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## productronica 2021

# Electric mobility – the present and the future of the automotive industry

**Currently, and in the years to come, the provisions for reducing CO<sub>2</sub> emissions will lead to an increase in electric mobility of 10% by 2025. A key player in this technological transition is the electronics manufacturing industry. From November 16 to 19, 2021 in Munich, productronica will show what opportunities the electrification of the automotive industry offers the electronics manufacturing industry. VDMA Productronic is an ideal, specialist sponsor of the trade fair.**

The coronavirus pandemic is also leaving its mark on automotive markets. The trend toward electric mobility, meanwhile, has once again picked up significant speed. Especially in Germany, a larger selection of electric mobility solutions together with government subsidies are leading to dynamic growth.

Roland Berger's "[E-Mobility Index 2021](#)" showed that nearly 400,000 electric vehicles received registration approval in 2020 – three times as many as in the previous year. Their share of the total market rose to 12.6% (2019: 2.9%). The German market for electric mobility ranks second in the world behind China.

According to the [German Federal Motor Transport Authority](#), it was also possible to achieve the goal of one million electric vehicles (54% purely electric / 46% plug-in-hybrids) on German roads that had in fact been envisaged for 2020. Now German transport minister Andreas Scheuer (CSU) says the number is to increase to 14 million by 2030.

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### **Private and public charging**

In order to keep pace with the registration approvals of electric vehicles, the [German Association of the Automotive Industry](#) (VDA) claims that the country needs more than a million freely accessible charging points by that time. This is also the case in the “Climate Protection Program 2030” and in the “Charging Infrastructure Masterplan.” In the same period, consulting firm [PwC](#) only expects a demand for “more than 700,000 charging points in public spaces. This is the case even if a lot of charging processes will take place at home (60-70%) and at work (15-25%).” However a [current listing](#) from the Federal Network Agency shows that, as of August 1, only 40,000 slow charging points and 6,750 rapid charging points are in operation.

In order to change this quickly, the Federal Ministry of Transport and Digital Infrastructure (BMVI) is making an additional 500 million euros available by the end of 2025 with the reissued “Publicly available charging infrastructure for electric vehicles in Germany” [support program](#). There are grants for normal charging points with a charging performance up to 22 kW and for rapid charging points with a performance greater than 22 kW, at which it is only possible to charge with direct current (DC). This should result in at least 50,000 charging points (of which at least 20,000 rapid charging points) by the end of 2025.

In order to at least partly solve the problem of private charging, the German government has put an additional €300 million aside for the funding of wallboxes. Applications can be made under the following conditions: The charging station must be supplied with 100% green electricity, have a performance of 11 kW and be controllable in order to avoid overloading the local power grid.

### **Solid-state battery provides hope**

However, a complete charging infrastructure alone won't help against the limited ranges that exist today. High-performance batteries with longer service lives are at least as important. In Germany, they are also currently enjoying the spotlight. Car manufacturers and investors are regularly announcing new battery cell factories. According to the European [Transport & Environment \(T&E\)](#)

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association, there are plans for 38 battery factories across Europe with an investment volume of around €40 billion.

Nearly all of them are relying on established lithium-ion technology. But there is hope for the future in the form of solid-state batteries such as those being developed by Daimler, Volkswagen and Toyota. Compared to the current technologies, they promise twice the range at the same size. The first vehicles, including test vehicles from Toyota and Volkswagen, are already on the way. However, it will be some time before this new type of battery hits the road on a large scale. The analyst firm [Yole Developpement](#) expects the technology to hit the market in 2025 and reach an overall performance of 2.36 GWh by 2027. That's just enough for almost 50,000 electric cars with a 50 kWh battery.

### **Increased range with silicon carbide (SiC) and gallium nitride (GaN)**

But batteries aren't the only lever for increasing the range of electric vehicles. In fact, it is a matter of optimizing the entire powertrain. To that end the Fraunhofer IZM, together with Bosch and Porsche, are developing converters with lower-loss semiconductors made of silicon carbide (SiC) in the "SiCeffizent" project. This makes it possible to achieve an up to 6% larger range. The first mass-produced vehicles are already using the SiC and GaN transition semiconductors, which are superior in terms of power density, longer service life and reliability.

### **Exhibitors at productronica 2021 on the topic of electric mobility**

#### **Manz (Hall B2, Booth 416)**

The globally active, high-tech mechanical engineer supplies intelligent and integrated production solutions for the automotive electronics sector, electrical powertrains and li-ion battery manufacturing for electric mobility.

#### **KOMAX (Hall B4, Booth 263)**

With machines for processing high-voltage cables, the supplier is making an important contribution to the economical production of electric vehicles.

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### **Festo (Hall A3, Booth 343)**

Flexible, intelligent manufacturing technologies for the electrified drivetrain makes processes safer, more productive and more energy efficient.

### **LPKF (Hall B2, Booth 303)**

Thanks to laser direct structuring (LDS), security-relevant components in the automobile industry are becoming smaller and more powerful. Automated manufacturing processes are also making the procedures increasingly attractive from an economic perspective.

### **Viscom (Hall A2, Booth 177)**

Current trends in electric mobility are leading to increasingly heavy electronic components, which has so far prevented testing by inline inspection systems. Viscom has developed a new handling system for assemblies up to 15 kg for power electronics.

### **Hesse Mechatronics (Hall B2, Booth 221)**

A technology with the typical features of the wire bonding process, “smart welding,” has found its way into the field of ultrasonic metal welding. In addition to use in semiconductor power modules, this also opens up advantages for the connection of cell contact systems in batteries.

**More information:** [www.productronica.com](http://www.productronica.com)

#### **productronica**

productronica is the world's leading trade fair for electronics development and production and is supported from a conceptual and technical perspective by the Productronics Association of the VDMA (German Mechanical Engineering Industry Association). 1,544 exhibitors from 44 countries and 44,000 visitors from 96 countries took part in and attended productronica 2019. The trade fair has been held in Munich every two years since 1975 and the next productronica is due to take place from November 16 to 19, 2021. For more information, visit [www.productronica.com](http://www.productronica.com)

#### **productronica worldwide**

In addition to productronica, Messe München organizes productronica China, productronica South China and productronica India. The network of electronics trade fairs also includes electronica in Munich, electronica China, electronica South China, electronica India, SmartCards Expo, electronicAsia and LOPEC.

### **Messe München**

Messe München is one of the leading exhibition organizers worldwide with more than 50 of its own trade shows for capital goods, consumer goods and new technologies. Every year, a total of over 50,000 exhibitors and around three million visitors take part in more than 200 events at the exhibition center in Munich, at the ICM – Internationales Congress Center München, the Conference Center Nord and the MOC Veranstaltungszentrum München as well as abroad. Together with its subsidiary companies, Messe München organizes trade shows in China, India, Brazil, Russia, Turkey, South Africa, Nigeria, Vietnam and Iran. With a network of associated companies in Europe, Asia, Africa and South America as well as around 70 representations abroad for over 100 countries, Messe München has a global presence.