

Electronic circuit breakers in E-T-A's ESS portfolio

Physical isolation provides unrivalled safety



ESS electronic circuit breakers

Equipment safety in accordance with relevant standards

Meeting the requirements of international standards is imperative in DC 24 V applications for centralised and decentralised control voltages.

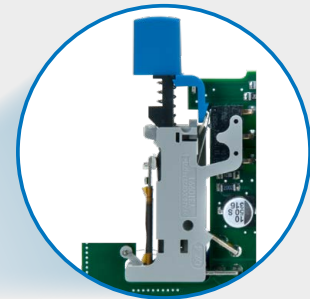
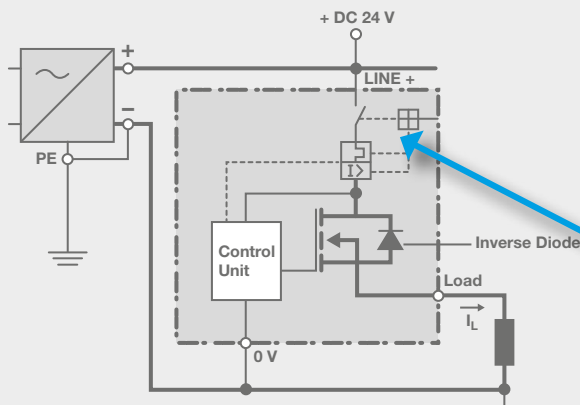
In Germany, Europe and North America, EC/EN 60934 and UL 1077 define requirements of circuit breakers for equipment protection. They ensure that function, behaviour and reliability of circuit breakers for equipment protection comply with homogeneous criteria. According to these relevant standards, physical isolation in the event of a failure is mandatory also for DC 24 V load circuits.

At the same time, physical isolation in accordance with these standards offers more advantages. In any case, it prevents a failure-caused return supply to the DC 24 V control voltage level after trip or manual disconnection. Physical isolation reliably excludes dangerous system conditions and allows easy trouble-shooting without residual voltage.

All devices of E-T-A's **ESS portfolio** have a fully-fledged integral bimetal sub-assembly or a relay. In the event of a failure this offers genuine physical isolation of the contacts.

In the event of an overcurrent, the load circuit is first electronically disconnected. A few seconds later, the integral mechanical isolating element also disconnects, thus ensuring physical isolation.

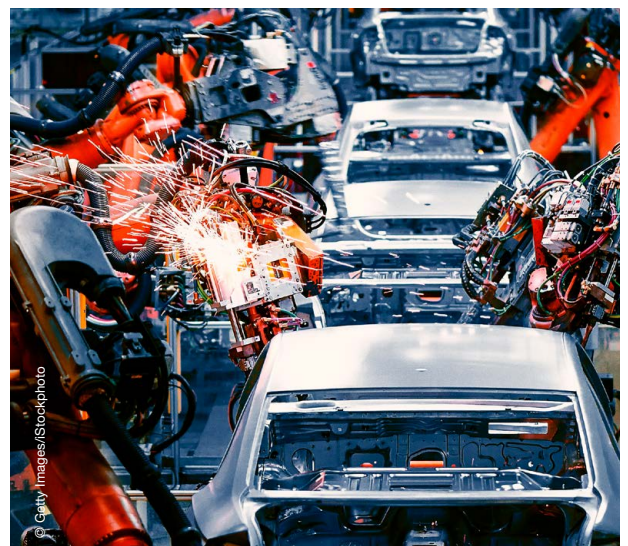
All electronic circuit breakers for equipment protection of the ESS portfolio provide physical isolation and entirely meet the requirements of IEC/EN 60934 and UL 1077.



E-T-A's ESS31-T combines electronic overcurrent protection with physical isolation.

E-T-A's **ESS product range** has an electronic trip characteristic to ensure optimum protection in the event of a failure. In addition, the trip curves of the ESS devices offer active current limitation. It ensures limitation of the fault current to a firmly defined value. A simple rule of thumb for electrical planning can be defined as follows: **trip current = max. current = current limitation factor typically 1.2 times rated current**

The effects a failure such as short circuit or overload in a load circuit can easily be calculated in advance and can already be taken into account in the planning stage.



Electronic circuit breakers in E-T-A's ESS portfolio

Overview of electronic circuit breakers offering physical isolation



ESS22-T: double pole protection

The **ESS22-T** electronic circuit breaker is a single channel device with fixed current ratings. It allows individual integration into your DC 24 V power supply. Double pole disconnection allows the use in ungrounded IT systems to EN 60204-1. The combination of active electronic current limitation in the event of a short circuit and overload disconnection from 1.1 times rated current provides selective and **double pole protection** of the DC 24 V load circuits. The **ESS22-T** is track-mountable and ensures quick and flexible start-up for groups of devices with several DC 24 V circuits.

Application in the following industries

- Automation
- Power plants
- Medical equipment
- Steel industry



ESS30-S: economical and compact

The **ESS30-S** electronic circuit breaker with physical isolation is a **“low energy breaker”** for DC 24 V applications. It is approved to IEC/EN 60934 and UL1077 as a circuit breaker for equipment protection and supplementary protector and therefore ideally suitable for the use in centralised and decentralised power supply units. Besides fixed and adjustable current ratings, the **ESS30-S** has an NEC Class2 approval to UL 1310 for current ratings up to 3.6 A. The compact, plug-in type device was designed for quick and easy mounting on the **power distribution modules 17plus** and **18plus** as well as on the **SVS power distribution systems**.

Application in the following industries

- Automation
- Car production
- Chemistry, oil and gas
- Power plant engineering DC 24 V



ESS31-T: ready for global use

E-T-A's **ESS31-T** is a single pole, track-mountable circuit breaker. It is characterised by particularly low power loss. With a single characteristic curve, the **ESS31** offers standard-compliant protection – even with long load lines or small cable cross sections.. The housing of the **ESS31-T** features an integral power distribution. This electronic circuit breaker also has the NEC Class2 approval to UL 1310 as well as UL1077 and IEC/EN 60934. This range of approvals and the physical isolation makes the **ESS31-T** the perfect selective protection for global use.

Application in the following industries

- Automation
- Car production
- Machine construction
- Pharmaceuticals and foodstuffs

Your benefits

- **Enhanced protection for your system** and connected loads thanks to physical isolation and selective disconnection
- **Increases system availability** through clear failure detection and signalling
- **Flexible use of the devices** through a number of international approvals



Electronic circuit breakers in E-T-A's ESS portfolio

Technical data



Technical data	ESS22-T	ESS30-S	ESS31-T
Operating voltage	DC 24 V (18 ... 32 V)	DC 24V (18... 30 V)	DC 24 V (18... 30 V)
Rated current	0.5 A to 10 A	0.5 A to 10 A	0.5 A to 12 A
Adjustable		●	
Mounting method	rail mounting	plug-in type	rail mounting
Overload factor	1.1 x I _N	1.2 x I _N	1.2 x I _N
Overload trip time	3s	500 ms	500 ms
Short circuit current	1.4 x I _N	1.2 x I _N	1.2 x I _N
Short circuit trip time	100 ms - 3s	150 ms - 500 ms	110 ms - 500 ms
Capacitive load	20,000µF	40,000µF	40,000µF
Ambient temperature	0 °C ... +50 °C	0 °C ... +60 °C	0 °C ... +50 °C
Approvals			
UL 1077	●	●	●
UL 2367		●	●
UL 1310 NEC Class2		●	●
IEC/EN 60934	●	●	●
UL 60947-4-1 listed			●



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