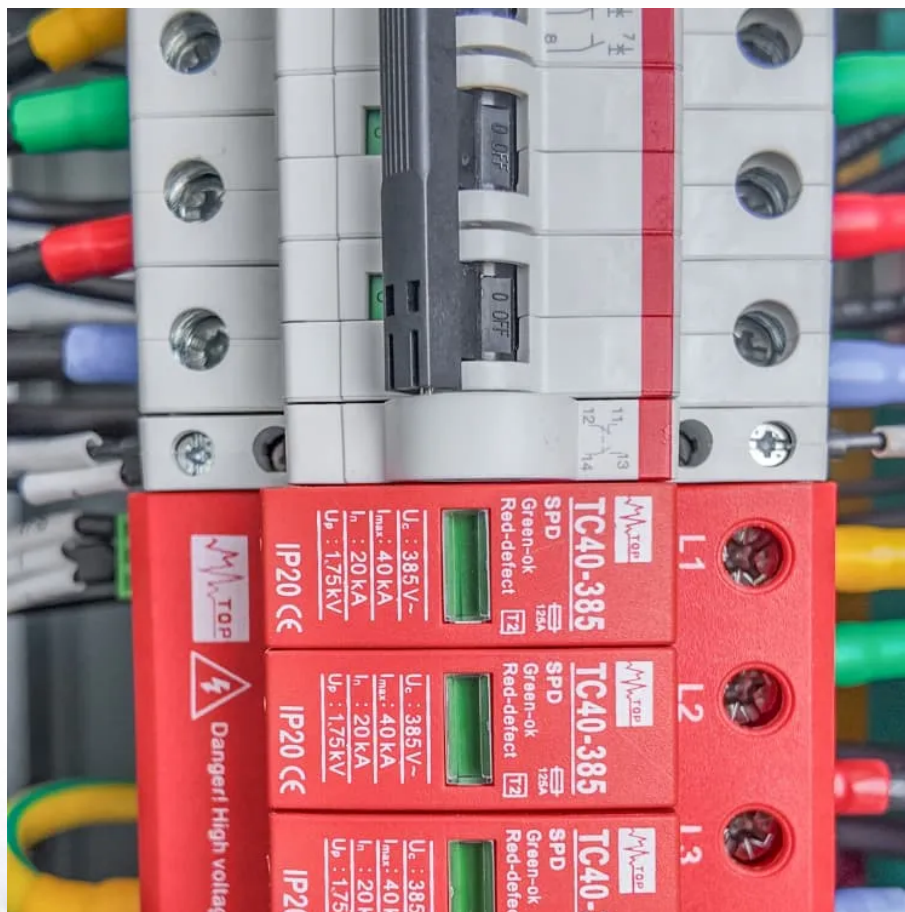


# Two-way charging for drone stations using foldable containers





## Overview

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Can a foldable coil and charge station be used for wireless charging?

The most suitable wireless charging technique for UAVs is inductive power transfer (IPT). In this paper, a novel foldable coil and charge station design is proposed for the wireless charging of UAVs. IPT is provided by receiver and transmitter coils placed on the drone legs and the charging station, respectively.

How does a wireless drone docking station work?

Fig. 3: Electrical scheme of the proposed wireless drone docking station, which consists of an ETU and an ERU. The system includes three wireless charging modules connected in parallel at the transmitter side. On the receiver side, the wireless charging modules can be connected in series or parallel.

What is a drone charging dock?

Drone charging docks are specialized stations where drones can land to recharge, undergo maintenance, or be inspected as needed. These stations are equipped with navigation systems that enable drones to connect, either physically or wirelessly, to the charging infrastructure.

How efficient is the folding wireless charging of a UAV?

The folding wireless charger of the UAV was designed to operate at 138.1 kHz and deliver an output power of 100 W. In the aligned condition, wireless charging efficiency reached 97.66% using the proposed folding coil design. Furthermore, it was achieved with over 85.48% efficiency up to 10 cm misalignment.



## Two-way charging for drone stations using foldable containers

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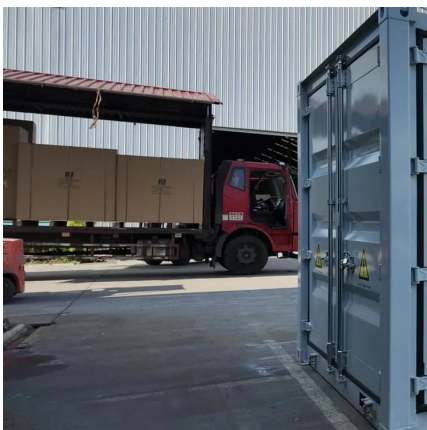
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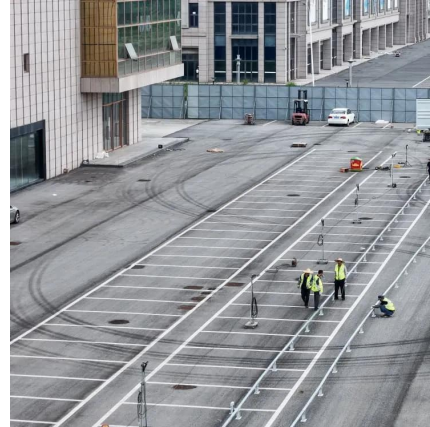






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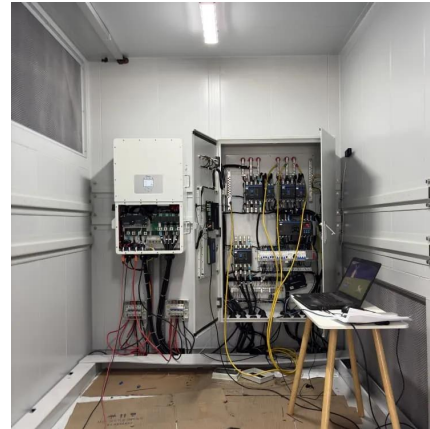
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