Mobility Energy Environment

The Future is Wireless

Inductive energy transfer systems for electric vehicles

INTIS

The Technology

Inductive energy transfer systems operate like a transformer with an air-gap between the coils. An alternating electric current flows through a primary coil located in the road and generates an alternating magnetic field. This magnetic field passes through a secondary coil system which is attached to the vehicle, and induces a voltage and subsequent flow of current. With this principle, electric energy can be transferred into vehicles inductively and without direct contact.

For stationary charging applications, a charging plate is installed at a specific charging location. With dynamic charging, coil sections are built into the road and are activated consecutively, as electric vehicles pass above them, as per the diagram below. These charging sections are only operational when they are needed.

Inductive energy transfer systems have the benefit of maximum convenience for the driver, as charging is automatic and the system can even provide driving assistance. The road-side installation is hidden and vandalism-proof. Installation of this “invisible” technology leaves townscapes completely unaffected.

INTIS develops systems for stationary and dynamic inductive applications. Our coil layout is specifically designed to be low cost, use a minimum of materials and allow for easy installation in the road. Our system can easily be integrated into existing and future electric vehicles. The power our system can transfer is enough to meet all current vehicle energy requirements. The on-board battery can be reduced in size and will have an increased life with more frequent and lower powered charging. Lighter, more economical and more convenient with inductive charging, the electric vehicle (EV) can truly come into its own.

The Future

Simple & convenient No wires, no fuss, just drive. With user-friendly charging, drivers can get on with their jobs, whether their vehicle is stationary or on the move.

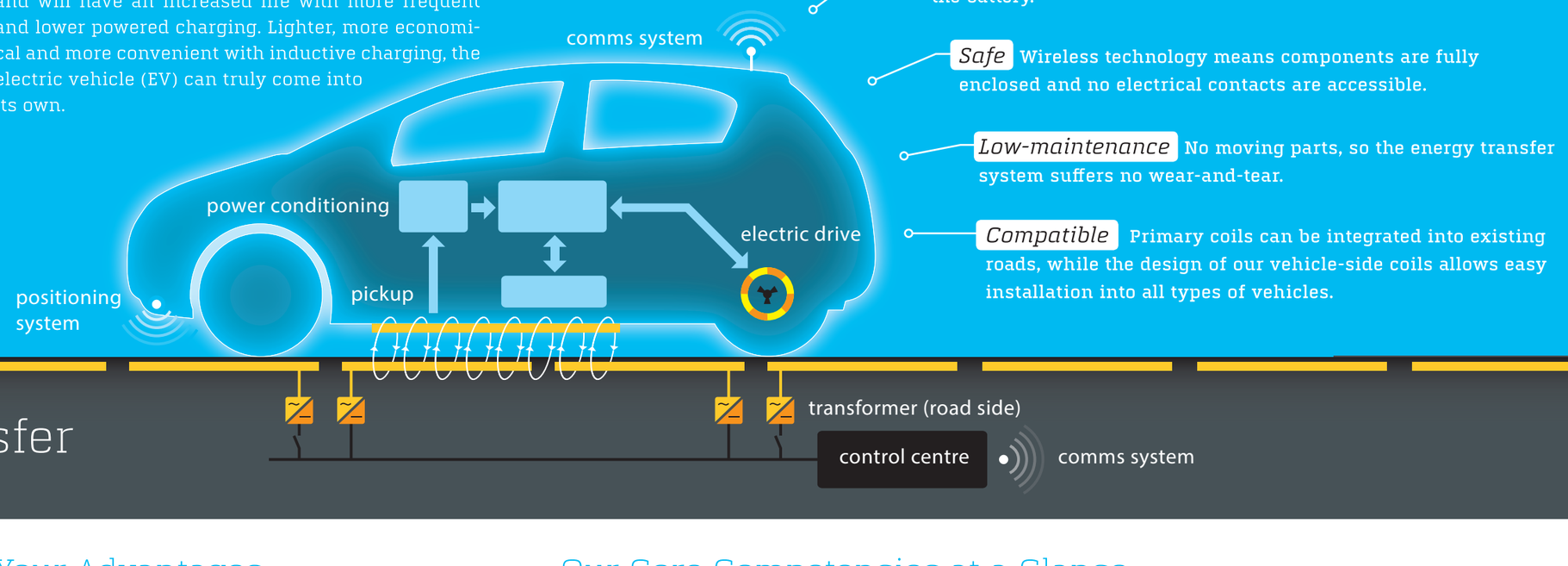
Invisible Townscapes remain unaffected, and infrastructure is vandalism-proof.

Battery-friendly Transmitted energy can be used directly for vehicle traction during a journey – without passing through the battery.

Safe Wireless technology means components are fully enclosed and no electrical contacts are accessible.

Low-maintenance No moving parts, so the energy transfer system suffers no wear-and-tear.

Compatible Primary coils can be integrated into existing roads, while the design of our vehicle-side coils allows easy installation into all types of vehicles.



Inductive energy transfer

Unique Advantages

Up to now, electric vehicles have not been accepted as widely as they could be. The main reasons for this are their limited cruising range, the necessity to recharge vehicles frequently at fixed locations and the length of time it takes to charge them. Inductive energy transfer systems change all this. They work without cables and allow a contact-free charging process. Additionally, charging is possible both when the vehicle is stationary and when it is moving (a process known as dynamic charging). Inductive transfer technology is a game-changing addition to current EV technologies and is going to have a decisive role to play in the acceptance of electric vehicles. The driver of a wireless and automatically charged vehicle can concentrate on the job, the journey or the joys of driving.

Your Advantages

Our customers benefit from our experienced engineers and technicians, together with the extensive portfolio offered by the IABG Group and our partners.

Our expertise is based on more than 10 years’ experience in the areas of sensor technology, power electronics and inductive energy transfer systems. We have one of the world‘s first test roads for inductive energy transfer systems, where customers can carry out testing and validation of stationary or dynamic inductive energy transfer systems.

Using customer-specific components for position detection and communication, we can examine the performance of complete systems under dynamic and realistic conditions. Insights gained during this testing and feedback process help our clients to rapidly develop mature inductive charging systems. *At INTIS, the technology of the future is being engineered today.*

Our Core Competencies at a Glance

As your partner and expert in this technology, INTIS develops components and complete systems which are customised to your specification – from design, through prototype, to the complete solution.

- Concept-creation and feasibility studies of inductive systems for energy supply and charging
- Examination and selection of coil topologies for inductive systems
- Calculation and design of primary and secondary topologies to customer requirements, with regard to power transfer, Electromagnetic Compatibility (EMC), position tolerances, weight and installation space, based on system modelling and simulation
- Construction and testing of vehicle and road-side coil systems, electrical and power-electronics components and energy supplies
- Facilities for testing and verification, including a test road for stationary or dynamic (on-the-move) inductive energy transfer systems

Getting to know INTIS

INTIS GmbH was founded in 2011 as a subsidiary of the IABG mbH and has its headquarters in Hamburg. As an engineering service provider, we specialise in integrated solutions in the mobility and energy sectors. At our test facilities, we develop and realise technologies that help to reduce environmental pollution and minimise use of resources.

The focus of INTIS' service portfolio is on the growing demand for modern transport and energy systems that are flexible and future-proof. Current focal points are control, drive and power supply systems for electric vehicle applications, as well as energy storage and management systems.

Mobility

Energy

Environment

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