

What is a high voltage inverter?

To power motors or other devices, high-voltage inverters convert direct current (DC) from batteries or generators to alternating current (AC). With nominal DC voltage up to 1 kV and maximum power up to 300 kW each, our inverters support a variety of applications including traction drives, grid connections, and island grids.

What is a high voltage direct current (HVDC) transmission system?

A high-voltage direct current (HVDC) electric power transmission system uses direct current (DC) for electric power transmission, in contrast with the more common alternating current (AC) transmission systems. Most HVDC links use voltages between 100 kV and 800 kV.

Why are two-level inverters not suitable?

Dealing with high voltages, classical bridge rectifiers, and two-level inverters are not suitable due to the limited characteristics of electronic switches. Until some decades ago only synchronous rotating machines were used.

What voltage does a HVDC line use?

Most HVDC links use voltages between 100 kV and 800 kV. HVDC lines are commonly used for long-distance power transmission, since they require fewer conductors and incur less power loss than equivalent AC lines. HVDC also allows power transmission between AC transmission systems that are not synchronized.

What are converter transformers for LCC HVDC schemes?

Converter transformers for LCC HVDC schemes are quite specialized because of the high levels of harmonic currents that flow through them, and because the secondary winding insulation experiences a permanent DC voltage, which affects the design of the insulating structure inside the tank.

What is the difference between alternating current and HVDC?

Depending on voltage level and construction details, HVDC transmission losses are quoted at 3.5% per 1,000 km (620 mi), about 50% less than AC (6.7%) lines at the same voltage. This is because direct current transfers only active power and thus causes lower losses than alternating current, which transfers both active and reactive power.

Overview History High voltage transmission Comparison with AC Costs Conversion process Configurations Corona discharge The first long-distance transmission of electric power was demonstrated using direct current in 1882 in the 57 km Miesbach-Munich Power Transmission, but only 1.5 kW was transmitted. An early method of HVDC transmission was developed by the Swiss engineer René Thury and his method, the Thury system, was put into practice by 1889 in Italy by the Acquedotto De Ferrari-Galliera co...

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Description The high voltage module uses the Tesla coil principle, it outputs a high voltage pulse high voltage current, small volume, high efficiency, and a simple peripheral circuit (simply ...

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Typically, they are on the high voltage side (from 30 kV to 150 kV and more), and are made by connecting back-to-back controlled rectifier and inverter employing a DC bus.

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The arc generator, 800-1000 kv ultra high voltage pulse inverter transformer, 2.5a dc, 5hz-10khz Garden Tool is manufactured by Generic and was added around August 2025.

This high-voltage module operates based on the Tesla coil principle, generating high-voltage pulse currents. It features a compact design, high efficiency, and a simple peripheral circuit, ...

The newly developed inverter from Fraunhofer ISE can now feed directly into the medium voltage grid without a transformer, due to the use of high voltage transistors made of silicon carbide ...

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