

Overvoltage is the most common cause of damaged devices. There are two types of overvoltage:

1. Permanent overvoltages

Caused by unwanted voltage increases in the power supply. The voltage can rise to well over 230 volts if a three-phase network is unbalanced, i.e. not loaded evenly on all conductors. An overloaded neutral conductor or even the accidental absence of the N conductor is often the cause of the voltage increase. This often happens in old electrical installations where there are too few circuits and therefore too many devices are connected to the individual phases.

Terminal devices that are connected to such an overvoltage can quickly catch fire and, in the worst case, also set the building on fire.

A sensible electrical installation can eliminate all sources of error here. Old electrical installations must be adapted to the current state of the art. A qualified electrician can ensure a safe and professional installation through simple EMC measures, cable selection, cable routing and shielding measures.

2. Short-term (transient) overvoltages

Caused by lightning strikes, switching operations and high-energy voltage couplings.

In Germany alone, more than 1,000,000 lightning strikes hit the earth every year. Although the high energy released by a lightning strike is only present for a few microseconds, it can destroy an electrical appliance in this short time.

Switching operations occur, for example, when switching strip lights and large motors. The switch-on peaks can reach the sensitive devices directly via the electrical distribution network.

This overvoltage on the device can only be prevented with lightning and surge protection concepts. The comprehensive concept consists of standard-compliant protective devices of type 1 (formerly coarse protection), type 2 (formerly medium protection) and type 3 (formerly fine protection).

Depending on the hazard and the type of devices to be protected, the protection concept begins in the house connection (in accordance with TAB 2000) or in the main distribution board. A multi-level protection concept should always be set up. (Sub-distribution board and directly on the device (device protection).

The selection and installation of the products should only be carried out by a qualified electrician.