

Circuit breaker/switch combinations

Circuit breaker/switch combinations can serve as ON/OFF switches of devices and machines. This helps Design Engineers to systematically reduce components.

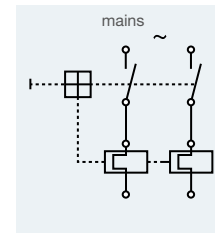


Multipole circuit breakers

In the event of a failure, multipole circuit breakers always ensure all-pole breaking. Quite the contrary is the case with fuses.

If both the phase and the neutral conductor are protected by a fuse in a single-phase AC device on the input side, normally only

one of the fuses will trip in the event of a failure due to tolerances. If the fuse of the neutral conductor blows, the device or the machine will still be energised. Repair works will therefore carry the risk of electrical shock!



Protection provided by the E-T-A 3120 circuit breaker/switch combination: uncompromising 2-pole physical isolation of phase and neutral conductor in the event of a failure.



Circuit breakers with auxiliary contacts

Many circuit breakers are available with integral auxiliary contacts. Alarm functions can easily be realised.



Circuit breakers with status indication

Unlike fuses, circuit breakers clearly visually indicate when they tripped on grounds of overcurrent. This makes trouble-shooting much easier and faster.



Circuit breakers The edge over fuses



Circuit breakers

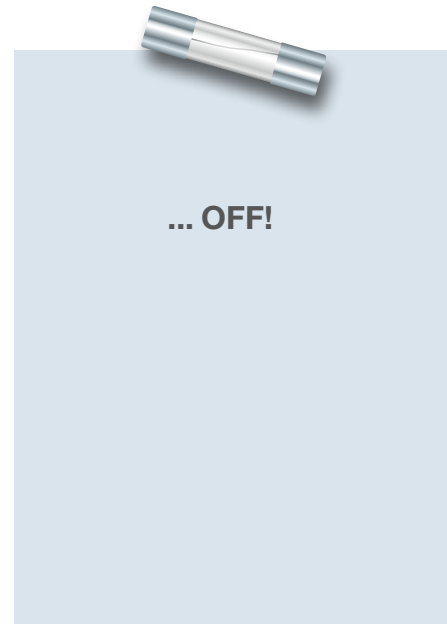
The edge over fuses

A fuse is a single-use component. Once it's blown, the user has to replace it by a new one.

If a circuit breaker has tripped, it can easily, reliably and above all very quickly be reset.

Benefit: maximum uptime of devices and machines.

Simply reset it!



- Save time and costs – no time-consuming change of fuses
- Increase reliability – avoid potential rating errors

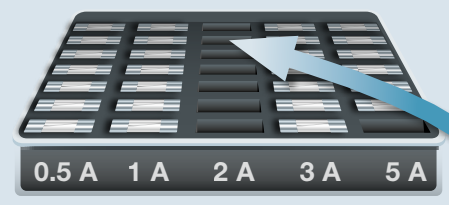


Fuse

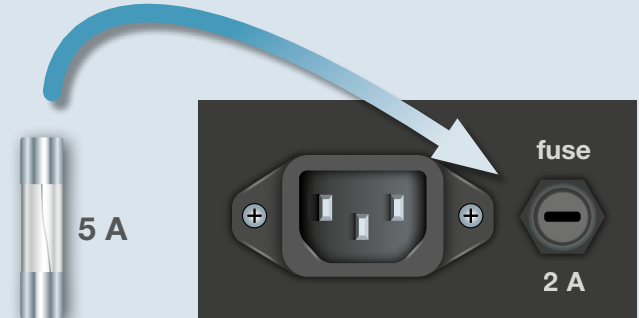
Circuit breaker

After overcurrent trip	The fuse has to be replaced. Typical problem in practice: In spite of fuses in reserve, there's no suitable replacement in the event of a failure.	No replacement fuses required! A circuit breaker can simply be reset.
Incorrect protection possible	If a fuse has to be replaced and erroneously a fuse with a higher current rating or a different trip curve is used, an appropriate and reliable protection of devices and machinery can no longer be ensured in the event of overcurrent. The result: damages of devices and machines, fire hazard in the worst case.	Incorrect protection is excluded.
Functional tests	Functional test of a fuse is not possible as such a test would simply destroy this single-use component.	Each circuit breaker is submitted to a functional test before being supplied.
Ageing	Fuses are subject to ageing . Due to inrush current peaks and diffusion processes they grow faster and faster and actually unpredictable. Nuisance tripping will be the inevitable result.	No nuisance tripping. The characteristic curve of circuit breakers remains unchanged even after many years of usage.
Make operation on existing failure	If a replacement fuse is plugged in and the failure has not yet been remedied , there will be a hazardous arc . This puts the health of the operating personnel at risk.	A circuit breaker can be reset without any risk, even if the basic problem has not yet been remedied.

The risks of using fuses:



No suitable replacement fuse at hand



Inadvertently, a **too high current rating** is used when replacing a fuse.
Consequence: Reliable protection is no longer ensured.

Your benefits

- You don't have to keep an inventory of replacement fuses
- You reliably exclude incorrect protection ratings
- You can rely on each and every circuit breaker, because they are all tested before being shipped
- You prevent nuisance trippings
- You avoid the risk of injury when switching on onto an existing overcurrent