



TRANSPORTATION

Product Overview

TRANSPORTATION

Product Range



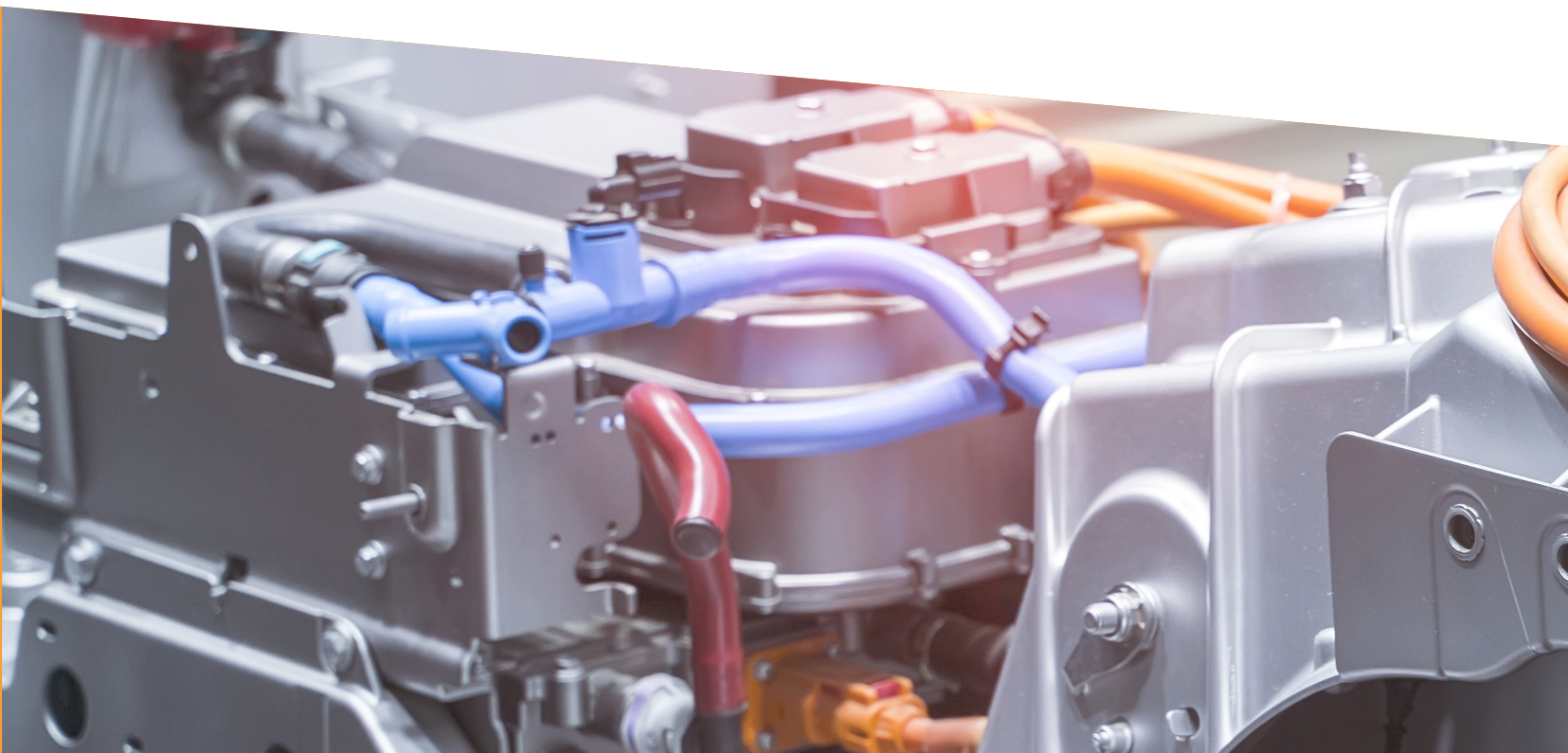
E-T-A products for the Transportation industry provide reliable components and value-add assemblies designed to reduce down time and associated costs while providing cost effective new technology solutions. E-T-A products have a reputation for quality and reliability, backed by six decades of experience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

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 (heavy duty vehicles, 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 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 1000 Amps) where size, reliability and smart packaging are needed. The HPR product has additional functionality like time delays, under/ over voltage protection, and automatic disconnect or reset. Application of E-T-A Power Relays can be found in most Transportation vehicles where Power Management is critical.



CAN Communication

E-T-A's line of CAN communication products are designed for decentralized power distribution offering a comprehensive on-board system for intelligent control and protection of DC electrical loads. With each product having the ability to be programmed using Windows based software on-site, the customer has ultimate flexibility and configuration control of their system.

Industry Overview

- Agriculture
- Buses
- Construction
- Passenger Cars
- Speciality Vehicles
- Trucks



Thermal Circuit Breakers



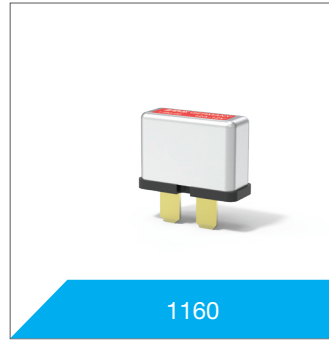
1620

- 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
- SAE J553
- Color coded housing
- Also available with fast acting trip curve



1610

- 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



1160

- DC 12V
- 12...30A
- Type 2
- SAE J553
- IP54 rated housing
- Suited for inaccessible locations



1170

- 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

High Performance Circuit Breakers



412/413

- 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



452

- 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



482

- 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



446/447/449

- DC 28V
- 30A...500A
- Dual button manual release
- Optional auxiliary contact and remote electrical disconnect
- Heavy duty vehicle and battery system applications

Solid State Relays



ESR10

- DC 12V/24V
- 10A, 17A (30A available for specific applications)
- ISO Micro terminal design High Frequency (PWM) capable
- All the advantages of solid state design



ETR10

- 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



EXR10

- 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, remote reset
- All the advantages of solid state design



EPR10

- 12V and 24V
- 75 Amps to 200 Amps Continuous
- Suited for Harsh environments
- Compact: No heat sink required
- No arcing: Safe in enclosed spaces

Power Relays



MPR10

- 12V and 24V
- 100 to 300 Amps
- Continuous bistable design
- Weight savings of 50%
- Protection IP 6K 9K
- Low holding current



MPR20

- 12V and 24V
- 100 to 300 Amps
- Continuous monostable design
- Weight savings of 50%
- Protection IP6K9K
- Low holding current



HPR10

- 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 IP6K9K
- Low holding current



HVR10

- 900 VDC
- 300 Amps continuous
- 1000 Amps max voltage
- Arc-free switching system High Voltage applications
- Low holding current

CAN Communication



SCS200

- DC 12 V/DC 24 V (8 channel relay version only)
- Product Versions:
 - Electronic: 8 or 12 channels @ 12 V
 - Relay: 8 channels @ 12 V or 24 V
- Outputs: 4 x 30A max. load per channel, all additional channels 10A
- Inputs: 6 analog inputs (voltage)
- Total power: 120 A (8 channel version) 150 A (12 channel version)
- Programmable output delay ON and OFF
- Product versions:
 - Electronic: 8 or 12 channels @ 12 V
 - Relay: 8 channels @ 12 V or 24 V
- IP66/IP67 rated
- SAE J1939, CAN2.0 B
- Integrated electronic load protection with configurable current rating (relay version includes fuses/circuit breakers)
- Diagnostic functions include: load current, total current, voltage, output status, overload indication



SCS1000

- DC 12 V/DC 24 V
- Product versions:
 - High-side: solution for high-side switching
 - Low-side: solution for low-side switching
- Outputs: 4 x 35A max. load per channel, 12 x 15A
 - 2 each are PWM capable
- Inputs: 12 analog voltage inputs
 - 4 with activatable pull-up option, for use as "ground inputs"
- Total Power: 160 A
- IP66/IP67 rated
- SAE J1939, CAN2.0 B
- Combination of controller and power distribution
- Programmed using CAN interface
- Customizable logic and configuration via included software



SCS3000

- DC 12 V/DC 24 V
- Product versions:
 - 16 channel, 34 channel, 48 channel and 64 channel
- Outputs:
 - 16 channel version : 4 x 40A, 2 x 35A, 10x12A max. load per channel
 - 34, 48 and 64 channel versions: 10 x 40A, 10 x 35A, all other channels 12 A max. load per channel
 - Activatable HBridge and PWM, Qty varies per model
- Inputs: 12 analog inputs (voltage, 16 channel version), 16 analog inputs (voltage, 34, 48 and 64 channel version)
 - Activatable pull-ups option, for use as "ground inputs", Qty varies per model
- Total Power: 200 A (16 channel version), 280 A (34, 48 and 64 channel versions)
- IP66/IP67 rated
- SAE J1939, CAN2.0 B
- Replacing several PDMs and control units with one single centralized module
- Programmed using ethernet interface
- Customizable logic and configuration via included software

POWER SOLUTION CAPABILITIES

Mechanical / Hardware / Software

Power solutions begin with an understanding of the customer's requirements. From concept to production, E-T-A is equipped with the expertise and tools necessary to develop, produce, and test power solutions that meet and exceed the specifications of the customer's application. Each project is managed through our ISO certified product development process to ensure the highest level of quality through all stages of the design cycle. With a comprehensive design team and vast design capabilities available E-T-A power solutions are comprised of three major disciplines:

Mechanical Design

E-T-A uses professional 3D CAD software to provide complex and efficient housing design, connection technology, cable management, busbar design, and power circuit protection design and switching. Computational Flow Dynamic (CFD) software is used to

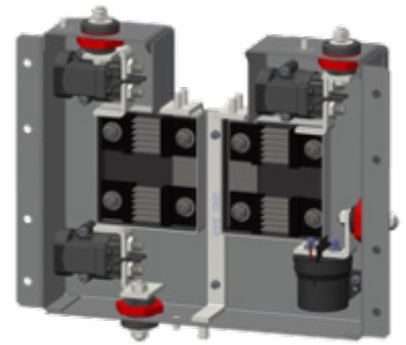
analyze designs that may be deployed in harsh environments to ensure extended life of the product and quality.

Hardware Design

Utilizing the latest state of the art technology, E-T-A provides printed circuit board design and layout, user interfaces, and various processes for connecting components on the printed circuit board such as pressfit technology, THT soldering (selective or wave soldering), and SMT soldering.

Software Design

Smart distribution requires a complex software layer for monitoring and control. E-T-A uses operating systems such as Linux and programming languages Python, C++, etc. to design effective networks for the monitoring and control layer. CAN bus, PROFINET, Modbus, Ethernet/IP, ELBUS are several communication standards that E-T-A designs into our products.



E-T-A Circuit Breakers

1551 Bishop Court
Mt Prospect, IL 60056
Tel. 847-827-7600
Emai. usinfo@e-t-a.com
E-Mail: info@e-t-a.de