E-T-A®
ENGINEERING TECHNOLOGY

Equipment Product Overview

A History of
Proven Success

> "Integrating E-T-A's 3120 not only allowed us to save space and overall cost, but also allowed us to reduce the number of components and offer the same functionality."
>
> - Design Engineer
> Cozzini/Prime Edge

Product Offering

E-T-A's reputation is built on over six decades of experience in the design and production of circuit protection devices for equipment. When partnering with E-T-A, you have access to the broadest product range in the market today (*Figure 1*). Whether you require a single circuit protection device or a fully customized system solution, E-T-A's engineers will help you select the best circuit protection solution for your design.

Sales Network

The E-T-A sales network stretches across the United States, Mexico and Central America. As a further extension of this network, E-T-A is active in more than 60 countries - with 6 production facilities and 12 subsidiary companies. This provides customers with convenient and local access to E-T-A products and services worldwide.

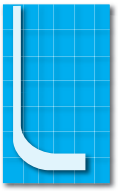
Market Expertise

E-T-A has a full business development structure staffed with industry experts within key markets including: Transportation, Marine, Communications, Automation and Equipment. This allows customers to have application and technical conversations with someone who clearly understands the issues design engineers within each industry face daily.

The breadth of product offering, expansive sales network and industry specific knowledge makes E-T-A the ideal choice when selecting a circuit protection and power management solutions provider.

Thermal
Heating effect of current activates a bimetal thermal actuator, offering one of the most reliable and cost effective types of circuit protection.

Thermal Magnetic
Latching type bi-metal is combined with a magnetic coil to provide the joint benefits of delayed operation for low current protection and fast magnetic action on higher value short circuits.



Magnetic
Solenoid release fast acting device with precise tripping characteristics well suited for printed circuit board applications and high current devices. Speed of operation is limited only by the mechanical inertia of the mechanism.

Electronic
Provides fault detection for short circuit and current overload conditions. Identifies faults on 24 VDC circuits and selectively deactivates the faulted path. Designed to be installed into switch mode power supply applications.

Figure 1: E-T-A product technologies

Benefits of Multifunctional Circuit Breakers

End users of electronic equipment are constantly pressuring manufacturers to develop high quality cutting-edge designs that are faster, smarter and more affordable.

To remain competitive, engineers must face this challenge head-on and find partners that offer solutions to help them meet these customer demands.

E-T-A offers a broad range of circuit breakers specifically designed for the equipment market. These multifunctional devices offer the following benefits:

No replacement fuse required

Unlike a fuse, circuit breaker switch combinations can easily and quickly be reset after tripping due to an overload.

Reduced installation and wiring time

Assemblers will only have to mount a single circuit breaker - eliminating the wiring between switches and fuses.

Fewer Components

Combine switching and overload protection in one device - reducing the footprint required for circuit protection.

Streamlined material planning

Purchasing departments will need to purchase 66% fewer components per load.

Enhanced reliability and uptime

Less individual parts reduces the possible sources of assembly errors.

A Closer Look at the Equipment Industry

Medical Equipment

- Incubators
- Imaging Systems
- Mobility Equipment
- Oxygenators
- Sterilization Machines

Equipment Control

- Battery Chargers
- Generators
- Power Strips
- Transformers
- UPS

Professional Tools

- Floor Care
- Paint Sprayer
- Packaging Equipment
- Portable Heaters
- Welders / Wire Feeders

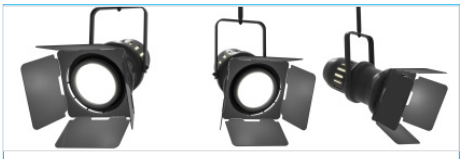
Commercial Food Preparation

- Beverage Dispensers
- Coffee Makers / Grinders
- Conveyor Ovens
- Deep Fryers
- Soft Serve Ice Cream Dispensers

Household Appliances

- Treadmills
- Pressure Washer
- Stair Lift
- Garbage Disposal Systems
- Portable Heater

Lighting



- 120VAC Track Lighting
- Electronic Scoreboards
- Indoor / Outdoor Signs
- Mobile Light Towers
- Theater / Stage Lighting

	104	105	106
			
Current Rating	0.05... 10A	0.05... 10A	0.05... 10A
Voltage Rating	AC 250V; DC 48V	AC 250V; DC 48V	AC 250V; DC 48V
Typical Life/ Contact Rating	0.05...5 A: 1000 operations 6...8 A: 500 operations 10 A: 50 operations at 2xIN, inductive	0.05...5 A: 1000 operations 6...8 A: 500 operations 10 A: 50 operations at 2xIN, inductive	0.05...5 A: 1000 operations 6...8 A: 500 operations 10 A: 50 operations at 2xIN, inductive
Interrupting Capacity (Icn)	0.05...8 A 6 x IN (AC) 0.05...10 A 6 x IN (DC)	0.05...8 A 6 x IN (AC) 0.05...10 A 6 x IN (DC)	0.05...8 A 6 x IN (AC) 0.05...10 A 6 x IN (DC)
Approvals	UL, CSA, VDE, SEV	UL, CSA, VDE, SEV	UL, CSA, VDE, SEV
Operating Temperature	- 20... +60 °C (-4... +140 °F)	- 20... +60 °C (-4... +140 °F)	- 20... +60 °C (-4... +140 °F)

	1658	3120	3130
			
Current Rating	5... 30A	0.1... 20A	0.1... 20A
Voltage Rating	AC 240V; DC 28V	AC 250V; DC 50V	AC 250V; DC 50V
Typical Life/ Contact Rating	5...16 A 1,000 operations at 2 x IN, inductive 17...25 A 1,000 operations at 2 x IN, resistive	0.1...16 A 50,000 operations at 1 x IN, inductive, 2-pole 0.1...20 A 30,000 operations at 1 x IN, inductive, 1-pole	30,000 operations at 1 x IN, inductive, 1- and 3-pole 50,000 operations at 1 x IN inductive, 2-pole
Interrupting Capacity (Icn)	5...7 A 180 A 8...30 A 200 A	0.1...2 A 10 x IN 2.5...20 A 150 A (1-pole) 2.5...20 A 250 A (2-pole)	0.1...2 A 10 x IN 2.5...20 A 150 A (1-pole) 2.5...16 A 250 A (2-pole) 2.5...12 A 150 A (3-pole) 14...16 A 130 A (3-pole)
Approvals	UL, VDE	UL, CSA, VDE, CCC	UL, CSA, VDE
Operating Temperature	- 20... +60 °C (-4... +140 °F)	- 30... +60 °C (-22... +140 °F)	- 30... +60 °C (-22... +140 °F)

Types of Actuators:

 Push-to-Reset

 Manual Release

 Toggle

 Push-Push

 Push-Pull

 Rocker

Types of Terminals:

 Quick Connect 0.250

 Quick

 Combo .250 X 0.110

 Screw

1110	1140	1410-L	1410-F
			
0.05... 16A	3.5... 16A	0.63... 10A	0.63... 10A
AC 250V; DC 50V	AC 250V; DC 50V	AC 250V; DC 50V	AC 250V; DC 60V
0.05 ...10A: 10,000 ops @ 1 X IN, inductive 00.05 ...10A: 6,000 ops @ 1 x IN, resistive 12...16A: 2,000 ops @ 1 x IN, resistive	3.5...8 A 200 operations inductive, 1000 operations resistive 9...16 A 100 operations each at 2 x IN, inductive	500 operations at 2 x IN, resistive 500 operations at 2 x IN, inductive	30,000 operations IN ≤ 6.3 A resistive 10,000 operations IN > 6.3 A resistive 3,000 operations IN > 6.3 A inductive 500 operations at 2 x IN inductive
AC 250 V: 0.05...10 A 8 x IN DC 50 V: 0.05...6,5 A 10 x IN 7...16 A 130 A	3.5...8 A 8 x IN 9...16 A 120 A	0.63...2 A 12 x IN 2.5...8 A 8 x IN AC, max. 50 A 10 A 6 x IN 3.15...10 A 10 x IN DC	0.63...2 A 12 x IN 2.5...8 A 8 x IN AC, max. 50 A 10 A 6 x IN 3.15...10 A 10 x IN DC
UL, CSA, VDE	UL, CSA, VDE	UL, CSA, VDE	UL, CSA
- 20... +60 °C (-4... +140 °F)	- 20... +60 °C (-4... +140 °F)	- 20... +70 °C (-4... +158 °F)	- 20... +70 °C (-4... +158 °F)

X3120	2-5000 / 2-5700	2-6500	8330
			
0.1... 15A	0.05... 25A	0.1... 15A	0.1... 30A
AC 250 V	AC 250V; DC 50V	AC 250V (50/60 H_z); DC 28V	AC 125/250 V (50/60 H_z); DC 80V
Breaker: 0.1...16A 50,000 ops @1x IN, Inductive, 2 pole 0.1...20A 30,000 ops@1x IN, Inductive, 1 pole Filter: General Performance: 1A-15A, 3.04 Mil hrs High Performance : 1A-8A, 2.035 Mil hrs 10A-15A, 1.035 Mil hrs	0.05...16 A 5,000 operations at 2 x IN, inductive 17...25 A 5,000 operations at 2 x IN, resistive	100,000 operations at 2 x IN, resistive	10,000 operations at IN, resistive
0.1...2A 10x In 2.5...20A 150A (1 pole) 2.5...20A 250A (2 pole)	0.05...2.5 A 8 x IN 3...5 A 20 x IN 6...12 A 200 A 13...25 A 300 A	8 x IN	AC 50/60 / DC 80
UL, CSA, VDE	UL, CSA, VDE, SEV, CCC	UL	UL, CSA, VDE
-25°C ...+60°C (-13...+140 °F)	- 20... +60 °C (-4... +140 °F)	- 10... +60 °C (-10... +140 °F)	- 40...+85 °C (-40...+185 °F)

Connect 0.110

 Stud

 Blade

 PCB

 Plug-in

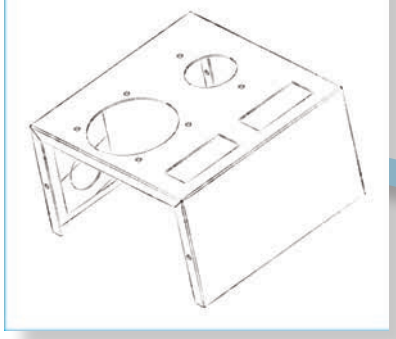
 MINI type

Options Key:

 Water splash protection

 Illumination

Concept



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.

Production

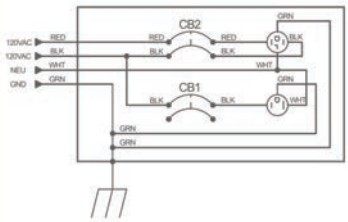
Manufacturing

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.

Design



3D Modeling

www.e-t-a.com/design

ENGINEERING TECHNOLOGY

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