E-T-A®
ENGINEERING TECHNOLOGY

Transportation Product
Overview

Transportation
Product Range

E-T-A products for the Transportation industry provide reliable components and value-add assemblies designed to reduce down time and associated costs while providing cost effective new technology solutions. E-T-A products have a reputation for quality and reliability, backed by six decades of experience in the design and production of circuit protection devices. E-T-A is also a trusted provider of Control Systems and value-add assemblies to many of the major transportation manufacturers.

Thermal Circuit Breakers

E-T-A offers a variety of mounting and reset features (SAE Types 1, 2, 3 & 3H) for the Transportation industry, designed to accommodate designer needs for reliable, space saving breakers. E-T-A products are applied in a wide variety of vehicle controllers and power distribution units and are directly interchangeable with most fuses. Primary applications are in the automotive, heavy truck and bus, and specialty vehicle platforms.

High performance Circuit Breakers

E-T-A's High Performance Circuit Breakers are ideal for applications where extreme reliability, robust design and specific trip curves are necessary. These products are standard on many different high reliability transportation applications (Military, Aerospace) where safety is critical.

Solid State Relays

E-T-A Solid State Relay (SSR) products are based on leading edge technology where high reliability, millions of operations, application flexibility, resistance to dust and vibration, noise reduction and the need for extra functionality are necessary. E-T-A SSR relays are a direct replacement for standard Electromechanical relays. Applications of E-T-A SSR's include control of LED lighting circuits, programmable time delays and shutoff timing circuits, low and High power switching , and limited I/O capability and controls.

Power Relays

The E-T-A Power Relay product portfolio is designed for reliable switching of high Amp applications (up to 300 Amps) where size, reliability and smart packaging are needed. The HPR product has additional functionality like time delays, under/over voltage protection, automatic disconnect or reset. Application of E-T-A Power Relays is in most Transportation vehicles where Power Management is critical.

E-T-A Product Applications
In The Transportation Industry

Passenger Cars

Trucks

Buses

ConAg

Specialty Vehicles

Rail

Advantages of
Circuit Breakers

Circuit breakers have many advantages compared to blade fuses:

Maintenance-free
Unlike blade fuses circuit breakers are maintenance-free in the event of a failure. This provides ease of handling and significantly reduces costs over the entire life span.

A wealth of type configurations
Depending on the application, E-T-A circuit breakers are available with various reset features (SAE types 1, 2, 3 & 3H). Select the ideal product for any application:

- *Auto-reset (TYPE 1):* circuit breaker resets automatically as soon as the short circuit or overload has been remedied
- *Modified reset (TYPE 2):* circuit breaker resets by switching the ignition on and off
- *Manual reset (TYPE 3):* circuit breaker is reset by actuating its reset button
- *Additional manual release facility (TYPE 3H):* manual disconnection of the circuit for maintenance or service works or a longer downtime or transportation of the machine

Clear visual status indication
Even in a crowded fuse box, the tripped circuit breaker is easily identified because of its protruding reset button.

Reduced Downtime
In the event of a tripped circuit breaker, the user can easily reset the breaker and continue working. Deadlines can be met without losing time.

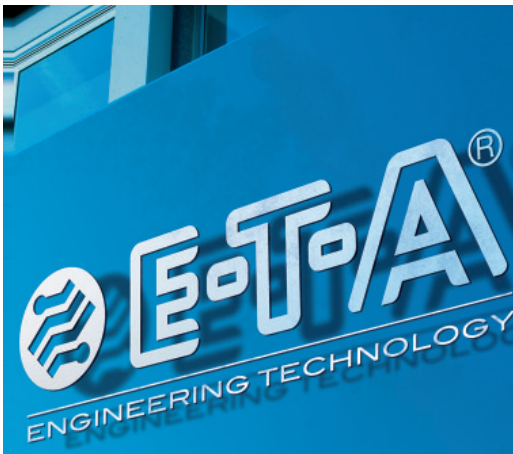
Enhanced safety
Blown fuses are often replaced by unsuitable, but available, fuses with a different rating or even bridged by inappropriate substitutes. These hazards are eliminated by using resettable circuit breakers.

User-friendliness
Automatic reset operation makes E-T-A's circuit breakers suitable for inaccessible locations since they do not have to be actuated nor replaced.

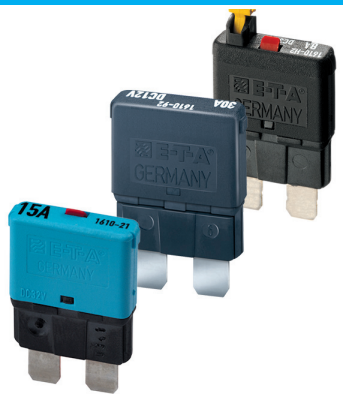
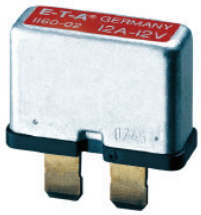
Robust design
Circuit breakers do not age and are not prone to corrosion or wear through shock, or current and voltage peaks. Nuisance tripping, which is a disadvantage of aged blade fuses in the event of inrush peaks, is prevented by the bimetal design of the thermal breaker.

Directly interchangeable
The automotive circuit breaker types 1610, 1170 and 1620 have the same ATO-type or MINI-type footprint as blade fuses (DIN 72581-3) and can directly replace the fuses. This feature makes our circuit breakers ideal for optional equipment in OEM applications as well as in the retrofit business.

Minimum power loss
The voltage drop of circuit breakers is normally lower than with blade fuses. Higher cross sections lead to very low internal resistance values which in turn means less power loss and less gas consumption.



Thermal Circuit Breakers

1620	1610	1160	1170
			
• Types 1, 2, 3 and 3H • DC 12V 5…30A, DC 24V 5…25A • Types 1 and 2 DC 12V, Types 3 and 3H DC 24V • “Mini-Fuse” terminal design, fuse replaceable • Color coded housing • SAE J553 • Also available with fast acting trip curve	• Types 1, 3 and 3H • Type 1 DC 12V, Types 3 and 3H DC 32V • 5…30A • ATO design, fuse replaceable • SAE J553 • Color coded housing standard on Type 3 and 3H • Also available with fast acting trip curve	• DC 12V • 12…30A • Type 2 • Suited for inaccessible locations	• DC 28V • 3…25A • Type 3H with color coded release button • Full feature breaker: trip free, tease free, snap action • ATO design • Available din/panel mount socket

Solid State Relays

ESR10	ETR10	EXR10	EPR10
			
• DC 12V/24V • 10A, 17A • ISO Micro terminal design • High Frequency (PWM) capable • All the advantages of solid state design • 50A ISO Maxi version available	• DC 12/24V • Current switching 1…30A • ISO 7588 terminal design • Programmable timer function 100ms to 45 days • Added feature of electronic overcurrent protection • All the advantages of solid state design	• DC 12/24V • ISO 7588 terminal design • Current switching 1…30A • Mini controller functioning device • Low voltage monitoring, wire breakage detection, current proportional voltage output and electronic overcurrent protection, Remotely resettable • All the advantages of solid state design	• 12V and 24V • 75 Amps to 200 Amps Continuous • Suited for Harsh Environments • Compact: No heat sink required • No arcing: Safe in enclosed spaces

High Performance Circuit Breakers

412/413	452	482	446/447/449
			
• DC 28V, AC 115V (400 Hz) • 412 6…35A, 413 30…90A • Threadneck mount, push-pull actuation, screw terminals • Full feature breaker; trip free, tease free, snap action • Ideal for demanding vehicle and aircraft applications	• DC 28V/72V , AC 115V (400hz) • 50…125A • Threadneck mount, push-pull actuation, screw terminals • Full feature design; trip free, tease free, snap action • Auxiliary contact option • Ideal for demanding vehicle and aircraft applications	• DC 28V/72V, AC 115V (400 Hz), AC 230V (50-60 Hz) • 0.1A…50A • Threadneck mount, screw terminal, push-pull actuation • Full feature design; trip free, tease free, snap action • Auxiliary contact option • Ideal for demanding vehicle and aircraft applications	• DC 28V • 30A…500A • Dual button manual release • Optional Auxiliary contact and remote electrical disconnect • Heavy duty vehicle and battery system applications

Power Relays/Smart Relays

MPR	HPR
	
• 12V and 24V • 100 to 300 Amps Continuous • Weight savings of 50% • Protection IP 6K 9K • Low Current consumption	• 12V and 24V • 100 to 300 Amps Continuous • Programmable Electronic Control Circuitry • Low voltage detection, ON/OFF Delay, Pulse or Level activation, Input signal filter • Protection IP 6K 9K • Low Current Consumption

Make E-T-A your Design Partner

Power management solutions begin with an understanding of your requirements. From concept to production, E-T-A is equipped with the expertise and tools necessary to develop and produce a solution to meet the exact specifications of your application regardless of the complexity.

Design

As your design partner, E-T-A adds circuit protection expertise, electromechanical design and project management capabilities to your team. This allows your design engineers to maintain their focus on customer and revenue critical applications while E-T-A designs and supplies your power management solutions.

Single Source Provider

E-T-A will streamline component sourcing and vendor selection to reduce material and inventory management requirements.

E-T-A's efficient management and strong relationships with component vendors ensures your power management systems will be built with the best and most cost-effective materials - giving your product offering the competitive edge.

Manufacturing

Once the design is approved, E-T-A utilizes state of the art equipment, documented processes and skilled labor to build prototypes and manufacture high volume orders. E-T-A's fully staffed manufacturing operation eliminates the need for you to maintain and manage in-house manufacturing labor and eliminates the need for manufacturing space for power management systems.

Quality & Testing

Quality is E-T-A's top priority. All power management solutions are manufactured and 100% tested in E-T-A's ISO certified facility prior to shipping. You can be confident knowing the E-T-A power management system being integrated into your equipment is built and tested to the highest standards.

E-T-A ENGINEERING TECHNOLOGY

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