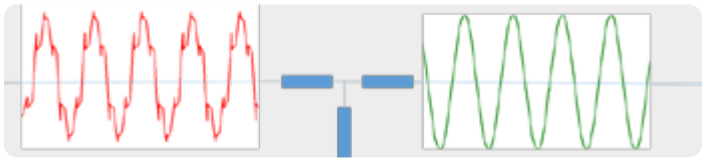
TRAMO

HARMONIZER

# SWR-C – Harmonic filter for AC/DC and AC/AC converters

- **Filters harmonics and interharmonics**
- **Eliminates commutation dips**
- **Reduces the risk of electromagnetic interference**



The ongoing electrification requires maintaining electromagnetic compatibility in the power system.

One of the most common sources of interference is AC-DC and AC-AC converters used in various applications: motor control, electrolysis processes, railway systems, induction heaters, car chargers, etc. The main advantage of these drives is their energy efficiency and user-friendly interfaces. However, the conversion from 50 Hz AC voltage to DC voltage or to AC voltage with a different frequency creates some undesirable phenomena, such as harmonics, interharmonics, commutation dips, and subharmonics. These disturbances can negatively affect the grid and equipment, resulting in operational interruptions, equipment failures, and costly production losses.

The SWR-C is a power grid adapter designed to eliminate the negative effects of non-linear loads. The SWR-C reduces harmonic distortion, commutation dips, high-frequency interference, and improves the power factor. The SWR is built with passive components and is connected in series with the converter. The SWR blocks disturbances in both directions, meaning that disturbances generated by, for example, the frequency converter are prevented from spreading to the grid, and signals transmitted through the grid are not affected by the SWR.

A simplified single-line diagram of an SWR-C application is presented in Fig. 1 to the right.

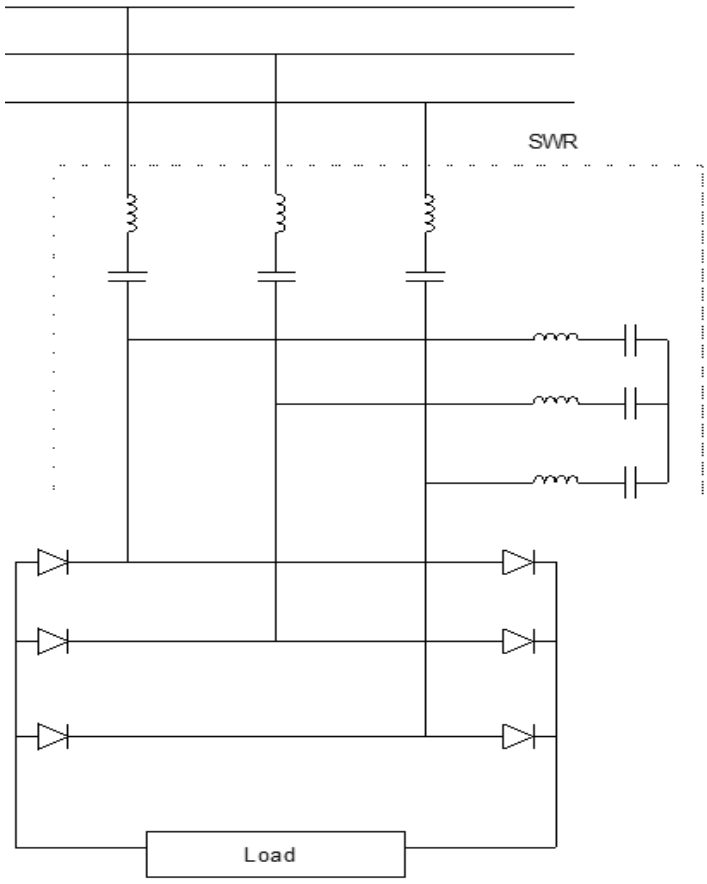



Fig. 1. Single-line diagram

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**Figures 2 and 3 show the voltage curve during rectifier operation with and without SWR-C.**

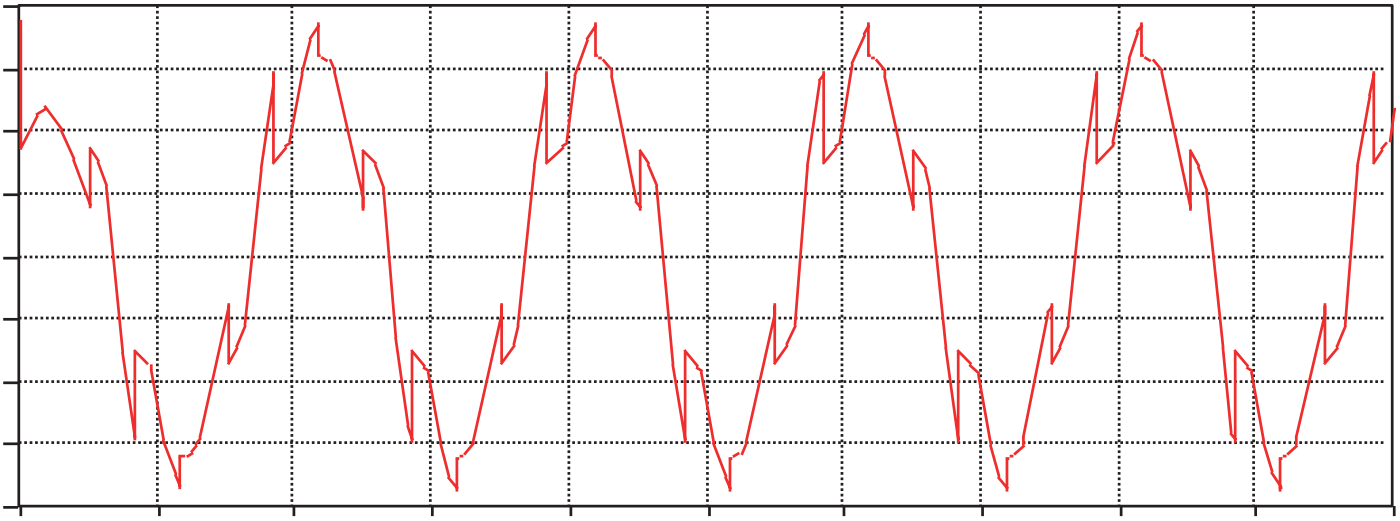

Fig. 2. Voltage curve without SWR-C

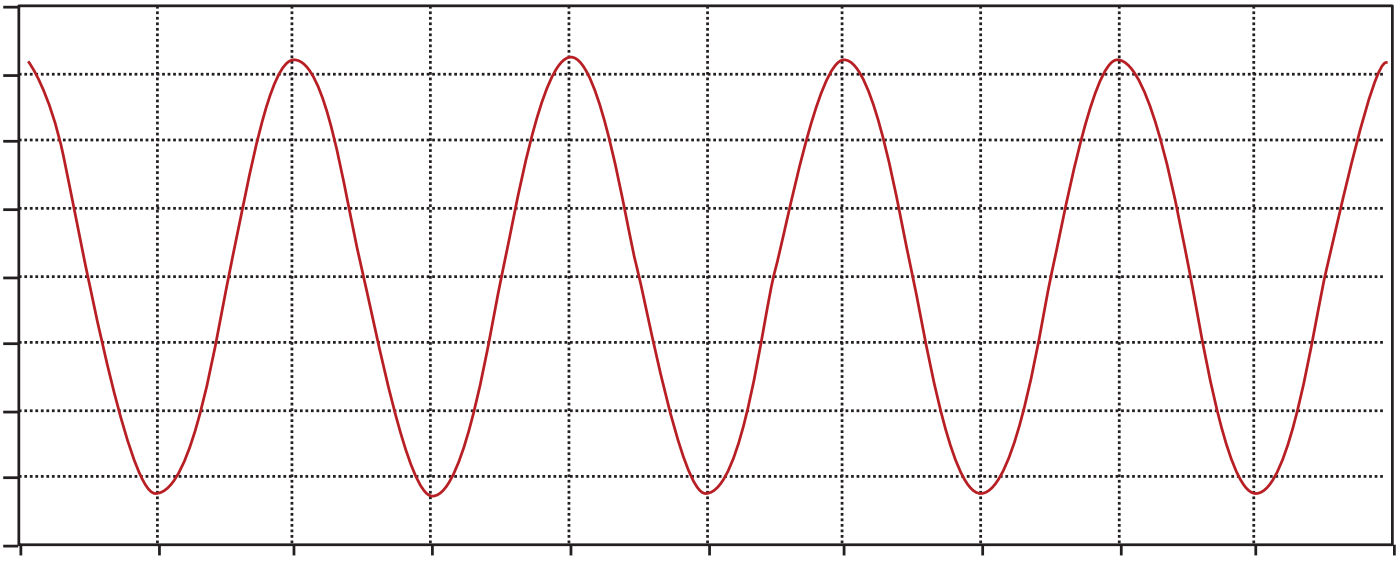

Fig. 2. Voltage curve with SWR-C

Installing SWR-C eliminates disturbances caused by the converter and thereby reduces the risk of operational disruptions.

## OUR OFFER

In collaboration with Harmonizer (harmonizer.nu), Tramo ETV provides assistance in all stages of a power quality project, from data collection and power quality measurements to system simulations, corrective action proposals, filter and filter component design, development of technical specifications, and commissioning and verification tests.
We also offer partner and licensing agreements to manufacturers and suppliers of electrical equipment.