



## **ELECTRIC VEHICLE INFRASTRUCTURE (EVI)**

Connecting the Next Generation of EV Charging Stations

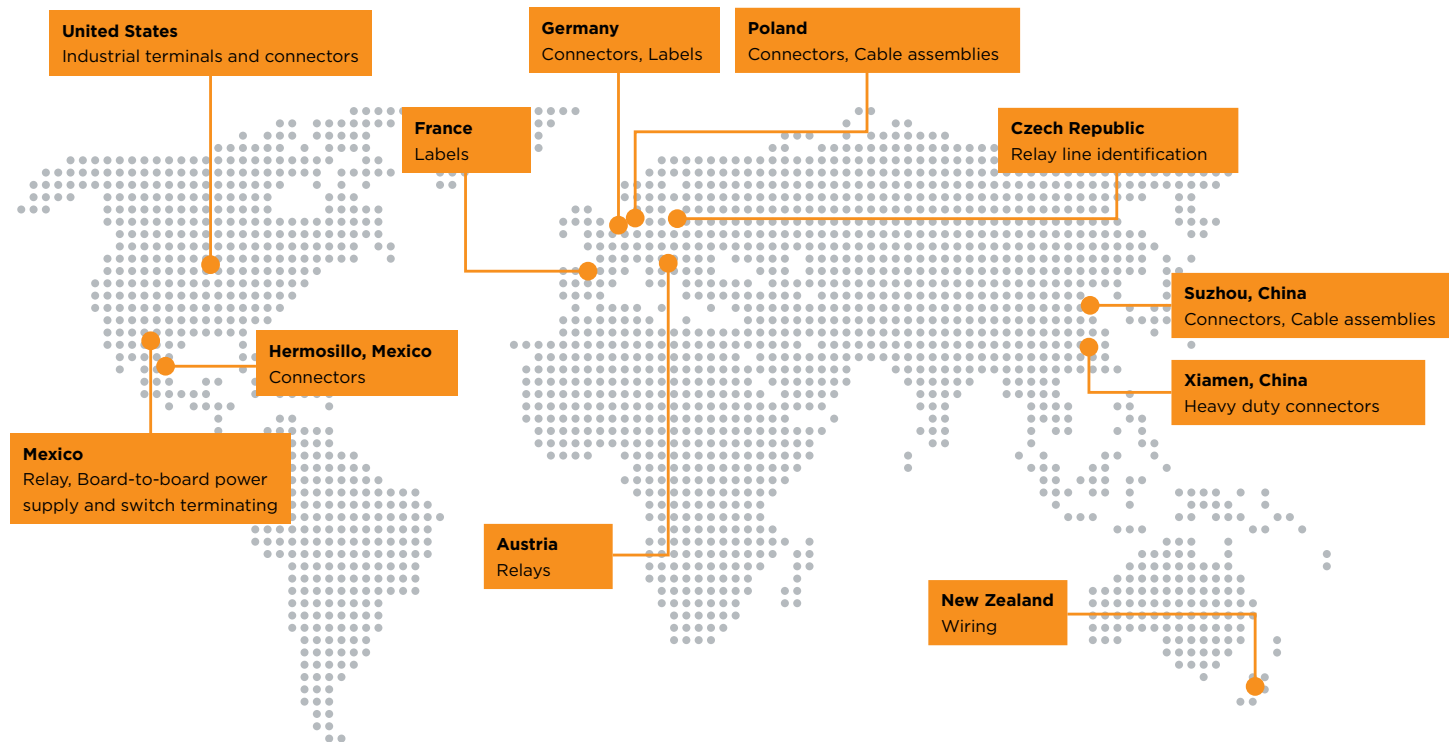
A photograph of a man and a young girl looking down at a small blue toy car on a wooden surface. The man is on the left, wearing a suit and tie, and the girl is on the right, wearing a white top and a colorful beaded bracelet. The scene is warmly lit, suggesting an indoor setting.

# LET'S CREATE CONNECTIONS THAT COUNT.

TE Connectivity (NYSE: TE L) is a \$13 billion world leader in connectivity. The company designs and manufactures products at the heart of electronic connections for the world's leading industries, including automotive, energy and industrial, broadband communications, consumer devices, healthcare, and aerospace and defense. TE Connectivity's long-standing commitment to innovation and engineering excellence helps its customers solve the needs for more energy efficiency, always-on communications, and ever-increasing productivity. With nearly 90,000 employees in over 50 countries, TE Connectivity makes connections the world relies on to work flawlessly every day.

# SAFER, MORE RELIABLE CHARGING CIRCUIT CONNECTIONS

Charging Product Solutions That Are Compatible With Electrical Standards Around the World



TE Connectivity worldwide — our production sites

As a global technical leader in connectors and sensors, TE Connectivity (TE) offers the products and integrated solutions that are precisely engineered to meet the strictest requirements of customers in terms of quality and performance excellence. For more than 60 years, we have maintained a partnership with the leading companies in major markets, such as Germany, Japan, the United States, and China.

TE provides customers with high-quality innovative solutions and fast, reliable services in the fields of automation and control, railways, and intelligent buildings. TE offers products that have demonstrated their superior performances in harsh environments, such as high pressure, vibrations, humidity, and high/low voltage.

With the arrival of Industry 4.0, TE plays a key role in the next level of industrial production and is committed to achieving win-win results with customers.

With TE as an innovative partner, you will find virtually everything you need to create and run a highly cost-effective and reliable production process. We connect materials to final products with smarter, faster, and better technology to cover all the areas of life. To help ensure that each solution is optimized, TE actively rises to every challenge.

Visit [TE.com](https://www.te.com) to call, live chat, or email a product specialist today about your vision and connectivity needs.

# EV MARKET DRIVERS

TE is a connectivity leader for electric vehicle supply equipment because we have the broad portfolio and the expertise to meet the wide spectrum of customers' international AC and DC charging needs.

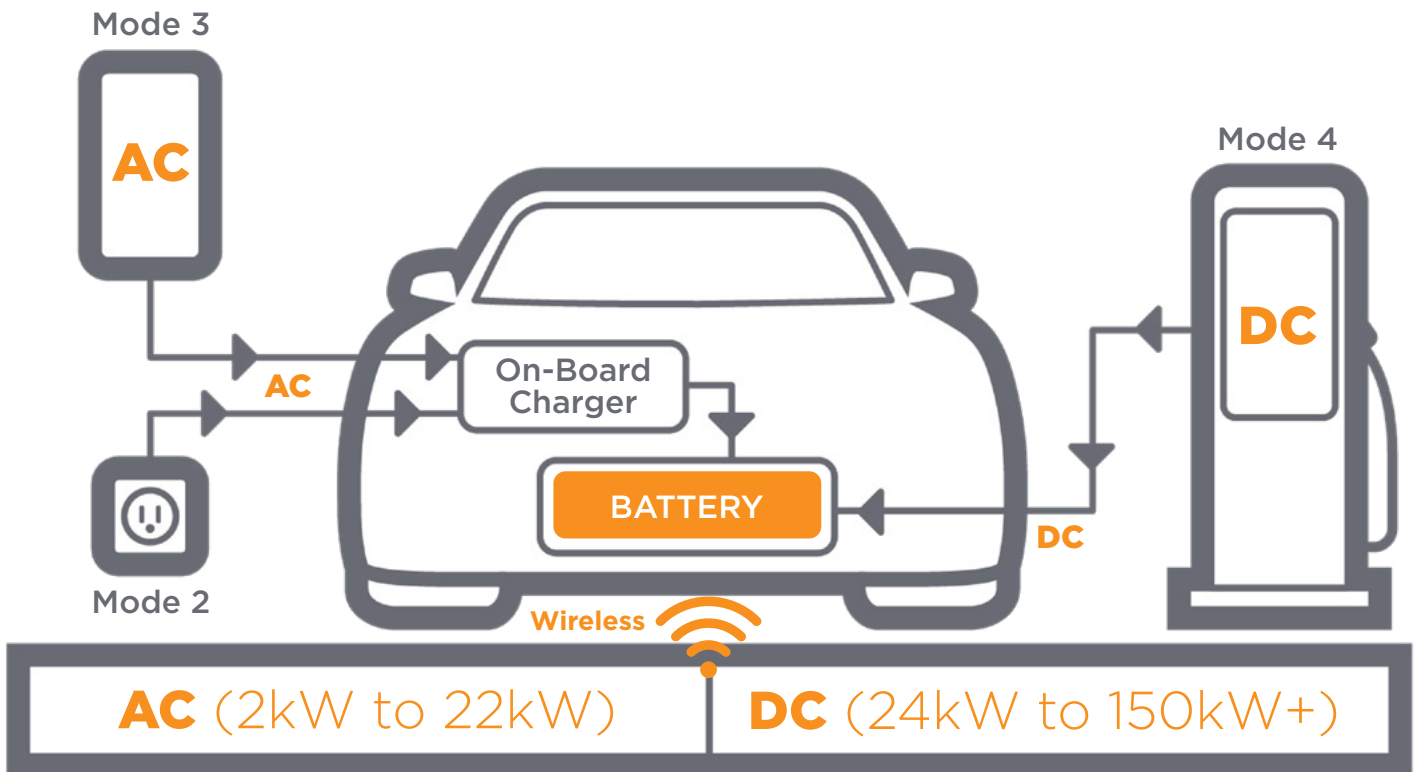
## Developing a changing infrastructure requires safe, smart charging solutions that are:

- Greener, with improved sustainability
- Energy-efficient
- Cost-effective
- Faster-charging and hold their charge for a longer driving range
- More flexible, allowing for connections from a vehicle to the grid
- Standardized

## TE supports you with:

- High-performance relays and contactors that provide a reliable charging circuit design
- Compact high-voltage products that pack more power into less space
- Long electrical switching life and high-quality design so that products are more stable, fail less, and are more reliable in case of emergency
- Broad portfolio of electrical products for all EV charging applications, across a range of power levels
- Focused field-application engineering expertise that supports basically all AC and DC charging infrastructure needs




Looking for industry-leading technology? A safer, more reliable charging circuit connection? Dedicated, engineer-to-engineer EV charging support? **Let's connect.**



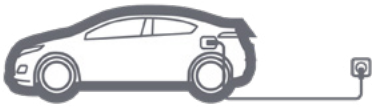





# TE OFFERS A BROAD PORTFOLIO FOR BASICALLY ALL EV CHARGING APPLICATIONS



## USA: EV CHARGING LANDSCAPE

	APPLICATION	CHARGE TIME	VOLTAGE	CURRENT	POWER
	<b>LEVEL 1 (AC)</b> Residential charge via wall outlet	Full charge in 12 hours	120V AC	16A	1.9kW
	<b>LEVEL 2 (AC)</b> Residential or public charging station	Full charge in 2-3 hours	240V AC	80A	19.2kW
	<b>LEVEL 3 (DC FAST)</b> Public charging pile/station	80% charge in 20-30 minutes	200-1,000V DC	50-500A	50-500kW


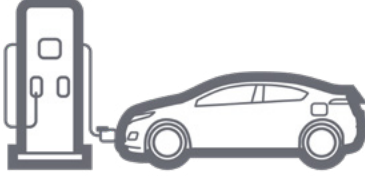
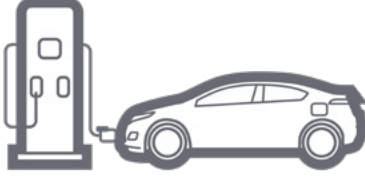

## EUROPE: EV CHARGING LANDSCAPE

	APPLICATION	VOLTAGE	CURRENT
	<b>MODE 1 (AC)</b> Charging via a standard AC socket outlet using a cable and plug with no supplementary pilot or auxiliary contacts	1P: Max 250V 3P: Max 480V	Max 16A
	<b>MODE 2 (AC)</b> Charging via a standard AC socket outlet using a cable and plug with a control pilot function and system for personal protection against shock	1P: Max 250V 3P: Max 480V	Max 32A
	<b>MODE 3 (AC)</b> Charging via a dedicated EV charging cable that is attached to an AC-supplied charging station; includes a control pilot function that extends from the charging station to the EV	1P: Max 250V 3P: Max 480V	Max 63A
	<b>MODE 4 (DC)</b> Charging via a dedicated EV charging cable to a DC-supplied charging station; includes a control pilot function that extends from the charging station to the EV	1,000V 1,500V	—

## CHINA: EV CHARGING LANDSCAPE

	APPLICATION	VOLTAGE	CURRENT
	GB/T 20234 (AC)	AC charging	1P: 220V-250V 3P: 380V-480V
	GB/T 20234 (DC)	DC charging	400V / 750V / 1,000V
			1P: 10A / 16A / 32A 3P: 16A / 32A / 63A
			80A / 125A / 200A / 250A / 400A

## JAPAN: EV CHARGING LANDSCAPE

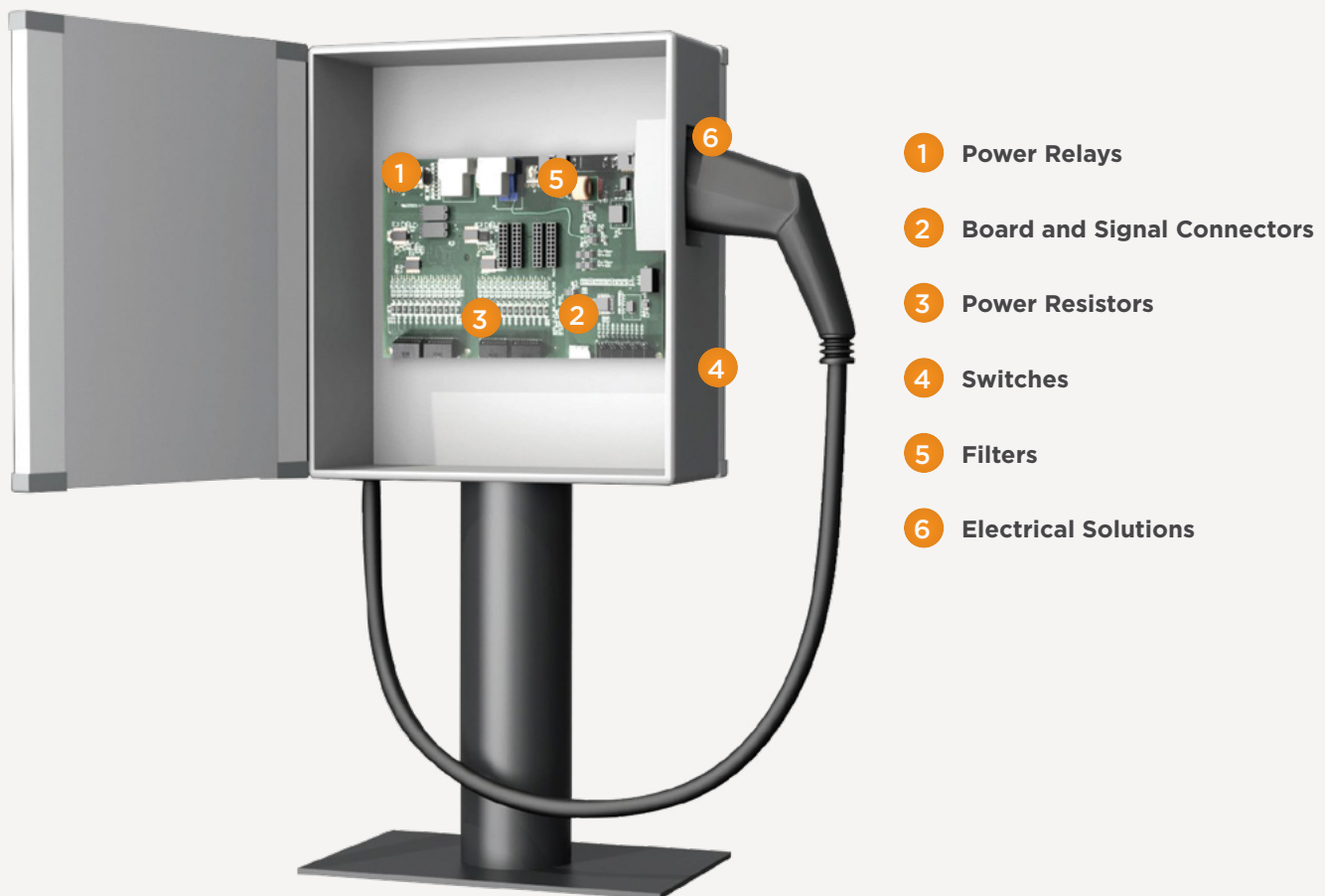
	APPLICATION	VOLTAGE	CURRENT
	JARI (AC)	AC charging	Less than or equal to 240V AC
	CHAdeMO 0.9 / 1.0 / 1.1 (DC)	DC charging	Max 500V
	CHAdeMO 1.2 / 2.0 (DC)	DC charging	Max 1,000V
	CHAdeMO 3.0 (DC)	DC charging	Max 1,500V
			Less than or equal to 80A
			0-125A
			200-400A
			400-600A

# APPLICATION SOLUTIONS FOR EV INFRASTRUCTURE

The rapid, global growth of electric vehicles has created the need for a faster, safer, smaller, and more flexible charging infrastructure. TE's broad portfolio of EV charging products can help you address the challenges of designing and building the next generation of charging stations and EV charging infrastructure.

## AC CHARGING

Alternating current (AC) units are an economic and effective option that can be installed with great flexibility. TE offers several relay and connection solutions for AC charging stations that demonstrate excellence in space utilization, device performance, and safety protection.



## DC CHARGING

Direct current (DC) charging stations provide a quick charge in as little as 30 minutes. TE's DC charging station connector handles both high-power output and wide-range current capability, providing solid protection for the fast-charge mode. In addition, TE meets required DC charging safety standards for the vehicle interface and the charging interface, maximizing the development capabilities of charging pile companies.





# POWER RELAYS

TE's power relays are designed for the main switch function in AC charging stations.

## YOUR NEEDS:

- Charging stations with higher requirements for current, temperature, and voltage
- High switching capability and reliability to ensure electrical safety
- Long electrical lifetime
- Energy savings

## TE PRODUCT SOLUTIONS

AC



### T92/T92H POWER RELAYS

The Potter and Brumfield portfolio is widely used in charging guns and charging stations with strong capability at rated current 30-50A.

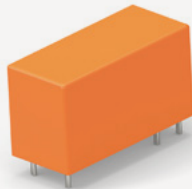
AC



### T9V POWER RELAYS

Switching current up to 40A and nominal voltage up to 277V AC

AC

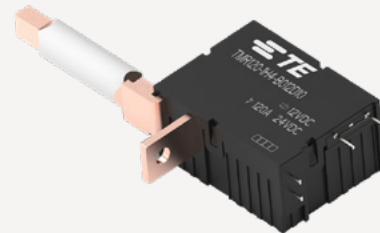


### RTH POWER RELAYS

1 pole 16A/20A, 1 form C (CO), or 1 form A (NO) contact

AC

DC



### EW/TOU/TMR POWER LATCHING RELAYS

Rated for 60-120A current and 277V AC or 24V DC

# DC CONTACTORS

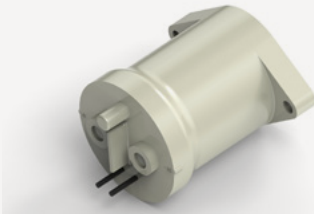
TE's DC contactors are designed for power distribution, main switch function, and unit control in DC charging stations.

## YOUR NEEDS:

- Requirements for high input voltage and large output current
- Superior control and solid protection for fast-speed charge mode
- Electrical safety and effectiveness/switching capability and reliability

## TE PRODUCT SOLUTIONS

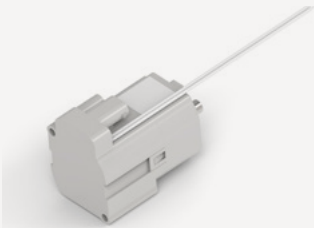
DC



**IHV100 DC Contactor**



**IHV200 DC Contactor**



**IHV350 DC Contactor**

### **IHV SERIES DC CONTACTORS**

Broad portfolio with rated current 50–350A and hermetically sealed

DC



**ECK150 DC Contactor**



**ECK200 DC Contactor**



**ECK250 DC Contactor**

### **ECK SERIES DC CONTACTORS**

With rated switching current at 150A, 200A, and 250A, and a maximum switching voltage at 1000V DC

# BOARD AND SIGNAL CONNECTORS 1

TE's board and signal connectors are specially tailored to meet wire-to-board signal and power connections in a small space.

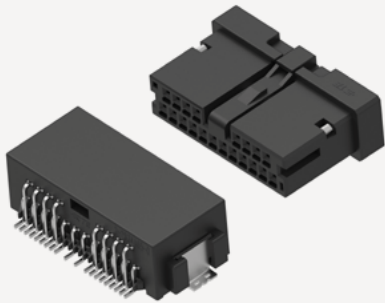
## YOUR NEEDS:

- Reduced installation and maintenance time
- Compact design that saves space
- High electrical reliability
- Efficient, reliable, and safe connections

## TE PRODUCT SOLUTIONS

AC

DC



### DYNAMIC MINI SERIES CONNECTORS

Lowest profile in the Dynamic Series connector family with a header height of just 8.7mm

AC

DC



### D1000 SERIES CONNECTORS

Rugged housing and high retention force design to create rugged connectivity

AC

DC



### D3000 SERIES CONNECTORS

Pin layout comes in three types and the 3-contact-point design provides high reliability in real-world environments

AC

DC



### D5000 SERIES CONNECTORS

Designed for a safer and more reliable power connection and can carry up to a 45A current

# BOARD AND SIGNAL CONNECTORS 2

TE board and signal connectors are designed for board-to-board and discrete wire or ribbon cable signal connections to the PCB.

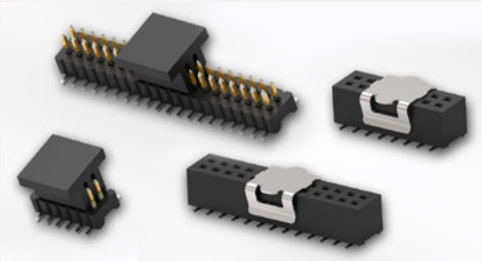
## YOUR NEEDS:

- Small size to occupy as little space as possible on the PCB
- Reliable performance for signal transfer
- Flexible board-to-board and wire-to-board applications
- Overall solution must be cost-effective

## TE PRODUCT SOLUTIONS

AC

DC

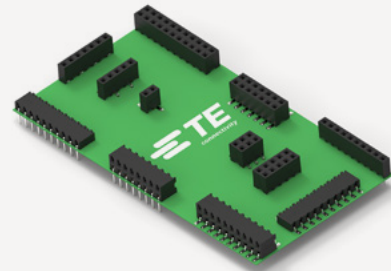


### AMPMODU SMALL CENTERLINE 1MM CONNECTORS

Offers 85% space savings on PCB with 1mm centerline compared to 2.5mm (0.1 inch) connectors

AC

DC

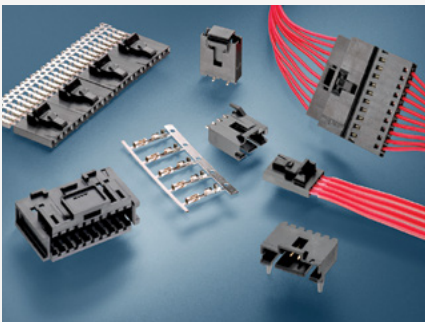


### AMPMODU 2MM CONNECTORS

Detent latch and positive latch options for wire-to-board locking

AC

DC

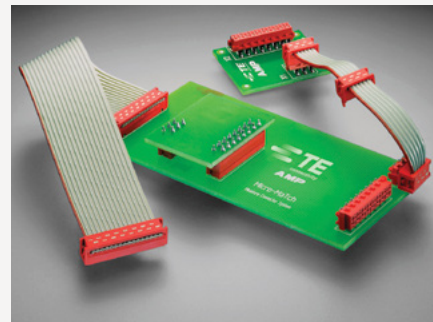


### AMPMODU MTE CONNECTORS

Assembly design offers latching and polarization

AC

DC



### MICRO-MATCH FLAT CABLE CONNECTORS

Contact design for high vibration tolerance helps reduce fretting corrosion

# POWER RESISTORS

TE power resistors are flexible and customizable for a variety of DC applications, including pre-charge, discharge, and brake.

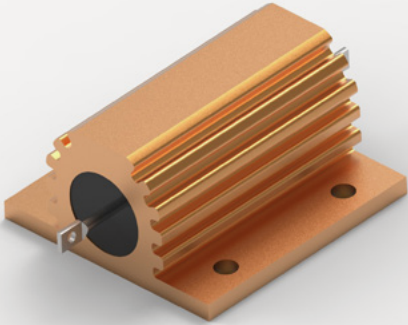
## YOUR NEEDS:

- High pulse resistance
- High power density, 25 times standard power rate for short-time overload
- Save space without sacrificing power
- High voltage resistance and high reliability
- High heat dissipation capacity

## TE PRODUCT SOLUTIONS

**AC**

**DC**



### HS SERIES RESISTORS

A range of stable, high-quality wire wound resistors capable of dissipating high power in a limited space with relatively low surface temperature

**AC**

**DC**



### SQ SERIES RESISTORS

A range of stable, high-quality wire wound resistors capable of dissipating high power in a limited space with relatively low surface temperature



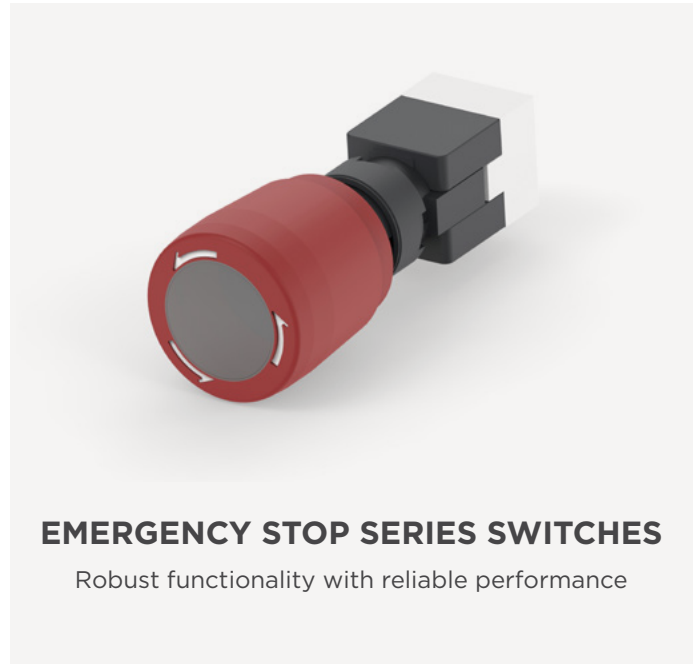
# SWITCHES

TE's robust design gives customers a reliable switch in their application.

## YOUR NEEDS:

- A robust switch
- Variety of LED options in terms of voltage, logo, and color
- Waterproof and IP67 qualified
- Basic function to provide piezo and capacitor functions
- Safety shut-off
- Ease of use

## TE PRODUCT SOLUTIONS




# CORCOM EMI FILTERS

TE offers a wide range of single- and three-phase EMI filters to help reduce the EMI noise within your AC/DC converter in the DC charging station.

## YOUR NEEDS:

- High performance for EMI reduction
- Flexible assembly options for different requests
- Certified product

## TE PRODUCT SOLUTIONS



**Q Series**

**EMC Series**

**CORCOM EMI FILTERS**  
Specifically developed for switching power supplies



**AHV**      **KEM**

**KEV**

**KEP**      **KEH**

**APS Series**      **APH**

**CORCOM 3-PHASE POWER FILTERS**  
Reduces unwanted EMI noise within the conducted area

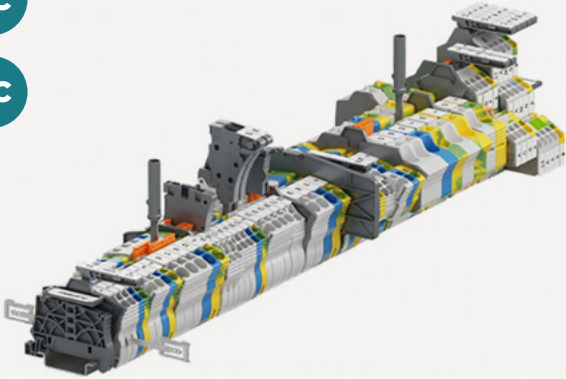
# TERMINAL BLOCKS

TE's terminal blocks are designed for power distribution in DC high-power public charge poles.

## YOUR NEEDS:

- Compact design
- Modular design to allow for easy installation and flexible use in applications
- Qualified for use in harsh or severe environments
- Meet global certifications and standards

## TE PRODUCT SOLUTIONS




**AC**

**DC**

### ENTRELEC TERMINAL BLOCKS

Compact and easy to install; broad portfolio of terminal blocks with wide array of options, including screw, spring, IDC, stud, spring-loaded, quick-connect, and pluggable



**AC**

**DC**

### ENTRELEC DBL POWER DISTRIBUTION BLOCKS

Three configurations in one product: single pole, multipole splitter, grouping for solar

# ELECTRICAL SOLUTIONS

TE provides critical connectivity and reliability where you need it most — in terminal wires.

## YOUR NEEDS:

- Long-term experience in terminals and splices applications
- Special products dedicated to niche applications

## TE PRODUCT SOLUTIONS

AC

DC



### SOLISTRAND TERMINALS AND SPLICES

Available in wire sizes from 26AWG to 600MCM

AC

DC

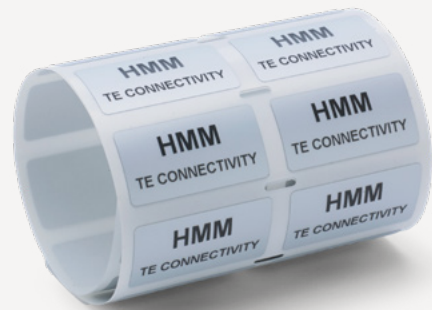


### PIDG TERMINALS AND SPLICES

Pre-insulated diamond grip terminals and splices designed for uniform reliability in the most difficult circuit environments

AC

DC



### IDENTIFICATION AND LABELING SOLUTIONS

Designed for rigorous indoor or outdoor use

## CONNECT WITH US.

Get Answers to Your Questions Now.

We make it easy to connect with our experts and are ready to provide all the support you need, including:

- [Electric vehicles and connected transportation trends](#)
- [Product comparisons for your project](#)
- [Product samples or downloadable virtual sample kit](#)
- [Discussions with TE engineers and product experts](#)
- [Project consultations](#)
- [TE design resources and tools](#)

---

### te.com

©2023 TE Connectivity. All Rights Reserved.

TE Connectivity, TE, TE connectivity (logo), EVERY CONNECTION COUNTS, PIDG, AMPMODU, ENTRELEC, POTTER & BRUMFIELD, SOLISTRAND, CORCOM and MICRO-MATCH are trademarks owned and licensed by TE Connectivity. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

2RM 01/23

### BROCHURE

TE Connectivity  
1050 Westlakes Drive  
Berwyn, PA 19312  
Tel +1 610.893.9800