

TRANSFORMER SERVICE

DC Mitigator

Resilience to DC disturbances in the grid

Reduction of noise and losses on power transformers caused by DC-current

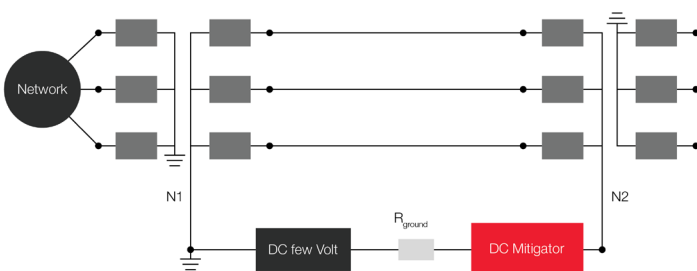
Hitachi Energy is at the forefront of evolving the world's future energy system with a mindset of anticipating future needs to ensure that customers succeed in their goals. We enable others in joining into this main global goal of writing the future of sustainable energy by providing solutions for a more robust, smarter, and greener power grid.

Energy transition takes place in almost every place in the world. The electrical grids are growing significantly, its structure is changing, and new DC systems in HV and MV levels are becoming increasingly important.

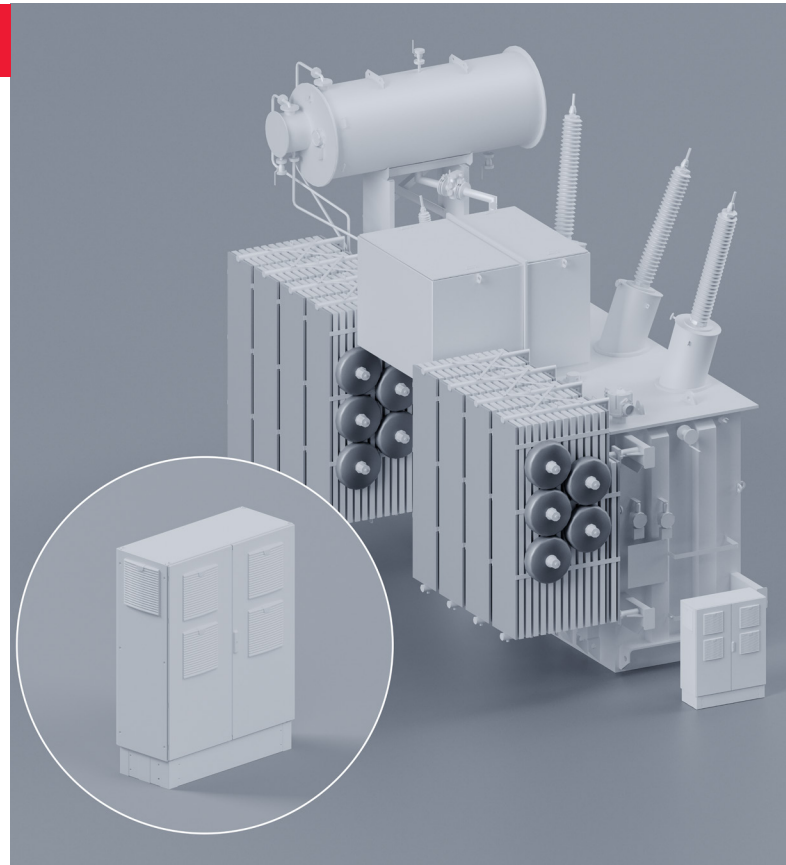
In many places, AC and DC systems are very close to each other and may interact.

The ground potential difference, typically 10 to 20 V, causes parasitic DC currents. These currents can cause an increase in transformer noise and no-load losses.

This effect can exist right after the installation or can happen a long



02 An earthing switch infographic



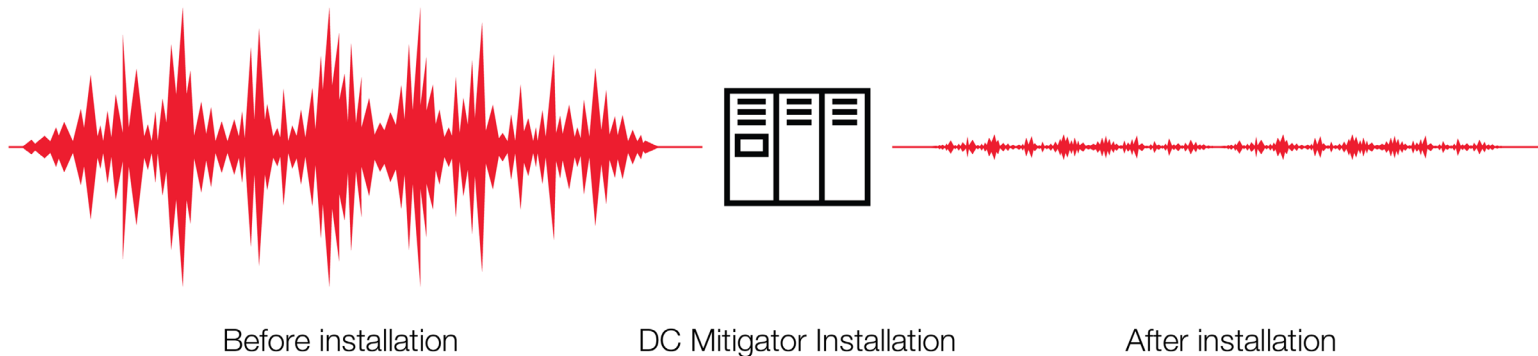
01 A 3D render concept of DC Mitigator with a power transformer

time after installation when the grid configuration is changed, for instance, when a DC grid is installed close by or temporarily, if the DC source is intermittent due to passing trains driven by DC current.

Increased noise and losses due to DC insertion in AC transformers should be avoided or, at least, be limited.

By mitigating parasitic currents passing through the transformer's neutral, these effects can be minimized. Therefore, the DC Mitigator for DC-current suppression was developed by Hitachi Energy.

The DC Mitigator is a passive device that is connected between the transformer's neutral and ground to block DC from passing through.



03 A soundwave infographic

Hitachi Energy's DC Mitigator, in contrast to other options, uses a unique solution with only passive components built into it. Solely, an auxiliary supply for fans and heaters is necessary for a reliable operation of the system.

The modular layout of DC Mitigator enables Hitachi Energy to provide a solution that is right for the transformer's onsite conditions. Additionally, tank-mounted and free-standing solutions are available as standard options for this application.

Some of the biggest advantages of the DC Mitigator are:

- Can be used independently of the transformer manufacturer
- Can be installed later as retrofitting
- External installation with no mechanical impact outside or inside the transformer
- Short and simple installation possible, even by the customer

Apart from the installation of a DC Mitigator, Hitachi Energy also offers a service to perform onsite measurements to determine the necessary configuration needed for individual conditions.

Hitachi Energy is ready to design and build solutions according to the customer's needs using high quality standards.

We offer you an innovative solution that will be beneficial for your grids' quality by suppressing DC currents, which in turn will decrease core losses and noise.

Together, we build a world fit for all and for the next generation.