

Whitepaper Safe Voltage Tap

Securing a voltage tap is an important part of ensuring a safe connection. When selecting a fuse, the short-circuit power must be taken into account.

A standard glass fuse can often only sustain a short-circuit capacity of up to 700 A. In the event of a short circuit caused by a glass fuse in a sub-fuse box, there is a high risk of an electric arc. Below is an overview of the short-circuit resistance of various types of short-circuit protection devices:

Type of protection	Short-circuit resistance
Glass fuse 5 x 20	35 A to approx. 700 A
Circuit breaker	6 kA to approx. 35 kA
DII E27	Up to approx. 50 kA
Ceramic fuse	Up to approx. 70 kA

Table 1: Short-circuit resistance protection

A voltage tap for measuring seems like a harmless connection, because there is no current flow. However, a possible short circuit of the measuring wire to earth/zero or other phases can lead to a dangerous situation.

To ensure a safe voltage tap, it is important to observe the following rules:

- Work safely or don't work at all; work voltage-free;
- Determine the measurement category where the voltage tap is created and select the appropriate voltage tap and short-circuit protection;
- Place the short-circuit protection as close as possible to the voltage tap;
- Ensure that the measuring materials are properly installed in the electrical installation. A short-circuit in the average electrical installation is dangerous and causes a lot of damage.

Please feel free to call ELEQ at +31 (0)521 533 333 for more information or send an email to info@eleq.com

For more information on short-circuit power and current and voltage measurements, please refer to the 'Short-circuit power and short-circuit resistance' and 'Current and Voltage measurements' white papers.