

High Current Inductive Charge Kit – 5V @ 1.3A max

PRODUCT ID: 4430

Inductive charging is a way of powering a device without a direct wire connection. Most people have seen inductive charging in a rechargeable electric toothbrush: you may have noticed that you recharge it by placing it into the holder, but there's no direct plug. These chargers work by taking a power transformer and splitting it in half, an AC waveform is generated into one, and couples into the second coil.

This is a basic charger set, and it does work, providing 5V DC output from the output half when the input half is powered with 9V to 12VDC. You can draw as much as ~1000mA if the coils are 2 or 3 mm apart. As the coils separate, the efficiency/coupling drops, so perhaps for 500mA use you could be 10mm apart.

Any non-ferrous/non-conductive material (eg air, wood, leather, plastic, paper, glass) can be used between the two coils. The material doesn't affect the distance or efficiency. The coils do need to be fairly co-axial; try to get them to be parallel and have the circles line up for best power-transfer. (This is why the electric toothbrush must fit into the plastic holder, it's lining up the two coils for best efficiency)

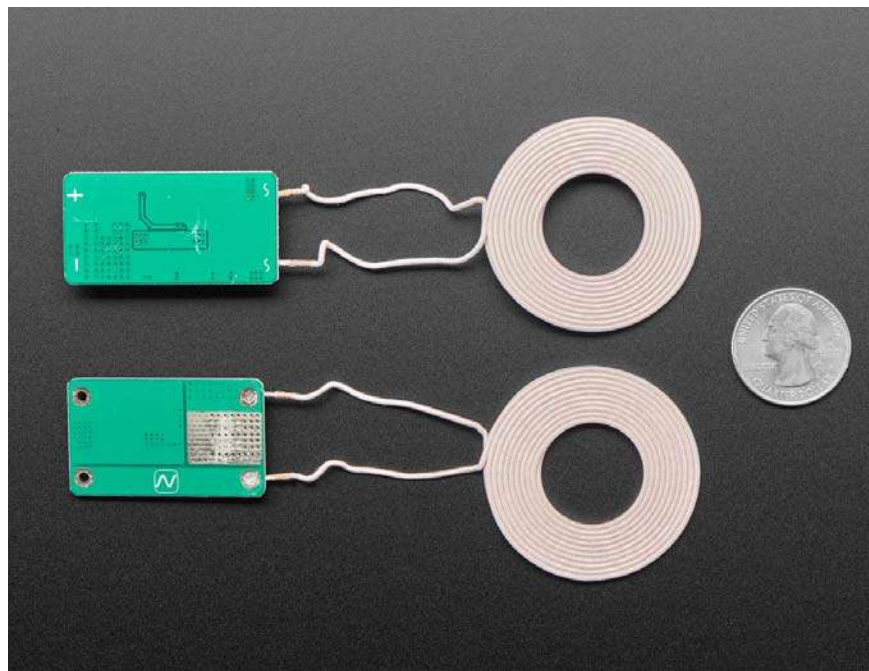
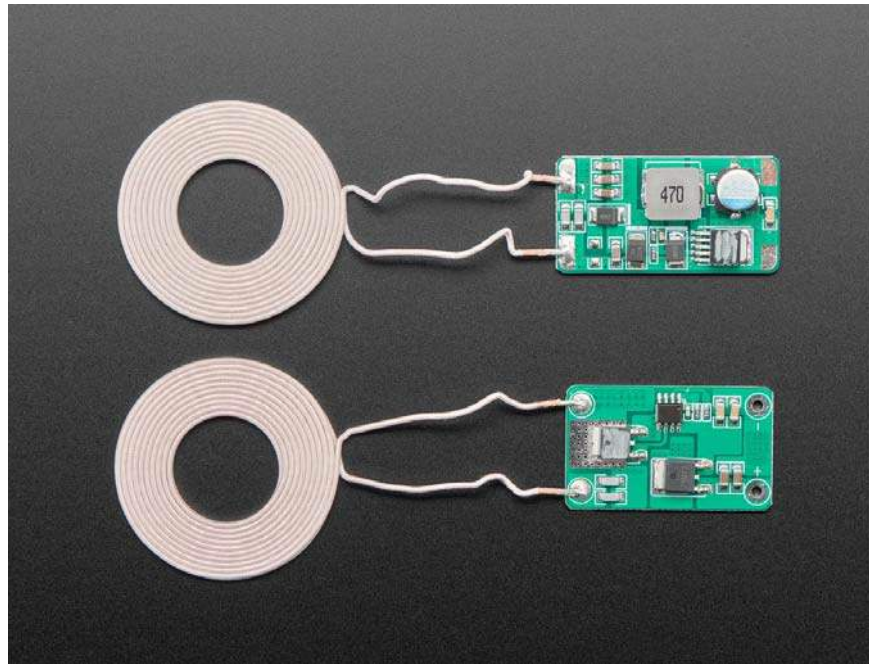
Because it's an air-core transformer, it's fairly inefficient. Only about 40% of the energy in shows up on the other end, but for low power or charging project. If you draw 5V 100mA on the output side (0.5W), you'll need $0.5W * 2.5 / 9V = \sim 150mA$ from the input end. The quiescent current is about 70mA at all time, even when the other coil is not anywhere near by.

These are basic modules, probably used for some low cost toy. We don't have any datasheets or specifications for them. The rectangle board with two chips on it is the transmitter (power with 9V). The board with the large square inductor is the output, and you can connect that to the part of your project that needs powering.

TECHNICAL DETAILS

Specs:

- Input voltage: 24V (can work in 9V ~ 30V wide voltage range)
- Maximum load current: 1.3A
- Receive output voltage and current: Receive output 12V / 1A when 8 ~ 10mm
- Transmitting coil size: outer diameter 43mm, thickness 2.3mm
- Transmitter module size: 16mm x 24mm
- Receiving module size: 10mm x 25mm x 3mm
- Receiving coil size: outer diameter 43mm, thickness 2mm
- Best receiving distance: 8 ~ 15mm



<https://www.adafruit.com/product/4430/1-27-20>