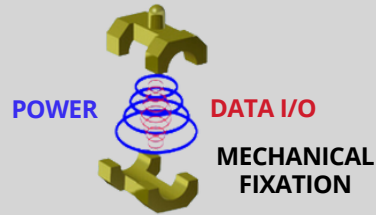


Secure transfer of energy and communications through contact in harsh or aquatic environments.



**MARKET NEED**

This technology offers solutions for challenges in various sectors:

- Use in **sterile rooms**
- **Reliable operation** in harsh environments
- Interaction and **electrical charging** in autonomous vehicle swarms
- **Fast and secure charging** of electric vehicles
- **Confidentiality** and **security** in information transfer

**CONTACT**

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**STAGE OF DEVELOPEMENT**

- Technology protected by **patent application**.
- Seeking collaboration to validate its use in different applications and for subsequent **technology transfer**.

**ENERGY AND COMMUNICATIONS TRANSFER DEVICE USING MAGNETIC FLOW**

The Space Magnetism Area of the National Institute of Aerospace Technology (INTA) is developing an innovative **bidirectional communication and energy transfer system** that adapts to any device through **self-configuration with its own mechanical attachment**.

It is a **wireless** and **reconfigurable** device with three main functions: **energy transfer (without power limitations), data transfer, and mechanical attachment**.

This device can have applications in various fields: in **modular systems**, as it allows for rapid replacement of components; in **sterile rooms** or **isolation units**, as it enables energy and data transfer through easily cleanable surfaces; in **harsh environments** such as **aquatic settings** or the **Moon's surface** with corrosive dust; in **autonomous vehicle swarm systems**, as it facilitates interaction between elements including electrical charging and energy transfer where needed; in **electric vehicle charging systems**, as it can provide rapid charging without emitting harmful electromagnetic radiation or affecting other equipment; and in **secure systems**, as the information remains confined within the device and is not emitted into space.

The device is based on an inductive system, specifically a magnetic circuit separated into two nodes. When the parts come into contact, the device functions as a transformer, enabling **bidirectional transfer of data** and energy. The system includes a **fixation mechanism** between the two parts to ensure their contact.

**ADVANTAGES**

- Versatile due to its self-configuring capability
- Intrinsically bidirectional system
- Wireless with no exposure of electrical contacts
- High performance
- Resistant to harsh environments, including aquatic settings
- Compatible with isolation rooms
- Secure communications against interference and jammers
- Energy transfer with no power limitations

