

arteche

STUDY, ANALYSIS AND FERRORESONANCE DIAGNOSIS IN SUBSTATIONS

What are the effects on inductive instrument transformers?

Apparent signs of the presence of ferroresonance:

- › High overvoltages and overcurrents in steady state.
- › Large waveform distortions.
- › Neutral point voltage displacement.
- › Unusual heating and noise of the transformers.

If the protective devices do not act on time, the result will be the destruction of the primary winding of the equipment, causing total failure and, possibly, catastrophic effects to the surrounding equipment.



When can it happen?

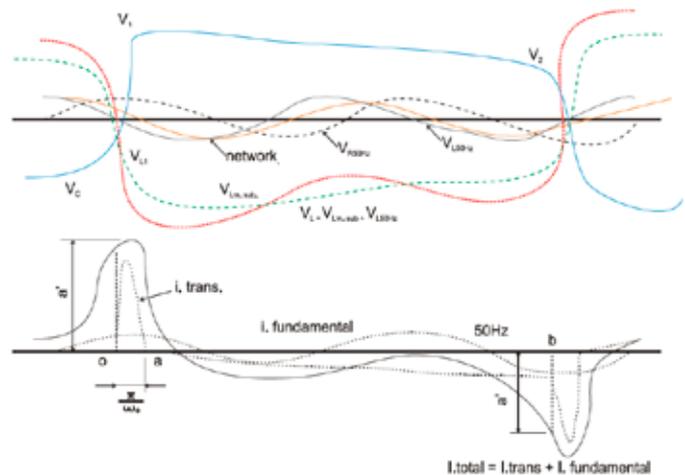
- › When replacing substation components with new ones or with different constructions, such as circuit breakers switches, voltage transformers, conductors, etc.
- › When extending or modifying the substation topology.
- › When changing opening and closing protocols.
- › When reducing the loads on inductive voltage transformers.

These alterations could affect the circuit configuration and cause ferroresonance with destructive effects.

How can ARTECHE help you?

We offer the complete solution:

- › Measurement and data acquisition for analysis and evaluation.
- › Diagnosis of the ferroresonance situation based on calculations and simulations.
- › Proposal of solution scenarios in case of risk detection:
 - › Element redesigning for substations in the planning phase.
 - › Supply of DAMPERs frame to be connected to the secondary side of the inductive transformer concerned.
 - › Supply of additional capacitors to be connected to the line.
 - › Supply of a combination of both in the most critical cases.
- › Validation of the solution through calculations and simulations of the adopted solution and confirmation the elimination of the risk
- › Supply and commissioning of the solution.



Our experience supports us

Any substation with inductive transformers could suffer from ferroresonance phenomena, with potentially destructive effects. Carrying out a ferroresonance study prior to commissioning has significant advantages:

- › Reduction of risks for personnel
- › Reduction of unforeseen costs in the event of an explosion.
- › Reduced risk of supply failure or commissioning.
- › Extension of transformer life.
- › Improvement of the network's power quality.

We have an engineering team dedicated to performing electrical studies, in addition to more than 70 years of experience in the manufacture of instrument transformers. We are your best partner in finding the optimal solution.

