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## Lithium-ion batteries power Japanese e-ferry

GS Yuasa's lithium-ion batteries have been installed as the only power source in Japan's first fully battery-powered, zero-emission passenger ship. Built by Oshima Shipbuilding, the 340 tonne vessel uses the batteries as its only propelling power source, as well as for all additional power required during operations.

Being battery-powered means the ocean-going ferry emits no CO<sub>2</sub>, either in motion or at anchor. It also helps reduce noise and vibration. In addition to providing motive power, GS Yuasa's high capacity lithium-ion batteries, which provide approximately 600kWh, supply power for communications, navigation, radio equipment and air conditioning.

The vessel can be charged in around two and a half hours and the battery system includes multiple layers of redundant protection for the batteries.

[www.yuasa.com](http://www.yuasa.com)

## HMI enclosures now in standard sizes for easy ordering

Rolec's new profiPANEL HMI/control enclosures are now available in four standard sizes with an easy, four-step specification process. Featuring a multi-variable design, the IP 65 rated enclosures are ideal for a range of machine control applications and can be mounted from the top or bottom on the profiPLUS 50 suspension arm system.

According to the manufacturer, the new standard version offers greater savings by offering four standard sizes based on a 90mm profile. Lead-times are reduced because all components are held in stock. The standard format is also ideal for smaller volume orders.

To order, buyers simply select the enclosure dimensions, define the machining of the front plate, define the position of the suspension arm fixing and select an optional handle. Enclosures include an individually configurable front plate as standard, which can accommodate a panel PC up to 21in.

[www.rolec-usa.com](http://www.rolec-usa.com)



## Feel the power with tough mini-trigger

Omron Electronic Components Europe has introduced a new miniature trigger switch for heavy duty control applications including industrial and domestic power tools.

Ideal for all types of brushless DC application including industrial equipment as well as cordless DC power tools, the new Omron C3AW is a durable and compact solution. Rated at 10mA, 42V DC, it achieves dust resistance to IEC IP6x with a sealed rubber cover over moving parts and an ultrasonic welded connection between the cover cases. It can withstand shocks of up to 3,000m/s<sup>2</sup> and vibration of up to 200m/s<sup>2</sup> experiencing no more than 100µs of chattering at the maximum rated shock level.

With an overall size of 25 by 13.5 by 28.5mm, the C3AW is rated for at least 300,000 operations and can be used at temperatures between -20 and 65°C.

[components.omron.com](http://components.omron.com)

## Simplify sourcing with interchangeable plug adapter

Phihong has launched a new 10W USB interchangeable plug adapter series set to simplify sourcing since it complies with both the US Department of Energy's DOE VI efficiency regulations for external power supplies, as well as the European Union's voluntary Code of Conduct version five tier two requirements.

The new PSAF10R-050QA-R adapter features a USB receptacle, field-changeable AC plugs, low leakage current, and voltage drop compensation. It is ideal for use in consumer electronics, peripherals, portable equipment, and networking.

With an AC input voltage range of 100 to 240V, the new power adapter series enables OEMs to stock only one power adapter to cover all global electric systems, minimizing inventory costs associated with carrying separate power adapters with fixed plugs for specific regions.

[www.phihong.com](http://www.phihong.com)



[www.offboard-sourcing.com](http://www.offboard-sourcing.com)

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## E-bike sensor set to race of the shelves

An e-bike sensor from ZF, which is used to measure current riding speed, forms a vital component of the new TQ HPR120S-Motor incorporated by TQ-Systems in its latest e-bike product.

The speed sensor in the TQ application is mounted on the back wheel to provide the system with precise information on the current speed. It delivers 18 pulses per rotation with 18-fold coding to deliver a high resolution for a better ride, especially at lower speeds such as for hill starts. The tamper-resistant speed sensor is used in combination with a torque sensor to enable a better alignment of the overall system.

Also suitable for e-scooters, ZF's e-bike sensor is based on Hall technology. Sensors require a continuous power supply of 4.5 to 20V DC and measure frequencies between one and 2,500Hz.

[switches-sensors.zf.com](http://switches-sensors.zf.com)



## Connectors offer ease of use in tough conditions

TE Connectivity has introduced new single-pole Deutsch DTSK power connectors for rugged, sealed applications. Designed to accept 8mm diameter contacts rated up to 125A, these heavy-duty thermoplastic connectors can withstand harsh conditions in the transport, agricultural, mining, construction and marine industries.

Designed with ease of use and simplicity in mind, the connectors feature latch-style mating and an integrated secondary lock. Individual wire seals with a rear cover help protect the connections from dirt, dust and water ingress. DTSK connectors can be used inline or mounted as pass-through connectors with the addition of an optional flange.

Product manager for TE's industrial and commercial transportation business, Jean-Paul Gervais, explained: "Our Deutsch DTSK connectors offer simplicity for ease of use and safe assembly, installation and field repair, while remaining a rugged solution that stands up to harsh conditions."

[www.te.com](http://www.te.com)



## Sensors simplify production

SICK has unveiled its next-generation of smart photoelectric light array sensors, the RAY10 and RAY26, to reliably detect even difficult-to-see objects in production environments.

The RAY10 and RAY26 reflex array sensors create a wide 2D light band to detect small, flat, clear or irregularly-shaped objects with protrusions or leading edges that are just a few millimeters thick.

Where complex configuration of multiple sensors, or costly light grids, might previously have been needed to obtain reliable results, the RAY10 or RAY26 sensors are said to achieve high levels of performance in a fraction of the space and set-up time. Even when products are randomly positioned on a conveyor, have uneven shapes, are shiny, clear, high-contrast, or varied in height or color, SICK's RAY10 and RAY26 sensors claim to deliver consistently reliable detection.

SICK's David Hannaby, said: "The RAY10 and RAY26 are a new proposition for integrating even the most challenging detection tasks."

[www.sick.com](http://www.sick.com)

## Upgrade to smaller three-phase filters

Schurter's FMAD NEO is the company's latest single-stage filter family for three-phase systems with a neutral line. Said to offer high performance in a compact design, the new filter series is ideal for use in today's more portable industrial machines, designed to occupy less floor space in manufacturing plants.

Three-phase control cabinets almost always have severe space constraints. Schurter addresses this problem with a new filter design, which is more compact than older generations to optimize space in the cabinet housing. Filter attenuation remains high, relative to its more compact dimensions.

Models in the new FMAD NEO family supplant Schurter's previous FMAD filters, offering at least identical performance with significantly smaller dimensions and weight.

Typical applications include converters for photovoltaic systems, battery storage units or charging stations for electric vehicles. Filters can be used over a temperature range of -40 to 100°C and are designed for currents from 16 to 230A at 50°C.

[schurter.com](http://schurter.com)



# QUESTIONING your power supply?

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# HOW TO SPECIFY SUSPENSION ARMS

*Suspension arms offer ergonomic mounting for HMI displays and command enclosures in today's smart factory environment but to ensure an effective and hassle-free installation there are some key questions purchasers should ask*

## Enclosures

### 1. What do you need to suspend?

Almost certainly the answer will be a display, probably a touchscreen, but what kind? This matters because a good suspension arm manufacturer should offer a range of panel mounting adaptations designed specifically for leading displays such as Siemens, Beckhoff, B&R and such like. Being able to specify a dedicated panel mounting adaptation as standard saves the time and cost of sourcing a custom component machined to your requirements.

### 2. How heavy is the load?

Today even the smallest displays can be quite large and surprisingly heavy. There is also a world of difference between a basic flat screen that's a few centimeters deep and a large command enclosure such as Rolec's multiPANEL or profiPANEL, which measures up to 31.5 by 31.5 by 11.8in. Arms for light and medium loads tend to be manufactured from aluminum to help reduce weight. Bases, joints and couplings are diecast, while profiles are extruded. For greater strength and weight capacity, specify arms with steel profiles and heavy-duty system parts manufactured from spheroidal graphite material.

### 3. Will leverage affect the payload capacity?

Yes. Don't just consider the dead weight

of the payload — factor in the leverage as well. The longer the arm, the less weight it will be able to support, and the more force will be applied to all the joints, couplings and the mounting point.

Keep arm lengths below one meter if possible. Go beyond this and the arm's payload capacity will diminish rapidly. At 78 inches, your arm will support only half the weight it can at 39 inches — less in some cases.

How you configure your arm will also affect its weight capacity. Deduct 25 per cent if you are using a base and 40 per cent for an intermediate joint. Ask yourself, do you really need that extra joint? Keeping it simple with a straight arm is often the best option.

### 4. How much cable capacity is required?

If you're installing a large amount of HDMI, DVI or network cabling then a bigger arm with greater internal capacity is the best option, even if the display it has to support is quite light. Choosing an arm with wider and deeper profiles also provides the option to upgrade the display to a larger and therefore heavier model at a later stage.

Think also about what will happen to the cables inside when the arm is moved. Look for an arm that offers integrated cable protectors in all rotating elements as standard.

### 5. What technical features are a must-have?

Opt for a modular suspension arm so you can specify the precise combination of bases, joints, couplings and profiles required. The wider the range, the easier it is to select one model that covers all your floor, wall and ceiling mounting requirements.

Smart manufacturers offer technical features that speed installation. For example, Rolec's profiPLUS 50 and profiPLUS 70 suspension arms both offer 'one screw adjustment' which enables the entire system to be adjusted quickly and easily.

Lastly, specify an arm that offers plenty of standard options such as signal lights for joints and elbows, a VESA adapter, or adapters that enable components from one size or model to fit those from another, giving purchasers more choice.

### 6. What is the working environment like?

If your smart factory is a gleaming environment full of technology that wouldn't look out of place in a science fiction movie, a modern, modular support arm such as profiPLUS will match its futuristic aesthetics.

If your factory is a little more traditional, presenting a tough and challenging environment where looks are less of



a priority, it's important to specify equipment that can withstand a more punishing regime. This is where Rolec's Quadro arms score highly.

### 7. How easy is it to customize?

It seems odd to discuss customizing a modular product. You can configure your preferred arm from standard components, so isn't every arm bespoke by definition? Yes and no — there are other customization options available, so it's important to order from a specialist manufacturer.

Some suppliers allow you to configure your suspension arm online and generate a 3D CAD file and/or pdf. They should also offer a sample service so you can assess component quality and suitability. Other options potentially on offer include CNC machining and finishing options such as anodizing, powder coating, wet painting, printing, engraving/laser engraving, and shielding.

Finally, with all these options on offer, purchasers may want to investigate whether their supplier offers a full installation-ready service?

[www.rolec-usa.com](http://www.rolec-usa.com)



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## Hazardous Products

### Specify simple splicing

Wago's 221 series Compact Splicing Connectors now offer an Ex model for increased safety in Ex Zones one and two. This level of protection creates new possibilities for manufacturers of junction boxes, terminal boxes, lights or electronic devices intended for hazardous areas.

221 series Ex Splicing Connectors are available for all conductor types as two-, three- and five-wire connectors, including a 4mm<sup>2</sup> and a 6mm<sup>2</sup> variant for each configuration. Using the Ex's gray lever each clamping point can be easily opened and closed by hand. The connectors can be inserted into Wago's matching mounting carrier or a custom carrier for compliance with the IEC/EN/UL 60079 standard.

Depending on the mounting type, the connectors are approved for working voltages up to 440V in Wago's mounting carrier. Certificates for ATEX, IECEx and American Ex are available for international use.

[www.wago.com](http://www.wago.com)

### Rugged performance, simple operation

Hirose Electric introduces its new EM30M series circular connector, a robust yet lightweight option ideal for wind power generation systems, medical equipment, and factory automation machinery. Connectors feature a push-on bayonet lock plus an IP2X rated specification for contact touch protection against access to hazardous parts.

For ease of use, the EM30M series combines a simple push-on mating process with a bayonet un-mating mechanism. The connector locks with an audible click and to un-mate, users simply twist the sleeve of the plug and pull. The manufacturer states that this combines the benefits of a bayonet locking system — electromechanical security, vibration resistance and positive sealing — with the simple operation of a push-on design.

Constructed from high-quality plastic material, EM30M connectors are said to withstand rough handling for high current applications. Purchasers can also specify either non-waterproof or IP67 waterproof versions, the latter featuring a built-in O-ring capable of withstanding liquid intrusion.

[www.hirose.com](http://www.hirose.com)

### High-temperature connectors facilitate extreme production

Harting's Han High Temp connectors are being used in metal die-casting production systems where their rugged performance helps to reduce line downtime.

Metal casting manufacturers are continually improving their production process and have recently reduced environmentally damaging emissions by changing some of the materials used in the casting process. This has involved adjusting electrical heating processes and as a consequence, higher temperature levels are reached. Using Harting's new Han connectors helps withstand these temperatures and maximizes the lifetime of electrically heated metal sand casting tools.

A non-stick coated high-temperature-resistant rubber bulkhead-side connector seal avoids bonding between the hood and housing, even if connectors are left mated for a number of years. Thanks to a special surface treatment of the aluminum die-cast hoods and housings, Harting has also been able to dispense with potentially detrimental protective coating finishes.

The insulating body and contacts withstand both the high ambient conditions and the additional heat generated inside the housing when under mated load. To achieve this, Harting has selected high-temperature-resistant copper alloy contacts that maintain constant electrical properties when heated. In addition, high-temperature LCP plastic insulators ensure long service life.

As a result, Harting's Han High Temp connectors are able to permanently withstand operating ambient conditions of over 200°C.

[www.harting.com](http://www.harting.com)

### Ruggedized supplies available from stock

Traco Power has released its TIB 480-EX family of 480W DIN rail power supplies designed for harsh environments and hazardous locations with certifications for ATEX I13G and UL HazLoc Class I / Div 2 standards. Products are in stock and available through distributors with manufacturing lead times of 12 to 14 weeks.

Said to bring a new performance level to industrial applications, the power supplies feature: 24 / 48V outputs; efficiency of 95 per cent; and 150 per cent peak power for four seconds. Products are packaged in a rugged metal enclosure that is EN61373 qualified for railway shock and vibration.

All models are safety approved to meet UL/EN 60950-1, UL508 listed, EN 60079-0/-7/-15, ATEX I13G and UL HazLoc Class I, Division 2 with EN55032 Class B for both radiated and conducted emissions.

[www.tracopower.us](http://www.tracopower.us)





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# ARE EVS READY TO GO THE DISTANCE?

*The ratio of EV cars to charging stations is fast approaching a tipping point where users can drive without range anxiety. Mouser Electronics' Robert Huntley, examines some of the factors affecting infrastructure rollout*

Rolling out nationwide electric vehicle charging infrastructure is a critical success factor in speeding EV consumer adoption. EV range is a key selection criterion for prospective EV owners, so state and federal authorities are keen to promote investment and incentives as part of a broader carbon-reduction climate change objective.

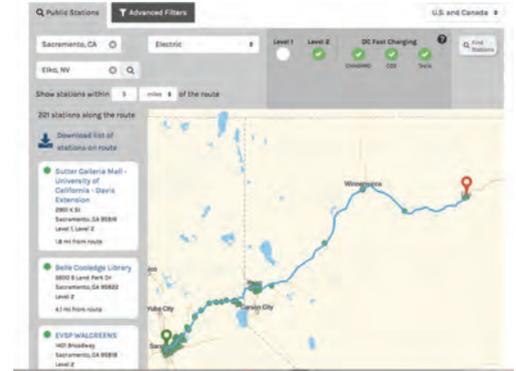
In fact, research conducted over the period January to June 2019 points to a continued year-on-year growth in EV sales across the US. This is good news for the EV industry generally, although dig a little deeper and it seems the growth is solely down to the Tesla Model 3, with other EV brand sales not faring so well. The reason appears to be Tesla's 300+ mile range; the majority of other EV contenders, unfortunately, don't currently come anywhere near that.

There is no doubt EV sales will continue to grow, but it's wise to benchmark the

figures against overall US vehicle sales. In 2017, just over 200,000 EVs were sold in the US compared to overall sales of 17,340,700, making EV sales roughly 1.15 per cent of total vehicle sales.

## What's influencing EV adoption?

For the consumer, there are many considerations when opting for an EV. First, cost has a major influence, with EVs attracting a premium over their internal combustion counterparts. Some of the cost premium may be discounted by rebates or incentives offered at a city, state or federal level, as is the case in some European countries, but these are not always clear and may change without warning. There is also the comparison between filling up with gas and the cost to charge an EV, which can be pretty complex to figure out, leading most consumers to take a more holistic view that buying an EV is the right thing to do for the planet.



AFDC offers a journey planning tool

EV

Overall, the US government is focused on meeting carbon-reduction climate change objectives with incentives to encourage EV adoption, but it has yet to sign up to the rather extreme goal of setting a date after which no internal combustion-based vehicle will be permitted. Vehicle manufacturers also have their own struggles with balancing investment in EV technologies and being seen as a progressive brand with a viable and credible EV portfolio, while continuing to milk the cash cow of internal combustion engine (ICE) sales and offering ongoing support to their legacy customers.

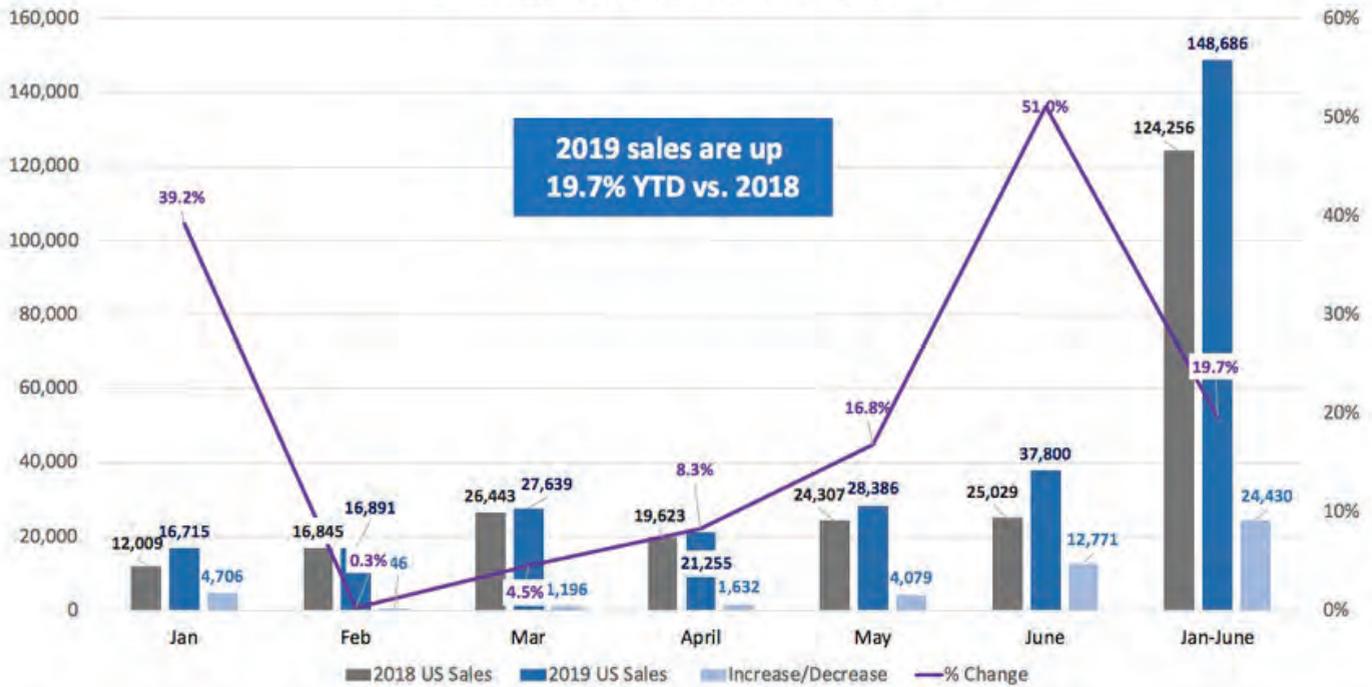
Other factors include the geopolitical complexities of global oil prices. US consumers enjoy a \$4 billion/year subsidy, for example, and with the current \$54/barrel oil price, a significant drop to \$20/barrel would swing the running cost to favor internal combustion engine vehicles. An EV typically has an electricity-dollar rate of

AC Level 1 Charging	AC Level 2 Charging	DC Fast Charging
2 to 5 miles of range per 1 hour of charging	10 to 20 miles of range per 1 hour of charging	60 to 80 miles of range per 20 minutes of charging
 J1772 charge port	 J1772 charge port	   J1772 combo    CHAdeMO    Tesla combo

Various EV charging connectors are in use

## US EV Sales: Jan-June 2019 vs 2018

Data: InsideEVs | Chart: Loren McDonald/EVAdoption.com



January to June 2019 year-on-year US EV sales growth (Source: Loren McDonald/EVAdoption.com)

43 miles, this being roughly a quarter of an ICE-powered car or SUV.

### What is range anxiety?

By far the greatest concern that potential EV consumers ponder is range. The context to this is the availability of charging infrastructure that suits the consumer's choice of EV. Wondering whether your EV can make it to the next charging station can create unnecessary anxiety, not to mention introducing delays to your journey while the vehicle charges.

Many consumers also hope that their chosen EV manufacturer will deploy capital-intensive charging infrastructure across the nation, adding an additional burden for the vehicle manufacturer but also creating opportunities for third-party services with an ongoing subscription model. Some states have made charging infrastructure availability a matter of priority in order to accelerate

EV adoption. This year, California announced a \$2.5 billion initiative to bring five million EVs onto state roads by 2030 and to install 25,000 EV charging points by 2025.

### What standards apply to charging?

To aid multi-agency and commercial charging deployments, the US Department of Energy hosts the Alternative Fuel Data Center, which provides guidelines, specifications and infrastructure sizing tools to help plan charging infrastructure. It also provides an EV journey planning tool.

The AFDC stipulates the AC and DC connector for use in Level 1, Level 2 and DC fast charging methods. For AC Level 1 and 2 charging the J1772 charge port is used, with DC fast chargers utilizing a combination termed the J1772-CCS. While the CHAdeMO connector is popular, already used by

Nissan, Mitsubishi and Toyota, Tesla has created its own connector arrangement used across all its charging options. An additional standard J3068 is in development for extremely high charge rates using three-phase AC supplies. Procurement professionals working on EV charging equipment will find a research report hosted on the DofE website of particular interest when specifying for this future method of rapidly charging EVs.

Looking ahead, the next few years will see the ratio of EV charging infrastructure to EVs pass today's near-unity position. As the many initiatives from EV manufacturers, government authorities and charging infrastructure service providers gather momentum, the industry is set to remove range anxiety from the minds of EV owners.

[www.mouser.com](http://www.mouser.com)

# CHARGING UP FOR THE EV REVOLUTION

*Sales engineer with TTI's transportation unit, Gabe Osorio, reviews the current state of electric vehicle technology and the challenges that must be overcome for EVs to achieve their full potential*



Sales engineer, TTI transportation business unit, **Gabe Osorio**

## EV

For decades, we've imagined the possibilities that electric technology can bring to passenger travel, long-haul shipping and air travel. Today those possibilities are becoming reality with faster, more reliable charging and higher power capacities. However, there are still some hurdles to clear before these technologies become widespread.

Greater availability of charging technology is the biggest need. Despite the success of consumer EV companies like Tesla, which boasts over 13,000 rapid chargers around the US, the high-capacity charging solutions needed for supply chain and logistics applications are still emerging. Bringing the industrial equivalent of Tesla's 30-minute recharge times to larger-scale vehicles remains a challenge.

To meet the needs of large-scale rapid charging, companies like ITT Cannon, Phoenix Contact, Huber and Suhner and

Tesla are designing systems and parts such as liquid-cooled charging inlets and couplers designed to dissipate waste heat from charging. Expanded EV charging will also drive increased demand for the likes of mosfets, current and voltage sensors, resistors, and capacitors. Lastly, high-capacity, fast-charging batteries will need to become not just available, but affordable enough to outfit a substantial number of both new and retrofitted industrial and shipping vehicles.

### EV rollout

Many logistics providers and companies such as Amazon are working with truck manufacturers like Freightliner and Peterbilt to create electric fleet delivery systems.

The benefits of EVs for shipping, distribution and third-party logistics are obvious. Even without government directives to reduce emissions, companies know the environmental

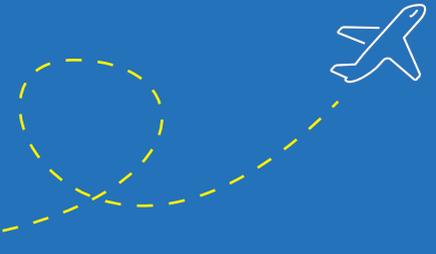
and cost benefits of going electric. They are working with EV retrofitters OrangeEV, Complete Coach Works, Motiv and Cummins Efficient DriveTrains, to convert their current fleets to electric drivetrains. Besides reduced CO<sub>2</sub> emissions, retrofitted vehicles benefit from weight savings, which boost the trucks' range.

We're also seeing the birth of commercially-viable electric aircraft. British carrier, EasyJet, and US-based startup, Wright Electric, made headlines at the 2019 Paris Air Show, announcing electric planes capable of short-haul routes under 300 miles.

As higher-capacity batteries and more efficient charging become the norm, practically every transportation application will be impacted. TTI already sees companies developing EV engines for trucks, recreational vehicles, motorcycles and personal



*British carrier, EasyJet, and US-based startup, Wright Electric, made headlines at the 2019 Paris Air Show, announcing electric planes capable of short-haul routes under 300 miles*



scooters. Electric personal watercraft and off-road vehicles could come next and there are no shortage of manufacturers finding ways to bring dreams to reality.

**Technical challenges**

By 2030, annual demand for EV charging energy in the US is expected to reach 53 billion kilowatt hours. To achieve this will require substantial investment in new infrastructure to deliver power to the warehouses, distribution centers, dockyards and airports where next-generation vehicles will recharge.

Making rapid, high-power charging viable for truck fleets and shipping vessels will require a hard line delivering 400V or more — up to a one kilovolt connection for fleets of electric trucks — as well as the cable, conduit and ancillary systems needed to tie directly into the power grid.

And there are other challenges facing the industry, including a lack of standardization or regulation around EV charging. Industry groups and evolving regulations will alleviate this but until then, it's difficult to know which technologies will become standard. The one sure fact is that new EV technologies are coming sooner than you might expect.

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# FEELING CONFIDENT?

*As the IPC association releases its summer sales figures for the printed circuit board industry, it appears we're still buying boards, but not necessarily placing orders. Could manufacturing confidence be faltering?*

Figures from the IPC's North American printed circuit board statistical program for June 2019 indicate that sales growth remained positive this summer. Bookings, however, tell a slightly different story with orders down and the book-to-bill ratio returning to parity at 1.00.

It's not all negative news: total North American PCB shipments in June 2019 were up 5.5 per cent compared to the same month last year and year-to-date sales growth as of June was 11 per cent. Furthermore, compared to the preceding month, June shipments increased 10.7 per cent.

Bookings in June were also up 3.2 per cent from the previous month, but year-over-year, PCB bookings in June decreased 5.9 per cent, bringing year-to-date order growth down to 2.4 per cent.

Commenting on this turn of events, IPC director of market research, Sharon Starr, commented: "The North American PCB industry continues to enjoy sales growth but at a slowing pace. Order growth has also slowed, with the year-over-year growth rate dipping into negative territory in June for the third time this year. Declining order growth has put downward pressure on the book-to-bill ratio."

## PCB

Looking ahead, she also pointed out: "The fact that the ratios have been at or near parity in recent months indicates that sales growth is likely to slow in the second half of the year."

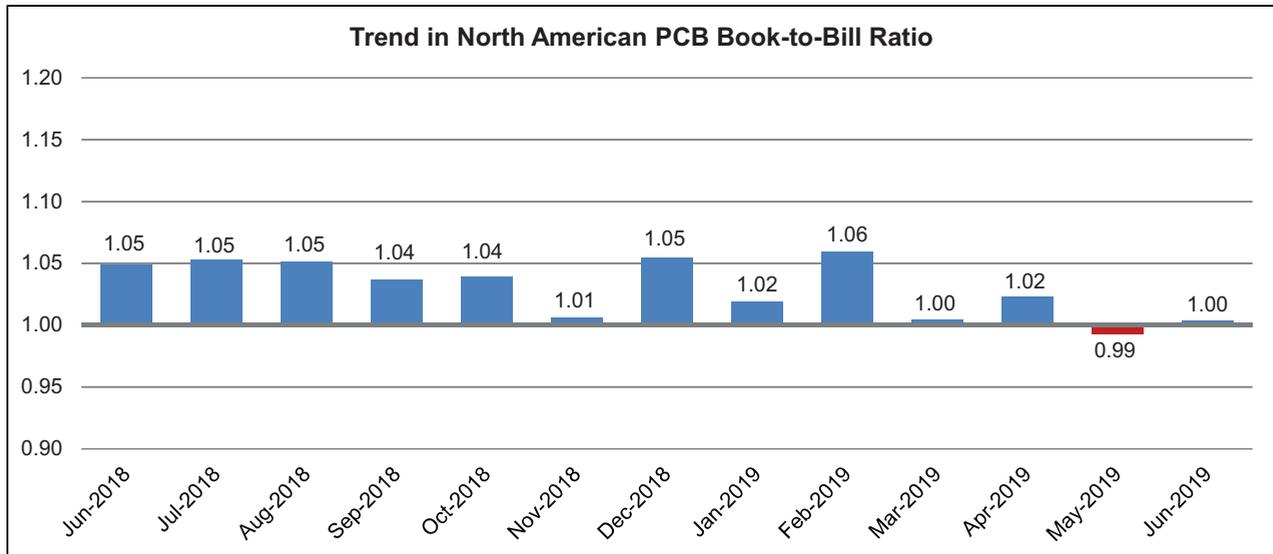
### Why does parity matter?

The book-to-bill ratios are calculated by dividing the value of orders booked over the past three months by the value of sales billed during the same period from companies in IPC's survey sample. A ratio of more than 1.00 suggests that current demand is ahead of supply, which is a positive indicator for growth over the next three to twelve months. A ratio of less than 1.00 indicates the reverse.

Year-on-year and year-to-date growth rates provide the most meaningful view of industry growth. Because bookings tend to be more volatile than shipments, changes in the book-to-bill ratios from month to month might not be significant unless a trend of more than three consecutive months is apparent.

[www.ipc.org](http://www.ipc.org)

PCB orders have slowed



Note: The January 2019 ratio has been revised since its original publication due to updated data from statistical program participants.



What's New

### Looking for protection in tough environments?

New at Bürklin Elektronik, ETA's 3120-N circuit breaker/switch combination offers protection against dust, moisture and other penetrating liquids. This provides an optimum solution for all machines or devices that are used in a humid and dirty environment and also require frequent cleaning. Potential applications range from medical equipment to construction machinery.

To achieve this level of protection, the 3120-N circuit breaker switch features an integrated accordion-style silicon seal rated to IP65. Push-in mounting ensures easy actuation, even when the user is wearing gloves.

The 3120-N thermal or thermal-magnetic circuit breaker also serves as an on/off switch for devices and machines with integrated overcurrent protection. Bürklin claims the device's long lifetime can result in cost-savings.

[www.buerklin.com](http://www.buerklin.com)

### Pre-wired switches are ready to go

E-Switch has announced a new option for its ULV anti-vandal series switches. The ULV4, ULV7 and ULV8 are now available with 300mm long wire leads. Purchasers can order any of the ULV series switches pre-wired off the shelf and ready for installation. This can help eliminate second sourcing, which reduces cost and lead-times. The wire leads are color coded and compatible with a variety of connectors.

ULV series switches are UL certified and IP67 rated for moisture and dust protection. Available in three different panel cutout sizes, the switches are offered in SPDT or DPDT function and boast a long operating life of up to 1,000,000 life cycles momentary and 500,000 latching. All ULV models offer ring lens style and multiple illumination color options.

[www.e-switch.com](http://www.e-switch.com)



### Match LED strips to lighting needs

Ledvance is offering a new portfolio of LED strips for professional lighting tasks. Strips are available in three different categories to cover a variety of requirements. In addition to the LED strips, the portfolio includes LED drivers, profiles for surface or recessed installation, covers and other accessories.

Available in three different categories — superior, performance and value — purchasers can match the range to the application with regard to lifetime, IP rating, light output and distribution. Various color temperatures can be specified ranging from daylight white 6,500 kelvin to warm white 2,700 kelvin, with lumen packages from 300 to 2,000 lumens per meter.

All LED strips are pre-wired on both sides and are said to be easy to shorten if necessary. They also all come as protected and unprotected versions with or without a silicone jacket for protection against dust and water.

For easy specification, Ledvance provides a strip system configurator. Once key data for the lighting project has been entered, the configurator automatically generates a detailed parts list with all required components.

[www.ledvance.com](http://www.ledvance.com)



### Increased data meets industrial demand

Yamaichi has introduced a new connector for 10 Gigabit data transmission, designed to meet demand for higher data rates in the industrial area. The Y-ConPlug CAT6A is a 10Gbit RJ45 cable connector that performs according to the ISO/IEC 11801 standard.

The RJ45 cable connector is designed with integrated cable guide, EMC shielding made of nickel-plated brass and a rectangular cable crimp that prevents cable rotation. The tested life is more than 1,000 mating cycles and the operating temperatures range from -40 to 120°C for extreme operating conditions in the field or plant.

Within the Y-Con RJ45 series, purchasers can also specify additional protection against external environmental influences according to IP69K, IP68, IP67 and IP20. Reliable protective covers made of materials such as PBT or zinc die-cast provide the flexibility to choose the right component for different applications.

[www.yamaichi.eu](http://www.yamaichi.eu)



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