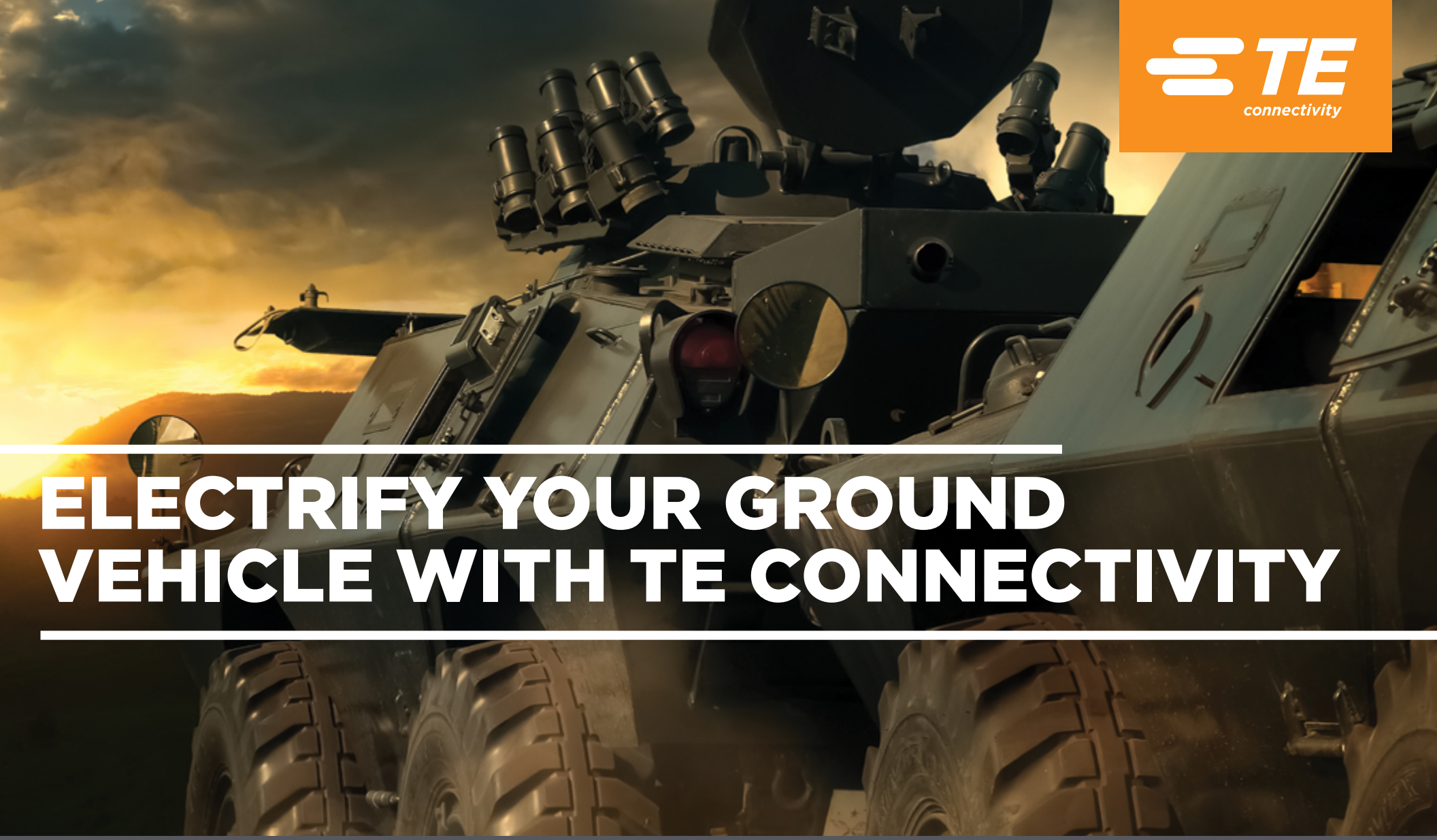

ELECTRIFY YOUR GROUND VEHICLE WITH TE CONNECTIVITY

PRODUCT SOLUTIONS FOR ELECTRIFIED GROUND VEHICLES

As advances in technologies for the electrification of powertrains progress, design engineers need to respond with high performing products, to empower the next generation features of military ground vehicles.

Capabilities like silent mobility, zero or reduced emissions, and off board power, require ruggedized, high power connectivity solutions to military standards.

See how TE Connectivity's (TE) product solutions enable hybrid and electric e-drive systems for military ground vehicles.

HIGH PERFORMANCE RELAYS

CII Mil Spec Qualified Electro-Mechanical Relays (5A – 25A)

FCA-150 Series
- **Voltage Rating:** 28 VDC
- **Continuous Current Rating:** 50 A
- **Contact Form:** SPST-NO (Form X), Closed Version (Form Y))

The FCA-150 series is a polarized, single pole, side stable relay, with a clever design that results in appreciably increased contact force in both states over that of a spring return non-polar design.

It meets MIL-PRF-6106 requirements and has a minimum mechanical life expectancy of 50,000 cycles under resistive load.

CII and DRI Mid-Range Relays DRI Sockets for Hermetically Sealed Relays

5 to 50 A Relays in Compact or Standard Size Cases
- Balanced force design with permanent magnet drive
- Terminal styles include socket pins, solder pin PCB terminals, and solder hook terminals
- Numerous mounting options
- Hermetically sealed, welded construction
- MIL-PRF-6106 and MIL-PRF-83536 qualification products available

HARTMAN Lightweight 28 VDC Contactors

- Main contact ratings to 1000 A
- Available with a variety of auxiliary contact arrangements
- SPST and SPDT main contact forms
- Standard, reverse current, and automatic dropout types
- Hermetically or gasket-sealed IP67 models in conventional or bus bar mounting versions

HARTMAN Smart Current Sensor

HARTMAN smart current sensor allows the user to maintain its trip curve throughout the temperature range while giving both current status and trip status of the system. If desired the user also has the ability to disable the trip curve.

This sensor offers the following trip curve features:

- 200 AMP thermal breaker trip times
- 300 AMP thermal breaker trip times
- 400 AMP thermal breaker trip times
- Reverse load detection/trip
- Turn off thermal breaker

WIRE AND CABLE

Raychem Highly Flexible Power Cable FDR25S

TE's highly flexible cable FDR25S is designed to be bent and routed in extremely tight areas and to reduce strain on cable terminations.

The need for a combination of high-temperature and high-performance in cable insulation has become a critical factor in today's platforms.

FDR25S properties include:

- Lightweight 1000 V, -55°C to +130°C rated
- Highly flexible with very small bend radii
- Outstanding chemical and fluid resistance
- Used in compartments exposed to hot diesel fuels and vibration
- Radiation crosslinked insulation material offers excellent low and high temperature flexibility in harsh environments
- Highly flame retardant, mechanically tough
- EMI and EMP shielded versions available

HIGH VOLTAGE CONTACTORS

KILOVAC K250 High Voltage DC Contactor
- **Contact Voltage Rating:** 1000 VDC Max
- **Contact Current Rating:** 250 A
- **Contact Form:** Form X (SPST-NO)

- Hermetically sealed, offering bi-directional power switching capability
- Suited for Ground Vehicle Power Systems

Additional key features include an electronic coil economizer for low power holding capability, as well as auxiliary contacts in a smaller size, lighter weight package. They are capable of operating in harsh, explosive environments without oxidation or contamination of contacts even in long periods of non-operation.

KILOVAC EV100 Series Contactor
- **Contact Voltage Rating:** 5-600 VDC
- **Contact Current Rating:** 100 A
- **Contact Form:** Form X (SPST-NO)

KILOVAC EV100 DC contactors are low-cost, 600 VDC, 100 A hermetically sealed contactors that feature an economized coil for low power consumption between 9 and 36 VDC. They are capable of operating in harsh, explosive environments without oxidation or contamination of contacts, even in long periods of non-operation.

KILOVAC K1K Contactor
- **Voltage Rating:** 1000 VDC
- **Continuous Current Rating:** 1000 A
- **Contact Form:** Form X (SPST-NO)

As one of the smallest, lowest cost, hermetically sealed switching devices in the industry in its class, the K1K contactor operates reliably in harsh and explosive environments without oxidation or contamination of contacts. The K1K is used for power switching as low as 5 VDC and as high as 1000 VDC. Applications include main disconnect contactor for large battery banks, for carry and interrupt battery fault currents, motor control circuit Isolation and more.

KILOVAC CAP202 Contactor
- **Contact Voltage Rating:** 12-900 VDC
- **Continuous Current Rating:** 300 A
- **Contact Form:** Form X (DPST-NO)

KILOVAC CAP202 series contactors are a bottom mounted two-pole, single-throw hermetically sealed devices capable of handling 350 A per pole over a voltage range of 12 to 900 VDC. Hermetically sealed. For harsh environments, often used in high voltage power distribution and power motion control applications.

KILOVAC LEV100H DC Contactor
- **Contact Voltage Rating:** 1000 VDC
- **Contact Current Rating:** 100 A
- **Contact Form:** SPST-NO

Designed for harsh environment and load applications, these contactors offer extremely high performance for its small size and low weight, and are among the smallest in class. Hermetically sealed, they can withstand the most harsh battery storage and power distribution systems. The 8kV isolation between open contacts makes these contactors ideal for high-voltage (HV) isolation and carry applications.

KILOVAC KHR500 Contactor
- **Voltage Rating:** 28-1000 VDC
- **Continuous Current Rating:** 600 A
- **Contact Form:** SPST (1 Form X) AUX: SPDT (1 Form C)

KILOVAC KHR500 contactors are smaller and lighter than our previous version high-voltage contactors. Capable of handling inrush currents as high 4000 A, the contactors are hermetically sealed for use in hazardous or explosive environments. Because it is not polarity sensitive, the contactor allows bidirectional load switching. An integrated coil economizer reduces the power required to hold the contacts closed to 320 mA at 24 VDC.

KILOVAC LEV200/EV200 Contactor
- **Voltage Rating:** 12-900 VDC
- **Continuous Current Rating:** 500 A
- **Contact Form:** SPST-NO/NC/Latching

Similar to the EV100 series, and designed to be a cost effective sealed contactor, the EV200 contactor is hermetically sealed, operating at much higher contact current, capable of operating in harsh, explosive environments without oxidation or contamination of contacts, even in long periods of non-operation.

KILOVAC KCS01 Current Sensing Contactor
- **Voltage Rating:** 600 VDC Max
- **Contact Current Rating:** ±100 A
- **Contact Form:** 1 Form X (SPST-NO) w/AUX

KILOVAC Current Sensing contactors eliminate the need for a discrete current sensor, saving the customer money, weight and making them extremely small. The sensor function also has a programmable trip feature. The KCS01 is EMC compliant with no radiated coil emissions, and are rugged and hermetically sealed for operation in harsh, corrosive and explosive environments. They are also mountable in any orientation.

KILOVAC KCS03 Current Sensing Contactor
- **Contact Voltage Rating:** 600 VDC Max
- **Contact Current Rating:** ±600 A
- **Contact Form:** 1 Form X (SPST-NO) w/AUX

KCS03 contactors are rugged and hermetically sealed, making them suitable for a variety of applications in harsh, corrosive and explosive environments. Even after long periods of non-operation, the contacts are impervious to oxidation and contamination. It features bidirectional switching and an integrated dual-coil electronic economizer with internal coil suppression, and can be mounted in many orientations. Main contacts are not polarity sensitive, and the KCS03 is EMC compliant with no radiated coil emissions.

CONNECTORS

POLAMCO Power Connectors

Easily and reliably carry 400 to 1000 amps in 38999-style connectors designed for high-vibration environments. POLAMCO power connectors are offered with crimp termination for wires from 50 mm^2 to 240 mm^2 or threaded versions for direct connection to bus bars or cable lugs. Options include extended shell lengths for easy penetration of vehicle bulkheads and straight and 90° outlet options.

POLAMCO Circular Backshells

Circular backshells for environmental sealing, electromagnetic interference (EMI)/ radio frequency interference (RFI) shielding and effective strain relief used in rugged applications worldwide.

TE supplies a comprehensive range of circular POLAMCO backshells that can assist in providing effective strain relief, environmental sealing and electromagnetic interference (EMI)/radio frequency interference (RFI) shielding, helping you meet today's challenges in demanding environments, across many market sectors.

Snap-Lug Power Connectors

Snap-Lug vibration-resistant connectors feature a locking connection that simply snaps on with tactile feedback and unmates with a press-to-release latching mechanism. With tool-less installation and no nuts to tighten, the connector saves labor and space. Color coding and keying help ensure correct polarity, the connectors can handle up to 375 A.

DEUTSCH 38999 Series III Connector

DEUTSCH DTS Series and ACT Series are the standard circular connector for use in harsh military and aerospace environments High density layouts with up to 187 data connections and power contacts rated up to 23A. They feature a triple-start coupling with anti-decoupling ratchet for high vibration applications, grounded plug for highly reliable EMI shielding and 100% scoop proof contacts for blind-mate coupling. They are qualified to stringent MILDTL- 38999 specifications.

DEUTSCH 38999 Series I Connector

DEUTSCH DJT Series connectors are versatile military specific approved connectors that offer 57 insert arrangements across 9 sizes, utilizing 2 to 128 contacts and power contacts rated to 23A, whilst tooled and qualified to MIL-DTL-38999 Series I. Designed for rugged reliability, DEUTSCH DJT Series connectors are highly durable, capable of 500 mating cycles. They provide excellent vibration, corrosion and shock resistance, and offer excellent EMI protection and shielding effectiveness from 100 MHz to 10 GHz.

DEUTSCH Filter Connectors

DEUTSCH filter connectors from TE provide the high-performance to counter conducted electromagnetic interference and maintain signal integrity, helping to prevent EMI generated within the enclosure from being conducted outside, and helping to prevent noise from elsewhere from being conducted into the box

Placed at the input/output point of an electronic component, DEUTSCH filter connectors use low-pass filters to reduce the level of conducted EMI from sources such as radio transmitters, radar systems, load switching, etc. The filters allow power and control signals to pass while attenuating EMI.

COPALUM Lite Connectors

COPALUM Lite sealed terminals and splices feature the time-tested dry crimp technology that has provided 30 years of reliable connectivity to the commercial aerospace industry. The new optimized design provides a weight reduction of up to 60% over copper and drop-forged lugs.

The terminal's perforated insert in the crimp barrel penetrates aluminum oxides on the conductor to form a long-lasting, oxide-free termination. The single crimp process also eliminates the need for a second crimp for wire sealing. Weight savings originate from the lightweight aluminum alloy, optimized wall thickness, and short barrel length.

HVP800 Connectors

Designed for hybrid and electric vehicles, HVP800 connectors safely transport up to 250 A from a battery to the inverter and e-motor. The sealed, touch-proof 2 or 3-position connectors feature integrated internal high-voltage interlock loop function and EMI shielding compliant with no radiated coil emissions.

Power Tube

A modular system designed for high power, high vibration applications while realizing reductions in assembly time and simplified routing thanks to its circular design. Offers wire sizes from 35-150 mm^2, with headers in two orientations (90° and 180°), as well as the capability of mounting up to 3 pins on the header side. Accepts shielded or unshielded cabling, and is rated for 500 A per connector system at up to 1000 V, depending on wire size and system temperature. Safety features such as HVIL for each pin, as well as CPA, to ensure dependable performance according to ISO 16750-3 standard, with IP6K9K water and dust ingress protection ratings.

New IPT-HD Power Bolt Bolted Solution for Hybrid and Electric Mobility Solutions (HEMS)

Complying with ISO and LV standards, the new IPT-HD power bolt bolted high-voltage connector offers an new shielding design, providing low-contact resistance and thicker options for conductor cross-sections used in MCU (Motor Control Unit), e-axle and e-motor applications for renewable energy vehicles operating in demanding environments. Providing low-contact resistance—even after the vibration—with 1- ,2- and 3- position, the IPT-HD power bolt connector can be used in environments exposed to extreme temperatures (-40° to 140°) and excessively high engine-level vibrations.

With an ever-increasing demand for low-contact resistance and flexible assembly options for a wide range of diverse applications, the IPT-HD power bolt series comes in 50 mm^2 and 70 mm^2 conductor cross-sections, with a 95 mm^2 option available soon. In addition to the traditional integral wiring harness assembly and an easy machining process for mounting holes, the IPT-HD power bolt series provides a separate, single wiring harness for increased assembly flexibility.

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