded "Technology Innovation Award" with its smart and high-efficiency Bitcoin mining power supply customized for Canaan Creative



Delta receives two main awards in 14th UPS user satisfaction results publication ceremony

Text by DRC

InnoVEX, a new special exhibition affiliated to COMPUTEX TAIPEI, was attended by 388 new entrepreneurs from 21 countries in 2018. For the first time in this year, Delta set up the "Delta Special Award" in the InnoVEX competition on innovation and entrepreneurship to encourage technologically forward-looking and market-oriented start-ups to participate in their ecosystems through competition awards and reviews, which in turn promotes more cooperation on technologies.

The topics of the competition this time consisted of ten major categories including AI & Big Data, Enterprise Software, Hardware, Health & Bio Tech, etc. DRC formed a cross-group review panel to comprehensively evaluate the achievements of these start-up teams in terms of technology, market, and profit model, as well as their potential for future cooperation with Delta. Finally, the non-invasive motor monitoring solution from the OneWatt Solutions team from the Philippines was granted the Delta Special Award. This solution utilizes a unique sound sensor along with AI analysis technology for predictive maintenance, effectively reducing failures by 70%, increasing energy efficiency by 10%, and increasing production capacity by 25%. The team received double recognitions by winning the "Startup Terrace Award" from Small and Medium Enterprise Administration (SMEA) of the Ministry of Economic Affairs.

Representative of Delta's review panel and Director of Delta Electronics, Dr. Jean Liu, said that by means of award competitions, it not only strengthened Delta's image in the startup ecosystem, but also laid a good foundation for future collaboration. The OneWatt Solutions team will come to Taiwan again in July this year to visit Delta and discuss the opportunities for future cooperation. We look forward to creation of new business opportunities by the two sides in the field of smart manufacturing and AI.

Delta supports Singapore's national learning program with advanced manufacturing course and smart learning platform

Text by DRC

To raise national innovation and productivity, Singapore government has launched the SkillsFuture program, targeting ten key economic development projects such as Industry 4.0. It cooperates with local universities in providing systematic training tools and courses. Corporate Laboratory, a collaborative result between Delta and Singapore's Nanyang Technological University (NTU), uses smart online learning platform developed by Delta Research Center. It offers professional courses for users, with short-term modular courses in Smart Manufacturing at the initial stage, comprising 2 fundamental courses and 16 intermediate courses, scheduled to be available online by end of 2018 to beginning of 2019.

In the event of national on-the-job training promotion held by the Singapore authorities on July 16 and 17, Delta was invited to participate in the show and also cooperated to hold two Smart Manufacturing course seminars, attracting more than 70 people; some of them even attended for two consecutive days.

Delta-NTU Corp Lab has the most advanced cyber-physical system modular equipment, robot, as well as information and communication facilities. As the laboratory also integrates Delta's professional knowledge and experience in global manufacturing, and first-class engineers, developers and researchers, as well as advanced manufacturing's agile testing platform, it is hence one of the preferred partners of NTU in planning the Smart Manufacturing course.

Besides courses, the smart online learning platform developed by Delta Research Center is also recognized by NTU's College of Professional and Continuing Education (CoPACE), and will be open to NTU alumni at the end of this year. Delta and NTU will continue to invite more partners with relevant experience or knowledge, together enriching the platform's course content and assisting Singapore in upgrading manpower and achieving industrial transformation.



Lai Chung Han, Second Permanent Secretary of the Ministry of Education of Singapore, visited Delta's booth. With Delta's project leader Dr. Jacksheng Kee's explanation, Mr. Lai showed interest in Delta's smart online learning platform "Anytime, Anyplace, multi-courses" and the Smart Manufacturing course



Delta Electronics Beijing Office

PEOPLE

Happy work, happy life — Delta Electronics Beijing Office

Text by Delta Electronics Beijing Office



Myra Nie / Senior Chief of Administration Division, Beijing

It has been more than 23 years since I joined Delta. Even though I deeply feel that time flies, I am a woman—with a serious expression on her face, who is still a little girl inside. I love to work and find pleasure in daily life while upholding the generous and outgoing spirit of Beijing natives.

Back then, the Beijing office was a small branch office consisting of merely a dozen of staffers. All of us shared an undivided working space of 130 square meters, where three large-sized desks were positioned for us to sit in a circle, with a row of desktop computers placed against the wall. All this seemed so new and exciting for me, as I just left a state-owned enterprise to be here. I remember the date clearly: April 6, 1995.



PEOPLE & PRODUCT

I was recruited in the finance team in the first place. One and a half years later, I was transferred to an administrative position with HR responsibilities. I've witnessed the number of staffers increasing from a dozen to over two hundred, while the 130-square-meters space was expanded to a self-owned office building that measured over ten-thousand square meters.

I am asked often about my feelings toward Delta, to which my answer would be: Delta is like my family, to which I am deeply attached. I still remember having a nightmare about being forced to leave Delta, and I cried out of the horrible dream. I love Delta. It feels like my second home, and I cherish every moment of being a part of this big family.

I love traveling when I have some free time. I usually plan a family's vacation on National Day and Chinese New Year holidays each year. I took my son abroad when he was only a little more than one year old. He went to the United States for further studies two years ago when he turned sixteen. I believe this has a lot to do with his traveling and boarding school experiences. I also love to travel in China or overseas with my friends to enjoy a wonderful time and relax physically and mentally.

There are eight colleagues in our Administration Division (Beijing). We render service for colleagues who visit Beijing on business trips. Let me introduce my colleagues: two drivers are both over five foot ten, and very eager to help. Two administrative assistants of front desk are responsible for businesses such as arranging accommodation and vehicle dispatch. The colleagues of facilities and general affairs ensure the facilities operations, safety and sanitation of the Beijing Building. We also have a dormitory janitor who cleans the rooms to the spotless extent. I am so glad to have the chance to share our Delta experience in Beijing through "Delta Brand News". We welcome colleagues from other parts of the world with open arms, and are most happy to provide you with the best possible services.



Nie, Zhi-Min (front row, first from the left) and her colleagues visiting the Tongli Lake in Suzhou



Willma Lu / Senior Sales Representative

I joined Delta in 2003, currently working in the Sales Division (PSBG-CNBU). That year, SARS (a.k.a. atypical pneumonia) broke out, and I was a train commuter to Dongguan for new-recruit training for some time. When I got back to Beijing, I was very hesitant to take the bus, and decided instead to walk long distances to and from work. Despite all this, I was very happy at that time, and wore a genuine smile every day.

Fifteen years fast forwarded. I was previously a "fan of the Founder," and now I have become a "loyal fan of the Honorary Chairman." There are three framed photos, showing Mr. Cheng and me, on my desk. A lot of colleagues would ask me to tell them once again about the stories behind these photos, and I would never mind telling them over and over again, while the listeners never seem to grow tired of these stories, either. The entire office would be filled with laughter when we talk about these anecdotes.



PEOPLE & PRODUCT



Willma and Delta founder Bruce Cheng



Travel-loving Jing-Ru standing in front of the Church of the Nativity in Bethlehem, Palestine

These three photos were taken in the old Beijing office (in Madian), Delta Headquarters in Taipei, and the current Beijing branch office. Looking at myself in the photos, I cannot help but think about the fifteen years I've worked for Delta. I've been selling a wide range of commodities and responsible for their after-sales service: PC power supply, biomedical products, touch screen, voice system, and server power supply. I was initially somewhat daunted by the challenge of selling products to our clients, and I remember being reminded by Hsieh, Shen-Yen. Mr. Hsieh told me that Delta is not only a manufacturer that makes and sells products to clients; rather, build a cooperative relationship with them by providing most advanced, high quality products to make our clients' products better. Later, Dr. Chuang, Shih-Chang told me that it was very dignifying to sell server power supply manufactured by Delta. At Delta Beijing Office, Mr. Jiang, Nan-Song, likes to say that "It's a boss's job to serve his/her employees. When the employees are served well, everything will take care of itself." I have these wonderful and inspiring supervisors and colleagues to thank for. Without them, I would not have been so energetic and optimistic when faced with challenges for the past fifteen years.

In 2008 · Mr. Cheng was invited to attend the Olympics opening ceremony in Beijing, and he used this opportunity to share his experience with us. This two-hour-plus conversation so enlightened me that I was convinced Delta is an enterprise that is worth my dedication and loyalty. When I took training sessions in Taipei in 2010, I was lucky enough to witness the awards ceremony for excellent employees. Hearing a colleague with 25years of service talk about her experiences in Delta, I couldn't help wondering if I could one day share my own 25-years-of-service story with the audience like she did that day. Then I heard Mr. Cheng speak about how Delta had undergone transformation, how Delta had built its brand awareness, and what held for Delta in the future. I was so inspired by his speech that I ran up to Mr. Cheng and told him how moved I was. Mr. Cheng listened to me with a good-natured smile. Afterward, we took a picture together.

In 2014, Mr. Cheng, who already acted as the Honorary Chairman, visited the newly constructed office building in Beijing. He has started to dedicate himself to environmental protection and public welfare. We organized a volunteering activity and many of the Beijing staffers, including me, took turns to give lectures on environmental protection to primary school students. As one of the speakers, I not only enjoy hearing children greet me by saying "Hello teacher" (my vanity, I admit), but also am glad to convey the ideas of "green earth".

I love to travel in my free time. I've left my footprints in more than 30 countries throughout five continents. No matter which country I was in, I would visit the local office of Delta even if it took me extra time and effort. I would be thrilled to see the logo of Delta in a foreign country. I have decided to visit all the branch offices around the globe in the future.



PEOPLE & PRODUCT



Lillian Xu / Senior PR Officer

I've taken my job in the Public Welfare Division of Delta since 2016. This division is located in Beijing Office. Our division takes charge of social welfare projects in China. It is the concerted effort toward corporate social responsibility that gives me a sense of self-worth. Not only does our company strive for the goal of "green energy for a greener earth," we as employees also participate in the protection of the environment.

I've been responsible for the "promotion of green structures" project and dealt with issues related to "Environmental Law." Under the Founder Mr. Cheng's leadership, not only does our company build our factories and offices across the world in accordance with Green Building Standards, but the buildings that are donated to other organizations have been built in accordance with the aforementioned standards. We have constructed (and donated) 26 green buildings from 2006 to 2017. The green buildings certified in 2016 have reduced 15.2 million kWh, equivalent to a reduction of 10,027 tons of CO2 emissions.

In addition to the above projects, we also develop an "energy education project" that is aimed at attracting volunteers within our company. We've been engaged in the science projects of power electronics since 2000, and supported a series of social welfare projects; for example, responded to the call of the "Retrieval of Pearls" program in the central government's targeted poverty alleviation project. The energy education project reached the Beijing Office last year, and the colleagues form a volunteer team to give periodic lectures on environmental protection to primary school students in an attempt to convey the ideas of "green energy for a greener earth" to the younger generation.



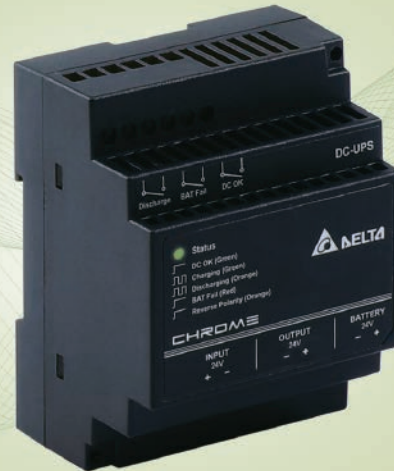
The "new cafeteria" at Beijing Office



Travel-loving Xu, Xiao-Li at the "Grass Skyline" scenic road near Beijing

I feel very grateful for the better work environment in the Beijing Office. For instance, a food court in the vicinity of the Company was closed, and we were having problem finding lunch spots. Then the Company found a catering company for us so that we can have a diversified, balanced, and nutritious lunch. We even have a bowl of mung bean soup after lunch to drive away summer heat. This was a huge relief for all of us.

I visit museums and galleries a lot in my spare time. Luckily, many museums and art museums of different themes can be found in Beijing. After visiting exhibitions, I would find a café or restaurant to rest a while. Good exhibitions and good food in Beijing are the very things that enrich my weekends or holidays.



Delta DRU-24V10ACZ module

PRODUCT

New compact DC-UPS module up to 10A for security and industrial applications use in small cabinets

Text by DET

Delta has added a new DC-UPS module for security and industrial applications. The DRU-24V10ACZ module requires less installation space due to its flat body measuring only 55.6 mm thick and 91 mm tall. The tough plastic case has flame retardant properties certified to UL 94V-0 specification. The DC-UPS module provides backup support to 24Vdc system using an external battery capacity from 3.3AH to 12AH for backup time up to 37 mins typ. with 10A load, 12AH battery. Potential free contacts provides various battery management signals and a LED indicator for battery operating status. The highly efficient convection cooling design has a wide operating temperature range from -20°C to +60°C and certify to major safety approvals including IEC/EN/UL 60950-1 for ITE and UL 508 for Industrial.

Highlights & Features:

- Suitable for 24V system up to 10A
- Zero switch over time from loss of DC input to battery operation
- Built-in diagnostic monitoring for DC OK, Discharge and Battery Fail by relay contacts
- Full power over entire operating temperature range from -20°C to +60°C
- LED indicator for DC OK, Battery Charging, Battery Discharging, Battery Fail and Battery Reverse Polarity
- Overvoltage / Overcurrent / Over temperature / Short circuit protections



Powerful things now come
in even smaller cubes.

PowerGear™ 60C USB-C Laptop Adapter

New Arrival



Innergie provides the smallest USB-C laptop adapter in the world

PRODUCT

The smallest USB-C laptop adapter in the world- Innergie PowerGear™ 60C USB-C wins Best Choice Golden Award at Computex 2018

Text by Innergie

Innergie just launched its latest innovation, PowerGear™ 60C USB-C Laptop Adapter - the world's smallest laptop adapter. After almost a year of development, the Innergie team brought this cutting-edge product to life. PowerGear™ 60C is so powerful not only because of its compact size but it charges virtually all your USB-C devices. With another cable (MagiCable™ 150) it can charge 80% of the laptops in the market. It stands out from more than 300 products and won the Best Choice Golden Award held at Computex 2018. And during the pre-launch on Kickstarter platform, the project achieved 2566 backers and delivered to over 70 countries worldwide. Among all, the high efficiency is where we practice the value of environment-friendly of Delta. Its 92% energy-efficiency is 4% higher than the industry standard (88%).

Accumulated the technologies in power management built by Delta over the half-century. One of the techniques which made PowerGear™ 60C surprisingly small is the advanced 3D circuitry design. The other is the planner transformer. And these lead to its compact size - 1/3 the size of a normal 60-watt charger. With the latest USB PD charging technology, PowerGear™ 60C USB-C Laptop Adaptor not only charges laptops but virtually all mobile devices while taking up a fraction of the space. It can automatically detect 5 different voltages (5v, 9v, 12v, 15v, and 20v), compatible with smartphones, GoPro, Switch and mainly all kinds of laptop brands.



PEOPLE & PRODUCT

The PowerGear™ 60C USB-C Laptop Adaptor is designed in two different versions, one with a foldable US plug, the other with three interchangeable plugs (US, EU, UK); compatible with 100V-240V input, the only charger you will ever need in over 150 countries across the globe.



PowerGear™ 60C USB-C Laptop Adaptor (Foldable) [left], PowerGear™ 60C USB-C Laptop Adaptor (International) [right]

Highlights & Features:

- ▶ Compact and yet powerful - minimal size 55cc
- ▶ One adaptor for all your gadgets - 60W USB PD
- ▶ Foldable plugs easy for you to carry
- ▶ Pack light while travel - 3 travel plugs included
- ▶ Save utility and save the planet - 92% energy efficiency
- ▶ 1.5m USB-C to USB-C cable included
- ▶ Add-on MagiCable™ 150 laptop cable for more laptops available
- ▶ Add-on WizardTips to upgrade on fast charge your smartphone

For product details and enquiries, you can also visit <http://www.myinnergie.com/tw>



Vivitek's DX5630 and DU5671 large venue projectors adopt 430W single-lamp design

PRODUCT

Vivitek launches DX5630/DU5671, a brighter and clearer large venue projector

Text by DGC

Delta's projector brand, Vivitek, has strong capabilities in large venue projectors, with numerous successful cases in several domains. Following the popular 430W single-lamp large venue projector market, Vivitek suits market demand by launching two latest models, DX5630 and DU5671, providing more options for mid-end large venue projector users with high brightness requirements.

► **Debut of Vivitek DX5630/DU5671, featuring brighter and clearer 430W single-lamp**

Vivitek's two latest 430W single-lamp large venue projector models, DX5630 and DU5671, offer outstanding performance. Coupled with Texas Instruments' DDP4422 decoder, they feature brightness of up to 7800 lumen and 6200 lumen respectively, and 2000:1 contrast. Both are able to support resolution of up to WUXGA (1920 x 1200). Vivitek's DX5630 and DU5671 large venue projectors support aspect ratio of 16:10 and 4:3, are compatible with 2.35:1 aspect ratio, and support full range of 3D technologies. They allow seamless playback of blue light 3D, IR3D, DLP-Link 3D or any other 3D formats, enabling more vibrant and vivid commercial activities.

► **Changing 5 types of lens within a second, Vivitek DX5630/DU5671 cater to various types of installation environment at ease**

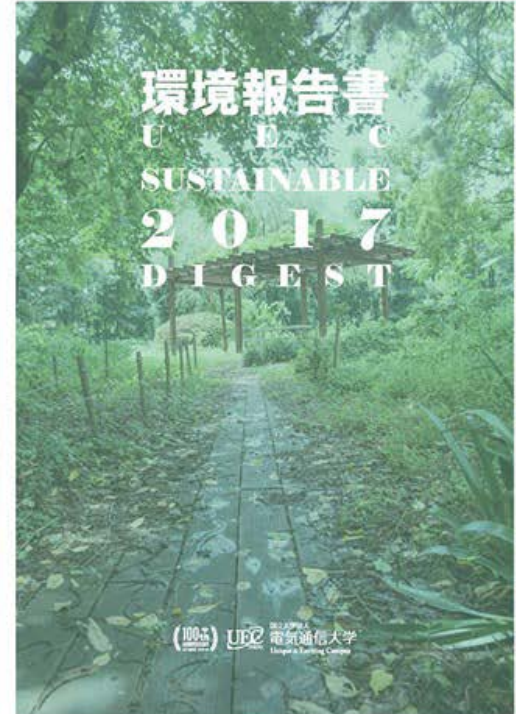
Vivitek's DX5630 and DU5671 large venue projectors come with 5 types of manual lens, and support 1 second quick change and memory function, enabling commercial users to swiftly restore memory with ease. The projectors feature "standard" and "economic" lamp usage modes, and each lamp has 100,000 hours of useful life, ensuring 7x24 hours of uninterrupted operation. Also, it adopts a sealed environment that uses fully sealed optical engine and fully sealed color wheel, which can prevent dust, smog, etc. from entering the machine's core region, ensuring the machine's stable operation and outstanding performance.



YNU



YOKOHAMA NATIONAL UNIVERSITY ENVIRONMENTAL REPORT 2017



Japanese universities' environmental reports (image source: website of the Ministry of the Environment, Japan)

Calling the young generation! Publication of environmental reports by Japanese universities

Text by Jocelyn Tseng / Administrative Specialist, Delta Electronics Foundation

World-renowned climate research institution, Intergovernmental Panel on Climate Change (IPCC), will be publishing "Special Report on 1.5 Degrees" (SR 1.5) this October. The preliminary content consists of a report that by 2040, the increase in the earth's temperature is expected to exceed that of the industrial revolution period by 1.5°C. That is to say, in about 20 years' time, we will see how we fare in terms of global warming.

Some readers of the higher age group might feel relieved because they may not be there to see the results. However, for the young generation who are still at school, they may be forced to be the witnesses (as well as victims) of the earth's environmental change. In other words, all media materials and appeals about climate change should not be targeted on government officials or the decision makers. Instead, we have to instill in the young generation that "this definitely concerns you!"



Environmental Communication Awards encourages universities to respond to environmental issues

Let's see how Japan encourages universities and research institutions to fulfill social responsibilities, develop their own environmental management system, and make the young generation concerned about environmental issues.

The first step is to encourage academic and research institutions to prepare environmental reports. The Ministry of the Environment of Japan has since 1997 been organizing "Environmental Communication Awards" to publicly commend outstanding environmental reports. In 2004, with the establishment of the "Act on Environmental Promotion", independent administrative corporations and national universities are required to publish environmental reports on an annual basis. The reports have to be verified by a third party before being published in the website of the Ministry of the Environment of Japan.

The obvious intention of the above measures is to hope that in the process of writing the environmental reports, universities will again review the yearly environmental impact generated by their organization, thereby establishing environmental management system and response mechanism, and communicating with external interested parties. A good example is the frequent winner of the "Environmental Communication Award", Mie University, whose report comprehensively covers the campus' environmental management system, research statistics, response actions, communication strategies, external certification, third party evaluation, etc.

Through these reports, we can see the energy usage, resource consumption, waste recycling and disposal status of every university for the year. The universities also disclose the proportion of their self-produced energy or green energy purchase, and convert them to greenhouse gas emissions and environmental accounting indicators. The reports are open for public evaluation.

環境ISO学生委員会の活動 4

三重大学環境ISO学生委員会は、平成18年2月21日に「MIEキャンパス宣言」を掲げ、学生の環境マインドの向上を活動理念として発足しました。

当委員会は、学内ではごみ減量活動や家電製品および家具の再利用、古紙再生利用といった3R活動や、環境・情報科学館の屋上緑化や花壇の整備などの緑化活動、そして放置自転車対策活動などにも取り組んできました。また、学外では海岸清掃や小学校での環境学習を通して地域を

巻き込んだ環境活動を展開しており、そのほかにもさまざまなイベントにおいて幅広い年代の人々に環境について触れてもらう機会を提供してきました。これらの活動は、学内では掲示板や広報誌を通して、学外ではホームページやイベントなどにおける活動紹介を通して学生や地域の方々に発信しています。今後もこのような活動を通して、大学組織や地域の方々と連携しながら、世界に誇れる「環境先進大学」を目指して積極的な環境活動を行っています。

環境ISO学生委員会の平成28年度活動カレンダー 写真は★印のイベントの様子です



INPUT



OUTPUT



(平成28年度実績)

Mie University's 2017 Environmental Report



For example, Mie University's students form the "Environment ISO Student Committee" to take turns to organize monthly seminars, second-hand goods recycling and sharing, bicycle repair, campus greening and beautification, and even coastal research and beach clean-up. They also make use of the "Yokkaichi Asthma" (at the north of Mie Prefecture) incident as environmental education materials. In addition, Chiba University of Commerce near Tokyo makes use of thermal imaging statistical techniques developed by their teachers and students in planning energy-saving projects and proposing improvement recommendations for public area's lightings or electrical appliances power consumption.





The above practices are not exceptions. In fact, the environment ISO committees and students' environmental clubs of Japanese universities organize "National Student Conference on Environmental Management" periodically, and together exchange ideas on action plans and innovative approaches on campus environmental management. Several schools' environmental reports often share environmental research results by the teachers and students, such as Iwate University's long-term observation of the soil environment and biodiversity surrounding the disaster area of the 2011 Tohoku earthquake and tsunami.

As for Taiwan, the Ministry of Education began to promote "University Social Responsibility Project" last year. We may refer to Japan's over 20 years of practical experience to help our next generation recognize the issues of climate change and energy source at an early stage.



Seoullo 7017 Skygarden Tour

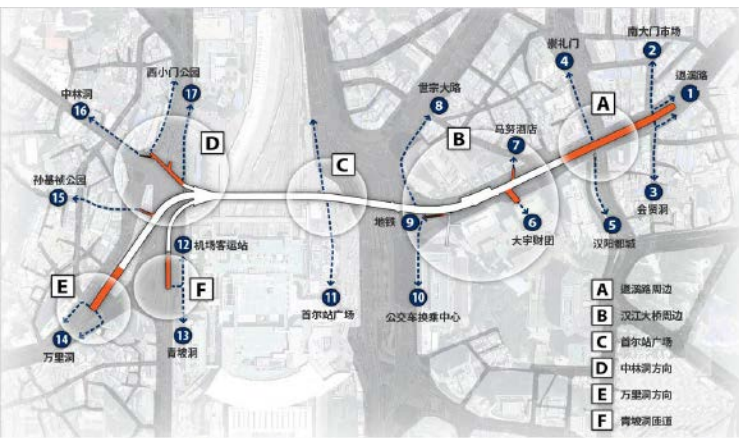
Text and Photos by Evan Kao / Project Director of DEF

During the vacation in late June (much gratitude towards the company), I went on a trip together with my family for a couple of days to the hallyu capital, Seoul. We visited several famous districts, such as Gyeongbokgung Palace, Dongdaemun Market, Hongik University, and Myeong-dong. I especially arranged an attraction my family were not familiar with— Seoullo 7017 — in an attempt to know more about this most recent case of cityscape renewal in South Korea.



Obsolete elevated bridge transformed into an urban green skywalk

The 1-kilometer-long Seoulo 7017 is a segment of the walking path between "Hoehyeon Station" and "Seoul Station" on Subway Line 4, whose name carries the meaning of "Symbol of Seoul's Pedestrian Pathway" and "Road to Seoul." The number "7017" represents the starting point and day of rebirth of this walkway. The skywalk in Seoul is claimed to be a favored attraction that has gained popularity in a very short time. The place is highly recommended by many travel articles, and even the well-known variety show "Running Man" and many drama series came here to shoot their scenes.



From Myeong-dong through Namdaemun Market, Seoul Station to Lotte Department Store, Seoulo 7017 connects many shopping districts along the way



After completing its mission of transportation, the bridge went through a rebirth and transformed into Seoulo 7017 in the form of recreational space and sky garden

Yes, you heard it right: Seoulo 7017 did not look like this in the beginning. It used to be an elevated bridge for cars, and had been opened to traffic since 1970. Since it is next to Seoul Station (including train, coach, subway, and high speed train), the bridge had almost 50,000 cars passing through each day. Not only was it the busiest traffic road in the city, it was also the first urban impression Seoul left on the South Koreans and foreign tourists visiting for the first time.

The moment of change happened in 2006. The government discovered that this old elevated bridge, used for over 30 years, had serious safety problems. Thus, the government started to contemplate on how to overhaul this bridge. Surprisingly, they did not choose to dismantle nor rebuild the bridge; instead, they revamped the bridge into a green skywalk connecting to the surrounding buildings, commercial districts, and people. Seoulo 7017 is the result of the "road intended for vehicles" metamorphosing into a "pedestrian walkway."

After determining the direction of the transformation, Seoul held an international architecture design competition. In the end, the famous Dutch architecture firm, MVRDV, won the competition with a design proposal that turned the half-century-old elevated bridge into a 9,661 m² public space. The skyway has soon become the most popular tourist attraction and check-in location since it was open to the public last May.





On a Friday morning, we came out from Exit 5 of Hoehyeon Station and walked upwards along the ramp, and finally we slowly entered the range of Seoulllo 7017.

Perhaps it was because of the drizzly weather, there were not a lot of people that morning. Later we found out that the shops there only open in the afternoon. Also, the torrid summer sun is unbearable (ladies avoid it like the plague), so many travel articles suggest that it is easier and more romantic for tourists to enjoy the night views there after darkness falls (this is why drama series only shoot their scenes there in the evening).



There are no stairs at the entrance of Seoulllo 7017; instead, an accessible ramp is used to reduce the inconvenience that may cause to the elderly and people in wheelchairs

Taller and greener -expansion of Seoul's low-carbon ambition

On the 17-meter-high skywalk, tourists can enjoy a panoramic view of N Seoul Tower, Namdaemun Market, Seoul Station, and the Ancient City of Hanyang. Photography enthusiasts will love it here. The government also planned routes with different themes, including history, architecture, and night views. The guided tour is available in three foreign languages, i.e. English, Japanese, and Chinese. Those who are interested can go to "Seoul City Walking Tours" (dobo.visitseoul.net) to make an appointment.

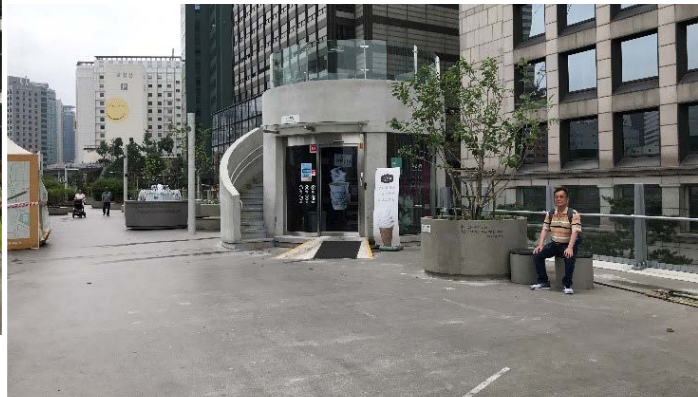


Looking down from the 17-meter-high skyway, the surrounding scenery of Seoul Station is in full view

Apart from giving back the urban space to pedestrians, MVRDV's design proposal also contains an important idea, that is, increasing the recreational space and natural greenness in the crowded city. To achieve this, Seoulllo 7017 is adorned with 645 flower beds and potted plants. In total, over 20,000 plants are planted. Entering this place feels like entering a sky garden. When the weather is nice, you can buy a cup of coffee and bring a book with you to admire the city views, which is the most enjoyable thing in life (unfortunately, I could only pass through with a baby stroller, very sad.)



Along Seoullo 7017, there are many shops and public art installations. It is also provided for civic organizations to hold activities



In fact, Seoullo 7017 is connected to many surrounding buildings. If the office workers in these buildings are tired at work (or cannot suppress the urge to talk back to the boss), they can come straight out of their offices to get some fresh air. It is perhaps a special way to relieve stress or can be seen as some sort of employee benefits.

Without question, a good public space needs constant maintenance. When we passed through the skywalk that day, we saw many staffers straightening up the flower beds. Because a heavy fall of rain took place the night before, many facilities (even a piano) were carefully covered to prevent them from getting soaked in the rain or being damaged.



Staffers are busy straightening up the flower beds and various facilities before the crowds turn up in the afternoon and evening

While on the subject, people might want to ask: Although the intention of building a skywalk for the residents is good, wouldn't the traffic in the neighboring area become hectic after the elevated bridge responsible for transportation was torn down? Don't tell me that tourists are supposed to go up there to enjoy the scenes of traffic jams.

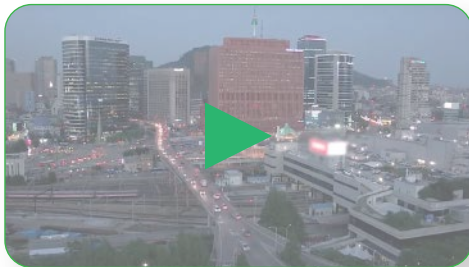
Actually, the government had calculated that, among the 46,000 cars going over the elevated bridge of Seoul Station each day, 60% of them simply passed by the bridge to get to other destinations. Without the bridge, the road capacity of Chilpae Road, one of the alternative roads, would increase by 27%; in the meantime, the road capacity of Seosomun Road would increase by 6%, whereas the vehicle traffic of Toegye Road would decrease by 16%. Thus, the municipal government added many public transport services, such as subway and bus, to reduce the inconvenience that might cause to car users. At the same time, the general public are encouraged to use the more low-carbon pedestrian pathway and public transport. Don't forget: increasing pedestrians and tourists indicate more customers for the surrounding shopping districts, which is exactly what the gradually declining Namdaemun Market yearns for.



In order to dissuade people from driving cars and persuade them to walk over the bridge, the municipal government already held three “Elevated Bridge Open Day” events in 2014 and 2015 before Seoulo 7017 was officially open to the public. On the one hand, people were invited to bid farewell to the elevated bridge from the past through these events; on the other hand, people were given opportunities to get used to the fact that this is the future urban trend and everyone should look over Seoul from a higher angle and with an eco-friendlier approach.



From the elevated bridge with heavy traffic to a green skywalk, Seoulo's rebirth is a valuable example for Taiwan



The skywalk is not as big a project as “High Line” in Manhattan, New York or “The Greenway” in Boston. Nonetheless, Seoulo 7017, situated in a densely populated Asian city, serves as a successful example of city landscape reform. Also, it preserves certain relics of urban traffic and historical memory, while launching the initiative for environmental protection, low-carbon emission, and walkability in the new era.

