

Equipment for contactless power transfer to a rotating component

Development status

Phase 3

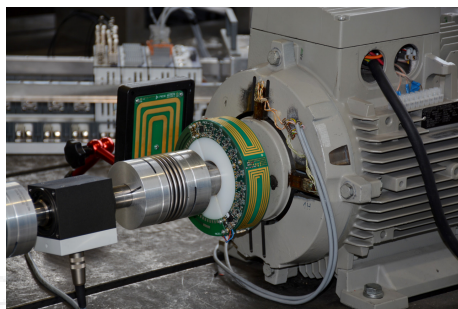
Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

utility model (31222), Czech patent (308445)

Partnering strategy

Collaboration, licensing



Institution



ZÁPADOČESKÁ
UNIVERZITA
V PLZNI

Challenge

A wireless power supply with dynamic high-frequency resonant coupling is one of the highly innovative technologies currently being used in a wide range of industrial fields. The presented solution allows sensory units situated on the rotor of an electric motor to be powered, ensures reliable reading of values in real time, and eliminates the disadvantages of currently used in-built batteries or the so-called "kroužkostroje" (slip ring). The costs of procuring the presented technology are also highly competitive compared to the aforementioned conventional solutions.

Description

A device for wireless power transmission (RF) to the rotor of an electric motor via an air gap or a gap formed by an insulating material. A system consisting of a transmitter and several antennas (receivers). The transmitter consists of a generator with an output cascade with an output filter in the ISM (Industry, Scientist, Medical) band. The antennas are additionally equipped with RF rectifiers and are interconnected using a DC busbar. It is a universal accessory which can be modified over a wide range, including additional installation in existing equipment. The transmission distance is in the tens of centimeters and transmitted power in the order of single-digit Watts. This technology allows data collection regarding temperature, actions of forces, microcracks, voltage, current and many other electrical as well as non-electrical values. Data readings can be transmitted wirelessly using a digital communication channel.

Commercial opportunity

This contactless power supply can be used for rotating or linear electrical machines or to power measuring electronics intended for online monitoring and long-term data collection from moving parts of equipment (motors, generators, turbines and wind turbine blades). The said technology is suitable, for example, for manufacturers of electrical

University of West Bohemia

machines as well as for retrofitting existing equipment.