

DRY-TYPE TRANSFORMERS

Transformers with Transient Voltage Protection (TVP)

Protection for your electrical system, peace of mind for you



Hitachi-ABB Power Grids has spent 15 years researching and perfecting protective solutions for network switching and our TVP technology is the successful culmination of these years of effort.

A complex problem

Medium voltage, fast-acting circuit breakers have become the most popular switching technology across industries. However, the sudden drop in current that occurs when the circuit is broken causes a sudden, short-lived, over-voltage known as a transient voltage. As more system studies were conducted, newer failure modes caused by such transient voltage were observed.

The stress from extreme transient voltages can damage a range of magnetic equipment in the network including transformers, motors, pumps, and measurement equipment with repeated switching over time. Switching transients are perhaps the worst voltage stress that a transformer could be subjected to. Due to complex system variables, the exact nature of the damage was often difficult to predict or even identify. There have been some proposed solutions like RC snubber circuits and surge arresters. However, they are incompatible across all networks and configuration and often expensive to install.

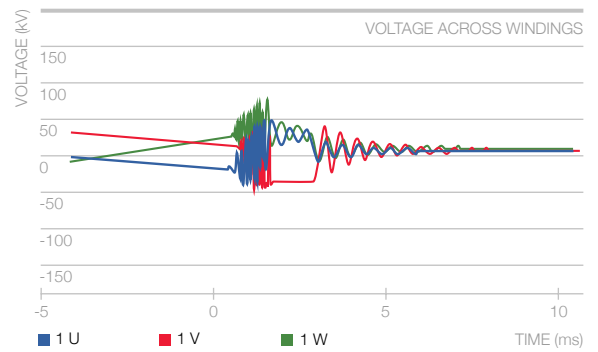
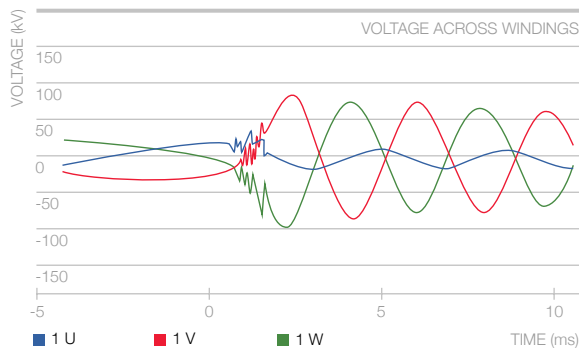
Transient voltage can inflict severe damage on your electrical equipment and over time, lead to network failure resulting in costly repair and downtime. Hitachi-ABB Power Grids' Transformers with Transient Voltage Protection (TVP) technology protect your network from failure and let you avoid complicated system revisions and costly outages.

TVP technology:

A simple solution for a complex problem

Transformer with Transient Voltage Protection (TVP) technology by Hitachi ABB Power Grids provide complete protection for your electrical systems, at every single switching instance. The strategically positioned varistors across transformer's windings protect them from any over-voltage caused by virtual current chopping and resonance amplification. This prevents voltage peaks from ever reaching levels that could damage the insulation in our transformers equipped with TVP. Moreover, its network-agnostic design makes it the best fit for you, no matter what your needs.

Transformers with TVP compared to other solutions



RC snubber circuit

- Delta primary
- 250 Hz oscillation, 85 kV peak amplitude

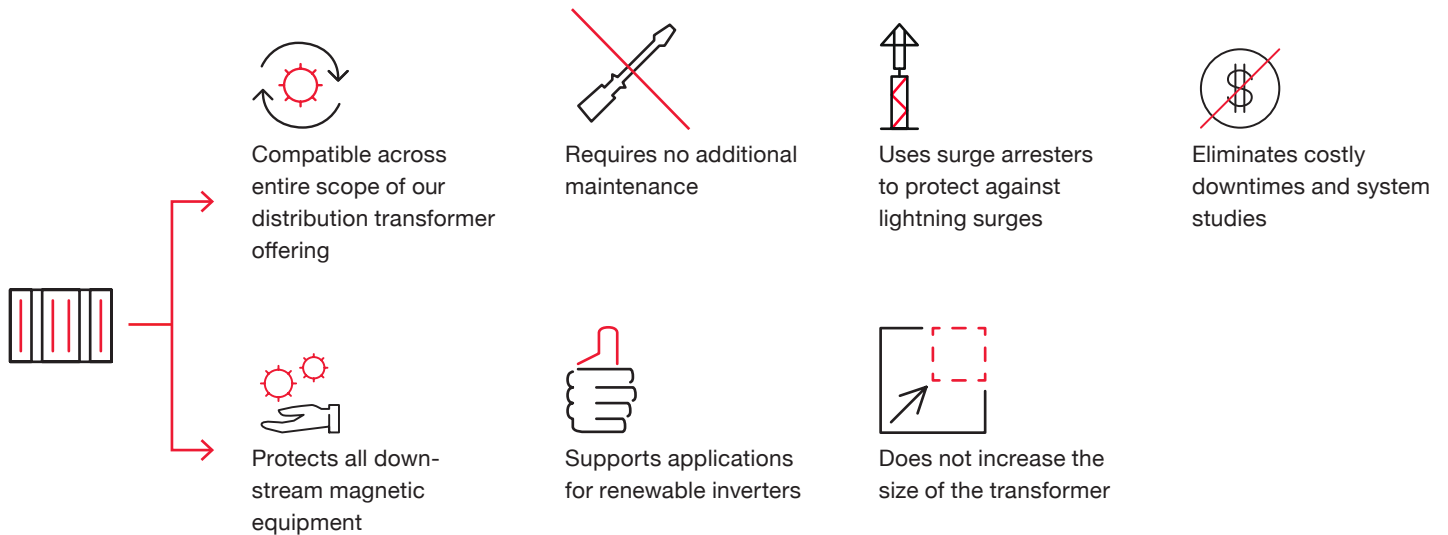
Winding varistors

- Delta primary
- 40 – 45 kV (hf transients up to \approx 65 kV)

Our TVP technology is the only solution that can control voltage rises internally and externally to transformer windings

TVP technology does not increase design complexity as opposed to other solutions like RC snubber circuits.

Why choose our TVP technology ?



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